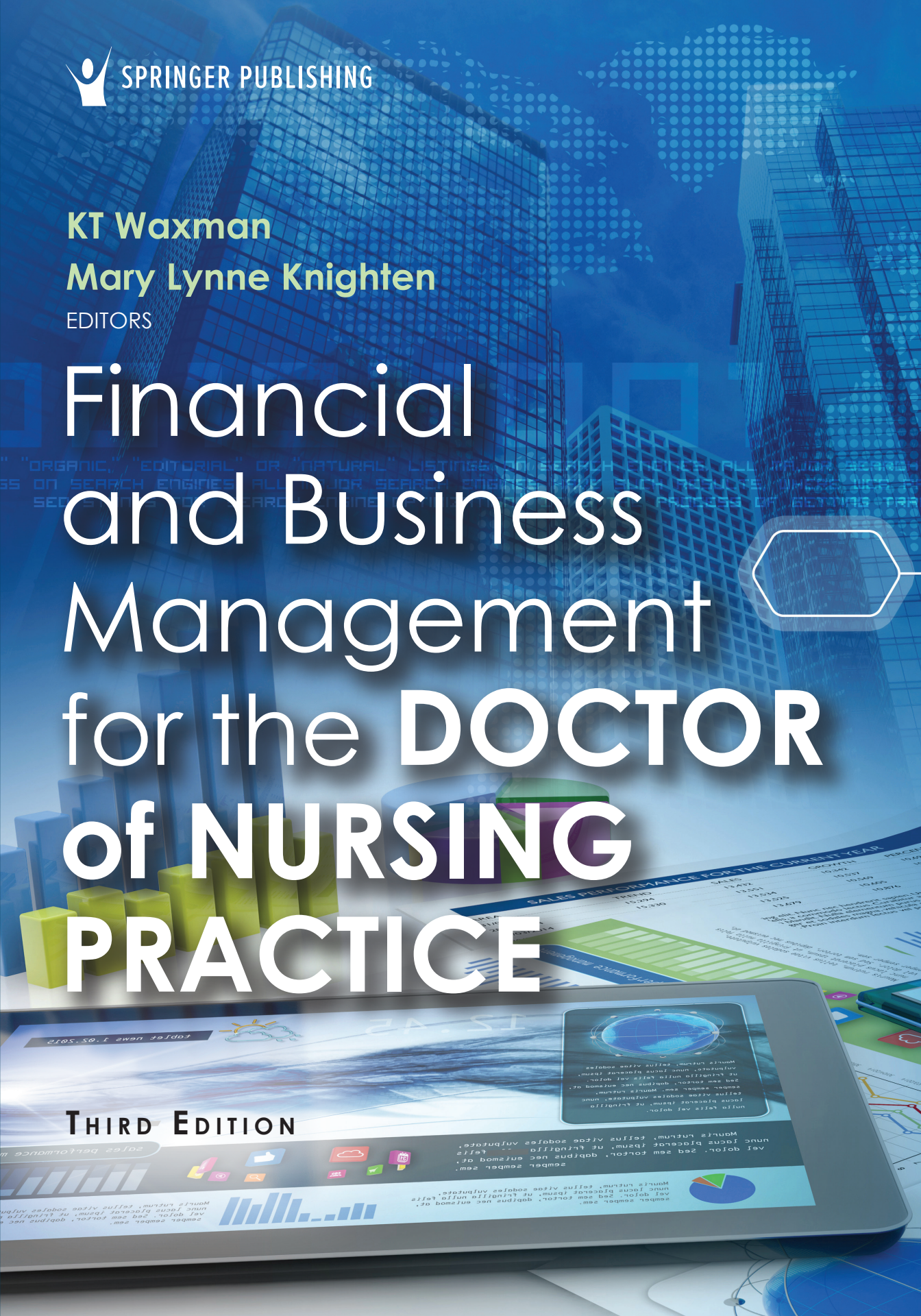
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KT Waxman
Mary Lynne Knighten
EDITORS
Financial and Business Management for the DOCTOR of NURSING PRACTICE
THIRD EDITION

Financial and Business Management for the Doctor of Nursing Practice

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FSSH, FAONL, FAAN, is a national nurse leader and executive with extensive experience in healthcare and corporate settings. She is a professor at the University of California, San Francisco (UCSF) and is the director of the Doctor of Nursing Practice (DNP) program. She is also the director of the California Simulation Alliance (CSA). In addition to her work at UCSF and the CSA, she is the editor-in-chief for *Nursing Administration Quarterly* (NAQ). An internationally known speaker and author, Waxman is also a past president of the Association of California Nurse Leaders (ACNL) and past board member, serving as treasurer, for the American Organization for Nursing Leadership (AONL). She is a past president of the Society for Simulation in Healthcare (SSH), an international, inter-professional organization.

Dr. Waxman's work has been published extensively and can be found in journals such as *Simulation in Healthcare, Clinical Simulation for Nursing, JONA, Journal of Nursing Education, NAQ, Nurse Leader,* and *Creative Nursing*. She has authored three books on finance and budgeting including this third edition of *Financial and Business Management for the Doctor of Nursing Practice*. She coauthored *Healthcare Simulation Program Builder*, is coeditor of *Comprehensive Healthcare Simulation: Nursing* to be published in 2022, and has authored several chapters in simulation and leadership textbooks.

Dr. Waxman received her DNP from the University of San Francisco, with an emphasis on health systems leadership and a concentration in clinical simulation. She holds certifications as Clinical Nurse Leader (CNL), Certification in Executive Nursing Practice (CENP), Certification as a Simulation Healthcare Educator (CHSE), and is a fellow in the American Academy of Nursing (FAAN), the American Organization for Nursing Leadership (FAONL), and the Society for Simulation in Healthcare (FSSH). To contact KT, please follow her on Twitter @ktwaxman and connect with her on LinkedIn (linkedin.com/in/ktwaxman).

Mary Lynne Knighten, DNP, RN, NEA-BC, is a board-certified nurse executive with more than 30 years of progressive management experience in leading patient care operations, developing staff, building clinical programs, improving patient satisfaction and quality outcomes, mitigating cost inefficiencies, controlling budgets, ensuring regulatory compliance, educating, conducting research, and negotiating contracts for major medical centers and teaching hospitals. She has taught RN-to-BSN and DNP programs at private faith-based universities.

Dr. Knighten is a recognized expert, international speaker, and published author in the areas of leadership, palliative care, patient- and family-centered care, patient/family engagement, grant writing, health policy, and faith community nursing. She is currently a reviewer for *Nursing Administration Quarterly* (*NAQ*), is on the editorial board of the *International Journal of Faith Community Nursing*, and is co-editor of this edition of *Financial and Business Management for the Doctor of Nursing Practice*, having authored the Healthcare Grant Writing chapter for the book's three editions. Her publications can be found in the *International Journal for Faith Community Nursing, the Journal of Christian Nursing,* AONL's *Voice of Nursing Leadership*, and *Perspectives*. She is a subject matter expert for the American Nurses Association Nurse Executive and Nurse Executive-Advanced certification exam prep courses.

Dr. Knighten earned a DNP in 2012 from the University of San Francisco's Executive Leadership program. Her expertise in patient- and family-centered care (PFCC) has resulted in sustainable PFCC practices, policies, and programs. She regularly consults with organizations regarding PFCC.

Dr. Knighten currently is associate professor and DNP clinical residency coordinator at Azusa Pacific University. She serves as program director for the Executive Leadership DNP Program, and is adjunct faculty in both the Executive Leadership and Population Health Leadership DNP programs at the University of San Francisco. She has served as an advisor, mentor, and committee member for DNP students at six universities. She has served as project director for the HealthImpact Perioperative Specialty Nurse Training Project and with California State University, Northridge, as well as consulted in areas of quality and patient safety, regulatory compliance, patient experience, finance and productivity, and disaster preparedness.

Financial and Business Management for the Doctor of Nursing Practice

Third Edition

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FSSH, FAONL, FAAN

Mary Lynne Knighten, DNP, RN, NEA-BC

Editors

SPRINGER PUBLISHING

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First Springer Publishing edition 2012; subsequent editions 2017

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Springer Publishing Company, LLC
11 West 42nd Street, New York, NY 10036
www.springerpub.com
connect.springerpub.com

Acquisitions Editor: Joseph Morita
Compositor: Amnet Systems

ISBN: 978-0-8261-6015-7
ebook ISBN: 978-0-8261-6016-4
DOI: 10.1891/9780826160164

SUPPLEMENTS:
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22 23 24 25 / 5 4 3 2 1

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Library of Congress Cataloging-in-Publication Data

Names: Waxman, KT, editor. | Knighten, Mary Lynne, editor.
Title: Financial and business management for the doctor of nursing practice / KT Waxman, Mary Lynne Knighten, editors.
Description: Third edition. | New York, NY : Springer Publishing Company, LLC, [2023] | Includes bibliographical references and index.
Identifiers: LCCN 2022006704 (print) | LCCN 2022006705 (ebook) | ISBN 9780826160157 (paperback) | ISBN 9780826160164 (ebook)
Subjects: MESH: Economics, Nursing | Nursing Services—economics | Big Data—economics
Classification: LCC RT86.7 (print) | LCC RT86.7 (ebook) | NLM WY 77 | DDC 610.73068—dc23/eng/20220316
LC record available at https://lccn.loc.gov/2022006704
LC ebook record available at https://lccn.loc.gov/2022006705

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Printed in the United States of America.

This book is dedicated to all of the DNP students and graduates from around the country who took the leap to obtain their doctoral degree. We applaud you all as you are making a difference every day in the lives of our patients, communities, and those we serve!

—KT Waxman and Mary Lynne Knighten

Contents

Contributors *ix*
Foreword Susan J. Penner, DrPH, RN, MN, MPA, CNL *xiii*
Preface *xv*
Acknowledgments *xvii*
Instructor Resources *xix*

PART I: The Big Picture of Healthcare Finance

1. The Economic Context of Nursing Practice in the United States 1
Benjamin J. McMichael and Joanne Spetz

2. Health Insurance and Reimbursement 25
Todd B. Smith and Teresa D. Welch

3. Nurse Practitioner and Nurse Leader Strategies for Practice and Population Health Management: Financial Implications 59
Lisa Duncan and Karen A. Van Leuven

4. International Healthcare Finance Trends 77
Michelle Machon

PART II: Budgeting, Strategic Planning, and Financial Statements

5. Budgeting in Acute Care Settings 111
ChrysMarie Suby

6. Indicators for DNPs Managing Outpatient Microsystems 155
Susan J. Penner

7. Strategic Planning and Capital Budgeting 169
Mikhail Shneyder

8. Financial Analysis and the DNP: Understanding Business Performance in Healthcare 199
Timothy Bock, KT Waxman, Carlton Abner, and Juli Maxworthy

PART III: Quality, Data Analysis, Legal Issues, and Ethics

9. Ensuring Quality Care While Controlling Costs 221
Juli Maxworthy

10. Basic Data Analysis Techniques for Nurse Leaders 247
Susan Prion

11. Role of Technology, Informatics, Artificial Intelligence, and Big Data in Healthcare Finance 271
Nicholas R. Webb

12. Legal, Ethical, and Policy Issues 295
Elena Capella

PART IV: Pulling It All Together

13. Project Management for Nurse Leaders 317
Elena Capella

14. Healthcare Grant Writing in Acute, Ambulatory, Academic, and Community Settings 345
Mary Lynne Knighten

15. Entrepreneurship and Innovation for Nurse Leaders: Developing a Business Case 377
KT Waxman, A. Christine Delucas, and Marjorie Barter

16. CNO–CFO Dyad: An Essential Relationship 395
Colleen A. Chapp and Kimberly A. Nagy

17. Making the Financial Case for Academic-Practice Partnerships: The ROI for Specialty Education 417
Nicolette Fiore-Lopez

PART V: The Future of Healthcare

18. Financial Management in Times of Uncertainty, Shortages, and Change 441
Connie A. Clemmons-Brown

19. The Efficient Hospital of the Future: Improving Patient Access and Patient Flow 465
Lisa J. Massarweh

Glossary 479
Index 497

Contributors

Carlton Abner, DNP, RN-BC
Associate Provost, Student Health and Wellness at Kansas City University, Kansas City, Missouri

Marjorie Barter, EdD, RN, CNL, CENP
Professor Emeritus, University of San Francisco, San Francisco, California

Timothy Bock, DNP, MBA, RN
Director Patient Care Services, Legacy Salmon Creek Medical Center, Vancouver, Washington

Elena Capella, EdD, MSN/MPA, RN, CNL, CPHQ, LNCC
Associate Professor, University of San Francisco, San Francisco, California

Colleen A. Chapp, DSL, MHA, MSN, RN, CENL, FACHE
Executive Vice President, Kirby Bates Associates, LLC, Orlando, Florida

Connie A. Clemmons-Brown, DNP, MBA, RN, CENP
System Senior Vice President, Patient Care Services, CommonSpirit Health, Chicago, Illinois

A. Christine Delucas, DNP, MPH, RN, NEA-BC
Associate Clinical Professor, DNP Program Director, University of New Mexico College of Nursing, Albuquerque, New Mexico

Lisa Duncan, DNP, MBA, RN, NEA-BC, CIC, AMB-BC
Vice President, Nursing and Clinical Compliance, Family Health Centers of San Diego, San Diego, California

Nicolette Fiore-Lopez, PhD, RN, CNEP
Chief Nursing Officer, St. Charles Hospital, Port Jefferson, New York; Adjunct Faculty, Graduate Program in Nursing Organization and Leadership, Stony Brook University, Stony Brook, New York

Mary Lynne Knighten, DNP, RN, NEA-BC
Associate Professor and DNP Clinical Residency Coordinator, Azusa Pacific University, Azusa, California; Executive Leadership DNP Program Director, University of San Francisco, San Francisco, California

Michelle Machon, DNP, MSN, RN, CPHIMS, CENP
Clinical Practice Transformation Leader, Office of Nursing and Clinical Practice, Kaiser Permanente, Oakland, California

Lisa J. Massarweh, DNP, RN, PHN, NEA-BC, CPHQ, CCRN-K
Senior Vice President and Chief Nursing Officer, Albany Medical Center, Albany, New York

Juli Maxworthy, DNP, PhD(c), MSN, MBA, RN, FNAP, FSSH
Associate Professor, School of Nursing and Health Professions, University of San Francisco, San Francisco, California

Benjamin J. McMichael, PhD, JD
Associate Professor of Law, University of Alabama School of Law, Tuscaloosa, Alabama

Kimberly A. Nagy, MSN, RN, NEA-BC
Senior Executive Healthcare Advisor, Kirby Bates Associates, LLC, Orlando, Florida

Susan J. Penner, DrPH, RN, MN, MPA, CNL
Adjunct Faculty, School of Nursing and Health Professions, University of San Francisco, San Francisco, California

Susan Prion, EdD, RN, CNE, CHSE
Associate Dean of Nursing and Professor, School of Nursing and Health Professions, University of San Francisco, San Francisco, California

Mikhail Shneyder, MBA, RN
President and Chief Executive Officer, Nightingale College, Salt Lake City, Utah

Todd B. Smith, PhD, MSHA, MBA, RN, NEA-BC
Assistant Professor, The University of Alabama, Capstone College of Nursing, Tuscaloosa, Alabama

Joanne Spetz, PhD, FAAN
Brenda and Jeffrey L. Kang Presidential Chair in Healthcare Finance, University of California, San Francisco, San Francisco, California

ChrysMarie Suby, MS, RN, ANP
President/CEO, Labor Management Institute, Inc., Bloomington, Minnesota

Karen A. Van Leuven, PhD, FNP-BC
Associate Professor, University of San Francisco, San Francisco, California

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FSSH, FAONL, FAAN
Professor and Director of the Doctor of Nursing Practice Program, University of California, San Francisco School of Nursing; Director of the California Simulation Alliance (CSA), HealthImpact, San Francisco, California

Nicholas R. Webb, DNP, RN, Esq
Regional Managing Director, Kaiser Permanente Northern California, Oakland, California

Teresa D. Welch, EdD, MSN, RN, NEA-BC
Assistant Professor, The University of Alabama, Capstone College of Nursing, Tuscaloosa, Alabama

We would like to thank those who contributed to a case study or critical thinking exercise:

Timothy Bock, DNP, MBA, RN
Sherry Cox, DNP, MS, RN-BC
Lisa Gifford, DNP, RN, CNL, HPCA
Sharon Goldfarb, DNP, RN, FNP-BC

Foreword

This third edition of Waxman and Knighten's *Financial and Business Management for the Doctor of Nursing Practice* follows one of the most challenging years ever experienced by healthcare patients and providers. In the 2021 edition of *The Essentials: Core Competencies for Professional Nursing Education,* the American Association of Colleges of Nursing promotes competencies for DNPs that include resource allocation, cost containment, knowledge of reimbursement models, and collaboration to provide effective and sustainable interventions. Given the current context of uncertain and often limited healthcare resources balanced against serious healthcare disparities and demands, it is beneficial that relevant competencies from *The Essentials* are threaded throughout the chapters in this third edition.

The groundwork for this textbook is laid out in Part I, which presents the context of U.S. healthcare economics, fundamentals of insurance coverage, population health management, and offers an overview of international health finance models. Part II presents budgeting concepts for acute care and outpatient settings, describes capital budgeting, and reviews financial statements. Part III presents concepts of quality management, data analysis and informatics, as well as legal, ethical, and policy issues that are all closely related to financial management in healthcare settings. Part IV helps the reader build skills in project management, grant writing, and entrepreneurship by offering insights into administrative partnerships within the C-suite and between healthcare and academic institutions. Part V discusses financial management strategies in these times of uncertainty and change, and envisions the hospital of the future.

This textbook serves as a guide to the theory and practice of financial management by DNPs, now and for years to come. It is practical, evidence-based, and up-to-date. I commend the editors and authors for their important contributions.

—Susan J. Penner, DrPH, RN, MN, MPA, CNL
Author of *Economics and Financial Management for Nurses and Nurse Leaders*, third edition
University of San Francisco School of Nursing
and Health Professions
San Francisco, California

Preface

The publication of the third edition of this book after the COVID-19 pandemic is very timely. We have updated all chapters and added some new topics such as managing outpatient microsystems (which, along with the existing acute care chapter, helps DNPs to budget along the continuum); building the CNO–CFO relationship; integrating technology, informatics, artificial intelligence, and Big Data in the nurse executive's healthcare finance role; and quantifying the value of academic-practice partnerships. Hospitals and health systems have had to pivot drastically as the world changed. Most hospitals lost a significant amount of revenue during the pandemic and most operating margins were under 0%. Labor costs increased and the sicker patients required more resources. These changes impacted the "bottom line" in healthcare and now, more than ever, nurse leaders and, in particular, nurse leaders with a DNP degree are needed to help manage costs.

As DNP graduates, we are prepared to lead in a variety of roles. In *The Essentials: Core Competencies for Professional Nursing Education*, the American Association of Colleges of Nursing (AACN) provides the framework needed to prepare members of the discipline of nursing to develop critical competencies in the ten domains described in *The Essentials* that represent the essence of professional practice (AACN, 2021). Synergistic executive alignment will be needed in the future to design, disseminate, and optimize organization imperatives that will demonstrate value for all healthcare stakeholders. DNPs not only need to understand the business of healthcare, but they also need to professionally brand themselves as key executive members of the healthcare team. All ten of the *Essentials* discussed at the advanced level are included in this third edition: Domain 1: Knowledge for Nursing Practice, Domain 2: Person-Centered Care, Domain 3: Population Health, Domain 4: Scholarship for the Nursing Discipline, Domain 5: Quality and Safety, Domain 6: Interprofessional Partnerships, Domain 7: Systems-Based Practice, Domain 8: Informatics and Healthcare Technologies, Domain 9: Professionalism, and Domain 10: Personal, Professional, and Leadership Development.

In this third edition, Dr. Mary Lynne Knighten joins me as coeditor. Mary Lynne, also a DNP graduate, is a former chief nurse executive who has extensive knowledge of healthcare finance and budgeting. We have changed the format slightly to contain five distinct sections: Part I covers the Big Picture of Healthcare Finance; Part II describes Budgeting, Strategic Planning, and Financial Statements; Part III moves into Quality, Data Analysis, Legal Issues, and Ethics. In Part IV, we "Pull It All Together" and wrap up with the Future of Healthcare in Part V. All chapter authors are experts in their subject matter and have contributed several critical thinking exercises to each chapter to help you further hone your skills. This edition also includes ancillary materials,

including an instructor's manual and PowerPoint presentations, available to qualifying instructors, by emailing textbook@springerpub.com.

Our ultimate goal is to provide DNP-prepared nurse leaders with the business acumen and financial skills needed to have meaningful conversations with CFOs regarding the value of nursing, to be able to build a comprehensive business plan, and to "talk the talk." Congratulations on making the important decision to obtain your DNP degree. Doors will open, you will think differently, you will speak differently, and ultimately you will contribute to the practice of nursing at a higher level.

—KT Waxman and Mary Lynne Knighten

REFERENCE

American Association of Colleges of Nursing. (2021). *The Essentials: Core competencies for professional nursing education*. https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

Acknowledgments

I want to thank the faculty and students who found value in the book, and provided feedback so we could launch a third edition. Over the past few years, I know that nurse leaders have become more financially savvy than in the past. I want to thank Dr. Susan Penner and Dr. Marjorie Barter, my mentors, who continue to gently push me to write and edit.

I also want to thank my family for their ongoing support throughout my entire career: my husband, Steve; daughters Ashley and Samantha; sons-in-law Tom and Brian; and grandchildren Olive and Meyer!

—KT Waxman

From being the girl who hated math in grade school to becoming a nurse leader who loves to analyze variances, calculate returns on investment, and quantify nursing value. I credit former CNOs who supported my walk through the fire of nursing operations and nursing finance, and CFOs who taught me the importance of telling the patient care story with financial illustrations (especially those brave enough to take field trips with me to the ICU and psych department). I thank the Lord for placing wonderful leaders in my path at the right time for the right reason in the right season—you know who you are. I am thrilled to be coeditor of this third edition with Dr. KT Waxman, who has been my professor, mentor, boss, and colleague. Finally, I wish to thank my husband, John D. Knighten, without whose love and support I could not accomplish all that I do.

—Mary Lynne Knighten

Instructor Resources

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing **textbook@springerpub.com.**

Available resources include:

- **Instructor's Manual**
- **Chapter-Based PowerPoint Presentations**
- **Transition Guide to Help Instructors Transition From Second to Third Edition**

CHAPTER 1

The Economic Context of Nursing Practice in the United States

Benjamin J. McMichael and Joanne Spetz

The provision of healthcare services occurs within the context of the healthcare system. Regardless of whether you are a nurse practitioner (NP), physical therapist, pharmacist, or home health assistant, the way you work is affected by how healthcare is financed and organized. The U.S. healthcare system has evolved over centuries, shaped by a combination of market economics and public policy decisions. In order to understand how healthcare financing and organization influence nursing care, one must understand the underlying economics of healthcare, as well as the legislative and regulatory policies that have shaped our system.

It is essential for the DNP to understand health economics in order to serve as a policy advocate, to provide leadership, to foster evidence-based practice, and to fully appreciate the scientific underpinning of practice. The patients who seek care from NPs and other health professionals are affected by the economic system in which they live. Economic factors, such as the price of healthy food, the link between education and pay, and the cost of transportation, influence the jobs your patients have, the choices they make about diet and exercise, and whether they seek healthcare when they need it. Understanding human behavior and developing care plans for patients must take these factors into consideration—therefore, **economics** is a part of the scientific underpinnings of good practice. Moreover, evidence-based practice involves delivering not only the care that has been proven most effective, but also the care that uses resources most efficiently and cost-effectively. The DNP role also provides leadership to improve the quality of care. To be successful, a leader must adapt to the organizational culture and economic context of the nursing practice environment. To be an effective advocate for improved health policy, one must understand the economics that drive not only the U.S. healthcare system, but also the healthcare systems of other countries.

This chapter explains the economic context of nursing practice, focusing on the organization and financing of the U.S. healthcare system. It begins with a discussion of the basic principles of economics and how decisions are made by comparing **marginal costs** with marginal benefits. Then, healthcare is connected to this economic framework, with a focus on why some aspects of a "free market" economic system do not apply to healthcare. This leads to a discussion of the fundamental economic problem that patients do not face the true economic costs of the care they receive, which all healthcare systems must address. The chapter concludes by considering how the United States is responding to its healthcare problems, including the effects of policy changes since 2010.

WHAT IS *HEALTH ECONOMICS*?

Principles of Economics

The discipline of economics involves the study of how resources are allocated. There are three key principles embedded in this definition. The first is that resources are scarce. In this sense, *scarce* does not mean that there are insufficient resources for people to survive. It simply means that no resource is infinite. A group of people might have access to only a certain land area, expect limited rainfall, enjoy only 24 hours in a day, and have a fixed nutrient base in the soil.

The second principle of economics is that resources can be used for multiple purposes, and decisions must be made about how to use them. Land can be used for housing, farming, or factories; waking hours can be used to work or for leisure pursuits. Individuals and communities must make decisions about how to allocate resources and time. Whether and how a resource is used can impinge upon the possibility of making another choice—for example, using land to grow a crop can preclude using that scarce land for grazing cattle or building houses. The lost value of what cannot be done once a decision is made is called the *opportunity cost*. So using land to grow corn has the opportunity cost of the value of using that same land to raise cattle.

The third key principle of economics is that people's preferences differ. Although one person might prefer to use land to grow apples, another person might dislike apples and want to grow pears. Heterogeneity of preferences—meaning peoples' differences in preferences—is important because it creates competition and debate about how resources should be used, and because it creates opportunities for trade between people.

Why Trade Occurs

Trade is motivated by people having different resources available to them, different skills for using those resources, and different preferences. Variation in resources and skills leads to variation in **productivity**, which makes it logical for people (or communities) to specialize their production. One person might be a skilled cattle rancher and have access to large amounts of grazing land, whereas another person might excel at growing tomatoes and have a smaller plot of rich soil. The person with the grazing land will be much more productive as a cattle rancher than as a tomato farmer, and vice versa. Both people will be better off if they specialize in the pursuit in which they have the productive advantage, and then trade cattle and tomatoes with each other.

Similarly, an NP has specialized skills in providing healthcare services, and a farmer has different skills. They each are better off working in their area of expertise, and then trading healthcare for food and vice versa. Money is a mechanism through which trade is facilitated—the NP receives money for providing healthcare services, which then is given to the farmer for food.

The Role of Preferences

People's preferences also affect decisions about consumption and trade. Not only is there variation in preferences across people, but also there is variation based on how much has already been consumed. For example, you might get a lot of pleasure from drinking a cup of coffee in the morning, and be willing to trade $3 for that coffee. But, after finishing that first cup of coffee, the second cup of coffee might not be quite as valuable to you. At some point, you will have had so much coffee that you are not willing to part with $3 to get another cup.

Economists often use the generic term *utility* to refer to the pleasure, value, or usefulness of something that is consumed or experienced. In this example, then, you are making a decision about whether the utility of another cup of coffee is greater than the utility of having that $3 to spend on something else. *Utility* can refer to the pleasure you

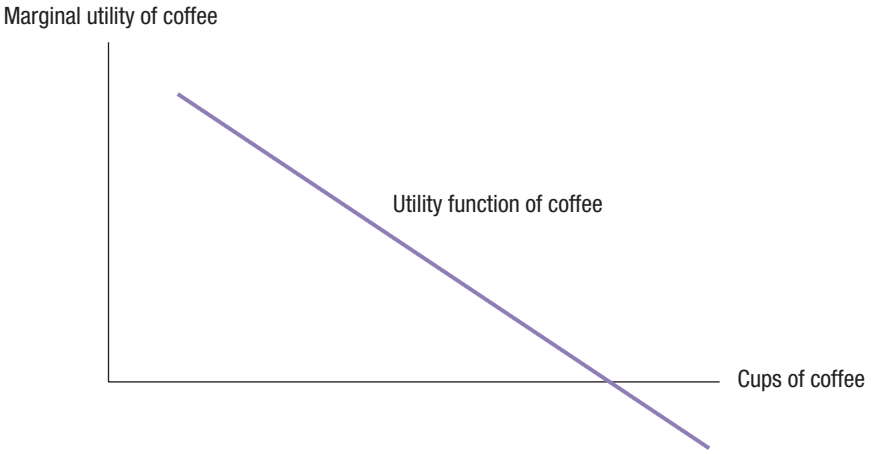

FIGURE 1.1 The marginal utility of coffee.

get from playing with your children, or from sleeping, or from feeling satisfied with the quality of your work.

Marginal Utility and Marginal Costs

This example illustrates the fact that people make decisions about consumption based on a comparison of the utility and costs of a product. But people do not simply make decisions based on the *average* utility and cost of a product. Decisions are made based on the *marginal* costs and utility. The **marginal utility** is the value of one more, given that a certain amount has already been consumed. As illustrated in Figure 1.1, the utility of each cup of coffee is lower than that of the previous cup. In other words, the marginal utility of coffee is declining. In fact, the utility of coffee can be negative—meaning it makes you worse off—when you have had a lot of it. You might get the jitters and feel nauseous, so even if the coffee were free, you would stop drinking it when the marginal utility of the next cup is negative.

The marginal cost of consumption can also vary—in fact, sellers often price their products so that there is a discount for purchasing larger volumes. If T-shirts are sold as "1 for $10 or 2 for $15," the marginal cost of the first T-shirt is $10, and the marginal cost of the second T-shirt is $5. The average cost if you buy two T-shirts is, of course, $7.50. When buying T-shirts, then, you are deciding whether the second T-shirt will give you $5 worth of additional utility, after you already have purchased one T-shirt. Figure 1.2

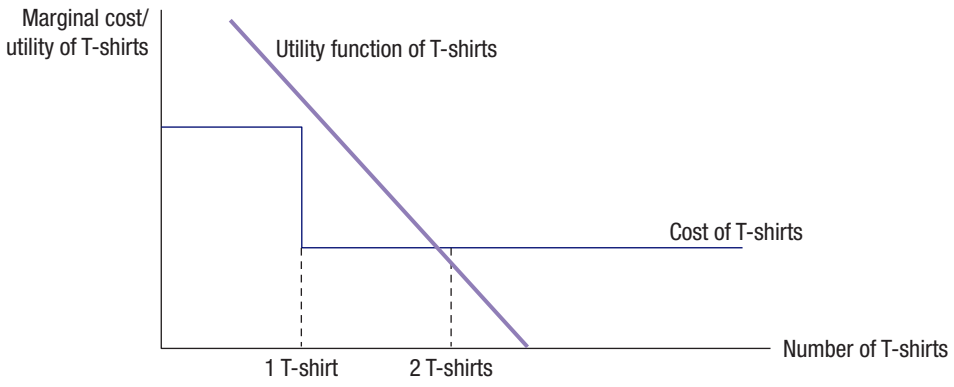

FIGURE 1.2 Comparing marginal costs and utility.

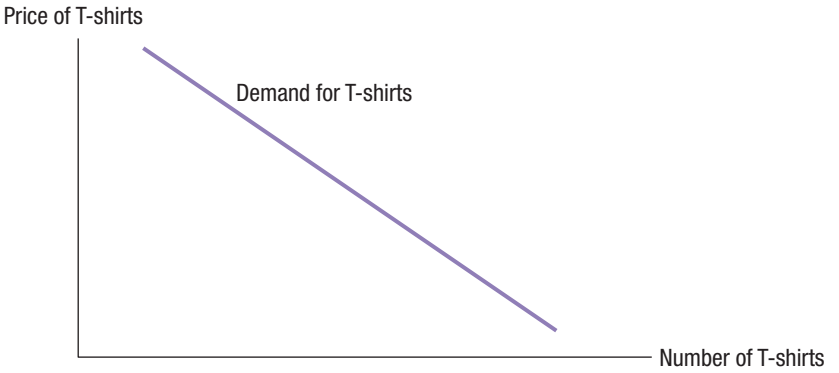

FIGURE 1.3 Overall demand for T-shirts.

illustrates this decision. The marginal utility of one T-shirt is higher than the marginal cost of that T-shirt ($10). But the marginal utility of the second T-shirt is lower than the marginal cost of $5. Thus, you will buy only one T-shirt.

In general, people will consume something until the marginal cost and marginal utility are equal to each other. If the marginal utility of the next item is greater than the marginal cost, then it is more valuable to you to consume one more item—and thus you will consume one more. If the marginal utility of the next item is lower than the marginal cost, then you will not consume it. As noted, this idea applies to both things you might purchase and ways you might spend your time. If the marginal utility of sleeping 8 hours instead of 7 hours is greater than the cost of missing 1 additional hour of work or leisure time, you will sleep 8 hours. But, if the marginal utility is lower than the cost of missing your favorite TV show, then you will sleep only 7 hours.

For most products, following the rule of balancing marginal cost and marginal utility will mean that as the price increases, people will demand less of the product. If the price of a cup of coffee rises, fewer people will find that the marginal utility of another cup of coffee is greater than the marginal cost and less coffee will be demanded. Thus, if the marginal utility line slopes downward, as in Figure 1.2, the overall demand will also slope downward, as in Figure 1.3.

Production Decisions

People or companies that produce goods and services make production decisions according to comparisons of marginal costs and **benefits**. Production costs can include expenses for factories, workers, and supplies. In many cases, the marginal costs of production decline as the quantity produced increases. For example, a company that makes aspirin may find that as the number of pills it makes increases, it can purchase the chemicals used to make the pills in bulk quantities and thus at lower prices. As illustrated in Figure 1.4, the change in cost of making aspirin declines as larger quantities are produced. Thus, the average cost of making a small amount of aspirin is higher than the average cost of making a greater number of pills. When a producer faces decreasing marginal costs, we say there are "economies of scale," in other words, there is a lower cost per item to produce a large quantity than a small quantity. The relationship between the amount produced and the cost of production is called the *production function*.

The demand for a product exhibits a relationship between price and quantity, as described in Figure 1.3. In general, as the price rises, the quantity demanded falls. This relationship also matches the marginal revenue that the producer can receive for the product. At low quantities, the producer might be able to charge a relatively high price, and thus the marginal revenue for each item sold will be high. But, as the quantity

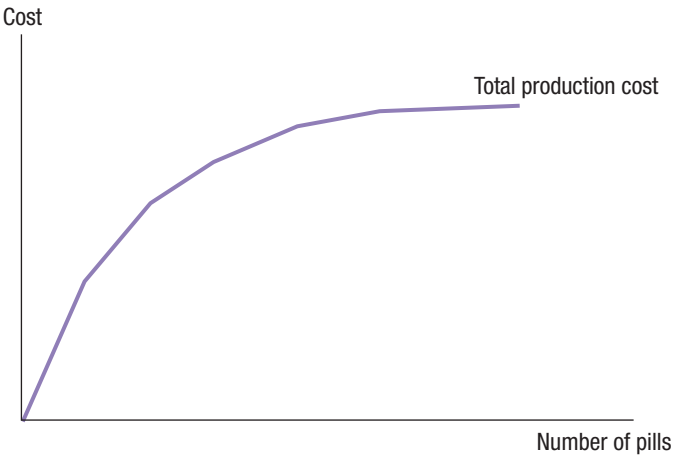

FIGURE 1.4 The total cost of producing pills: Diminishing marginal costs.

produced increases, the producer must charge a lower price to sell all of the product, thus receiving a lower marginal revenue.

A producer has an incentive to produce more of a product any time the marginal revenue is greater than the marginal cost. If the aspirin manufacturer can sell another 1,000 pills for $1 each, but it costs only 80 cents to make each of those pills, the manufacturer can earn 20 cents profit per pill and will clearly want to do so. But, if the aspirin company needs to drop the price to 70 cents to sell those next 1,000 pills, then the money received would be lower than the cost of production, and the company will not make more. Figure 1.5 illustrates this point. The optimal point of production and price is the **equilibrium** point where the production function and the demand (marginal revenue) intersect. This is the price and quantity we will see in the market.

This general principle applies to all goods and services that are produced or traded, whether by an individual or a company. It applies to employment decisions as well. An individual will make choices about how much to work based on the marginal revenue of work and the marginal cost. The **revenue** is the total compensation one receives for

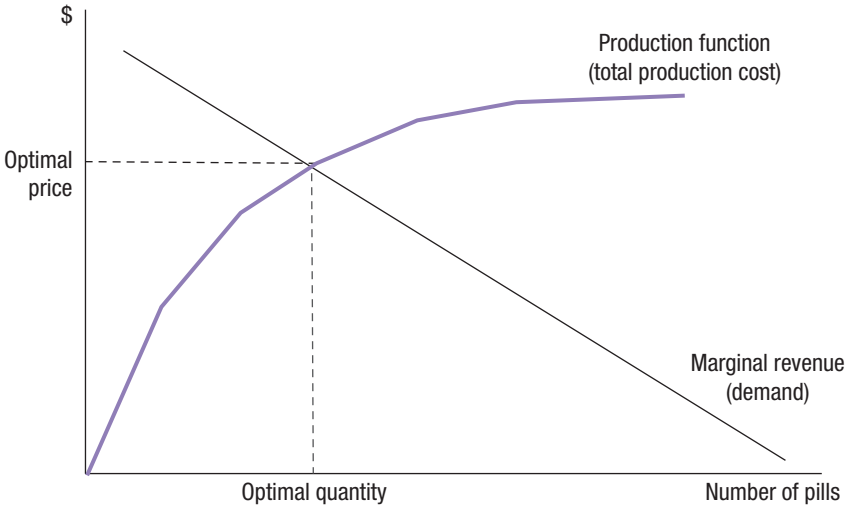

FIGURE 1.5 The producer's decision: Balancing marginal costs and revenues.

work, which can include both salary and satisfaction. The cost is the value of other things that are traded for working hours—in other words, the opportunity cost of work is the utility of leisure time. When a person can receive higher pay per hour, or finds that each hour of work provides greater satisfaction, that person is more likely to find that the marginal revenue of work is greater than the marginal cost of lost leisure time, and thus will work more. In this way, employers can increase the number of hours of work supplied to them by offering higher wages and better working conditions.

Equilibrium in a Market

The interaction between consumption and production creates a market. The market for nurses is shown in Figure 1.6. The supply of nurses increases as the wages offered to nurses rises, because the marginal value of work will exceed the marginal cost for a greater number of nurses. This is the line labeled *supply*. The demand for nurses declines as their wages rise, because the marginal revenue that can be generated by nursing labor will be less likely to exceed the marginal cost of nurses—this is the *demand* line in the figure. Wages and the number of working nurses are balanced where the supply and demand lines intersect, shown as W* and N* in Figure 1.6. If the wage is too low, such as at W^1, then the demand for nurses will be greater than the supply of nurses. Employers will be willing to offer a higher wage because the marginal revenue generated from more nursing work is greater than the wage. Thus, wages will rise. As wages rise, nurses will be willing to work more, because the marginal revenue of work will be greater than the marginal cost. Similarly, if the wage is too high, the imbalance between supply and demand tends to push wages down, until the equilibrium of W* and N* is reached.

Changes in Equilibrium

Because we live in a changing world, it is rare that the equilibrium point of balanced price and quantity is stable over time. Changes in production technology, preferences, and other factors can cause shifts in supply or demand that lead to changes in prices and quantities. It is important to understand these changes because they help us predict what might happen as conditions change.

Figure 1.7 illustrates what happens when there is a change in the demand–price relationship. In this example, demand declines so there are fewer nurses required at any given wage. This type of change could occur if there is an increase in the availability of other workers who substitute for nurses, which then would reduce hospitals' willingness to pay for nurses. Or, if the revenue from hospital care drops, hospitals can earn

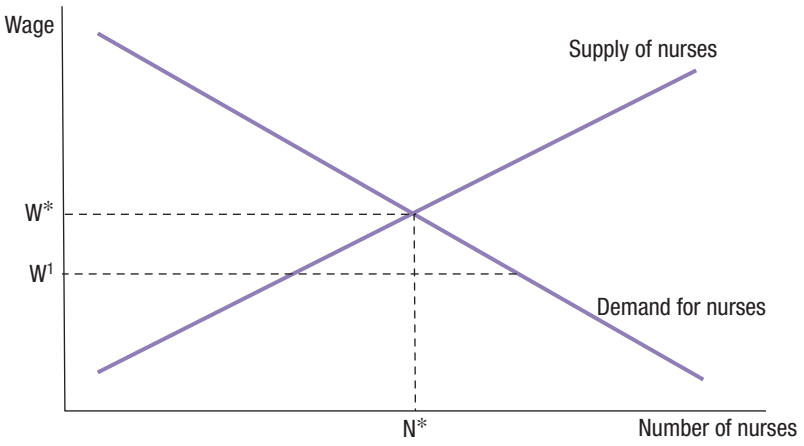

FIGURE 1.6 A labor market for nurses.

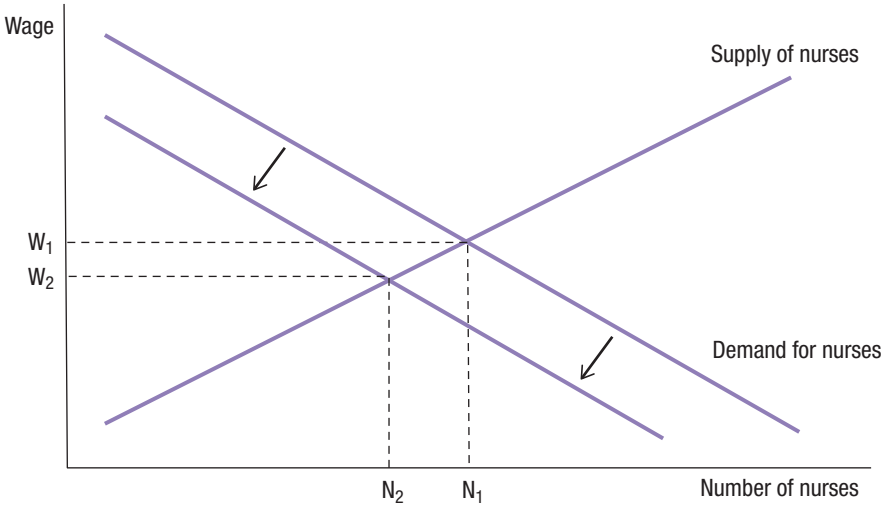

FIGURE 1.7 Change in equilibrium when there is a decline in demand.

less money for each patient and thus their demand for nurses might drop. When the demand line shifts, there is greater supply than demand at the old price of W_1. As a result of the excess supply, wages will decline, and the end result will be lower wages (moving from W_1 to W_2) and lower employment (from N_1 to N_2).

Demand can also increase, as shown in Figure 1.8. This can occur if, for example, hospitals decide that employing more registered nurses will lead to higher quality, and thus will help to bring more business to the hospital. At the same wage, hospitals will want to employ more nurses; this is represented by an upward shift in the demand line. The old wage W_1 is "too low," and hospitals will push wages upward as they compete against each other to hire nurses. As the wage rises to W_2, more nurses will choose to work, and the market will reach a new equilibrium at W_2 and N_2.

Supply shifts occur in labor markets as well. If there is a large influx of nurses, such as when nursing schools expand rapidly, there are more nurses available to work at the same wage. This is depicted in Figure 1.9 as a shift to the right of the supply line. Employers will find that they can hire the number of nurses they want at a lower wage, so wages will drop. And, when the wage is lower, employers will want to hire more

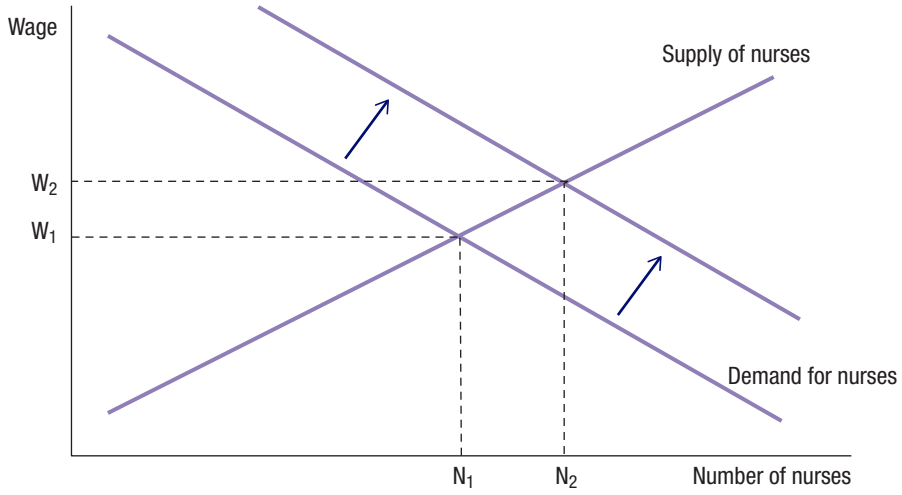

FIGURE 1.8 Change in equilibrium when there is an increase in demand.

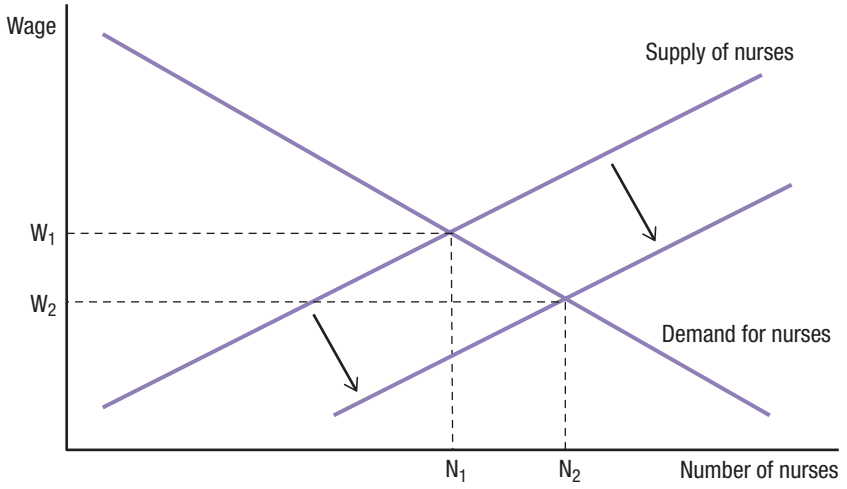

FIGURE 1.9 Change in equilibrium when there is an increase in supply.

nurses. Thus, the wage will decline from W_1 to W_2, and the number of employed nurses will rise from N_1 to N_2.

A drop in the supply of nurses—such as a large wave of retirements—would move the supply line in the opposite direction. Figure 1.10 illustrates this scenario. At the wage W_1, there is greater demand for nurses than supply, and thus wages will be pushed upward to W_2. At this higher wage, employers will not be able to afford to hire as many nurses, so the employment of nurses will drop.

When predicting the effects of changes in the labor market, one must be careful not to confuse changes that occur along existing supply and demand relationships with changes that occur due to shifts in supply and demand. If there has not been a fundamental change in the number of nurses who are willing to work at a certain wage, or in the number of nurses that employers want to hire at that wage, the market could still be out of equilibrium if wages are too high or low. This could occur if, for example, a union negotiates a better benefits package, so that overall compensation rises. As depicted in Figure 1.11, this would move the "wage" (or total compensation) from W_1 to W_2, and at W_2 there are more nurses willing to supply their work than demand. Over time, the employer will strive to reduce overall compensation—perhaps by limiting wage increases

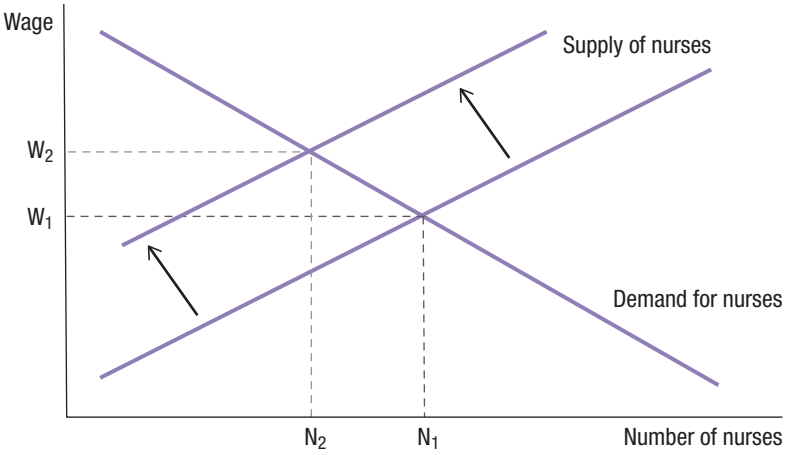

FIGURE 1.10 Change in equilibrium when there is a decrease in supply.

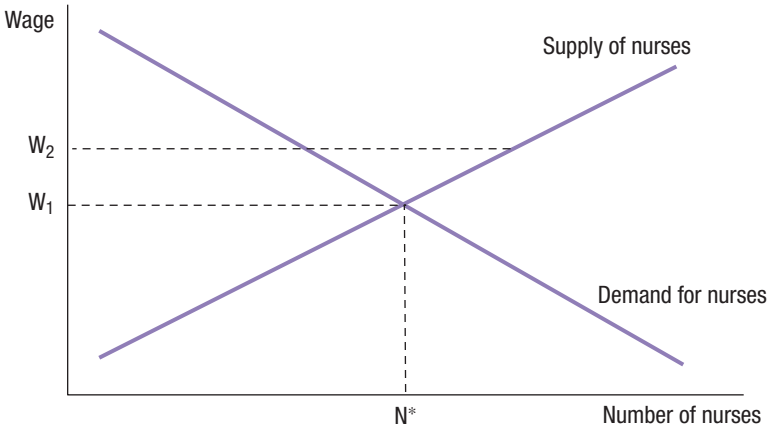

FIGURE 1.11 Change in equilibrium when there is not a fundamental change in supply or demand.

or reducing other benefits—until the total compensation has returned to W_1 and the market is in balance again.

The Concept of a "Perfect Market"

When there is an imbalance between demand and supply, the price of the product or service adjusts to rectify the imbalance. In this way, market prices convey important information. High prices signal to potential sellers that they can profitably enter a market, increasing the supply of a scarce good and decreasing the price. Low prices encourage potential buyers to enter markets and consume more of the good. In the preceding examples, shortages or surpluses of nurses pushed wages higher or lower, which would end the shortage or surplus. When this type of adjustment can occur naturally, the market is described as *perfectly competitive* or as a *perfect market*. For a market to be perfect in this sense, the market needs to have several attributes.

First, the product or service being exchanged in the market needs to be homogeneous—in other words, the quality and characteristics of the product need to be identical. If products have different quality or include different attributes, then price differences can emerge, and this can affect overall movements of prices.

Second, buyers and sellers need to have perfect information about the attributes of products, prices, and the effect of the product on their own marginal utility. If such information is not well known, then buyers and sellers might inadvertently estimate that the price should be higher or lower than what would create equilibrium.

Third, sellers and buyers of products or services need to be able to enter or exit the market freely. If it is difficult for a person to start selling a product, then it will be difficult for the supply to rise even if the price increases. Similarly, if it is difficult to become a buyer, then, even if prices drop, there may not be an increase in demand.

Finally, there need to be many buyers and sellers of the product or service. When there are many nurses willing to work, and wages are too high, some of those nurses will be willing to accept a lower wage to get a job—and if they do not, then another nurse will get the job. Similarly, if there are many employers, and wages are too low, then at least one employer will raise wages in order to attract more nurses—and other hospitals will follow suit. But, if there is only one employer, the employer may (correctly) believe that they do not need to raise wages to compete against other employers, and instead will permanently report that they cannot find enough nurses to work.

Healthcare in the Economic Framework

Although a large body of economic theory and research focuses on perfect markets, most health economists agree that perfect markets do not exist in most aspects of healthcare. First, the products and services provided in the healthcare sector are not homogeneous. Though two nurses may have attended the same nursing school and care for patients at the same hospital, the fact that one provides critical care in the emergency department and the other works in labor and delivery means that their services are not homogenous. Even within the same specialty or setting, NPs, RNs, physicians, and other professionals have unique skills and each offers somewhat different products. One NP might be an excellent communicator, whereas another might excel at diagnosis. Artificial joints have different qualities, which create different, smaller markets that are less competitive. And those who demand healthcare services and products—patients—are not **homogeneous**. Each patient has different needs and different preferences. Patients respond differently to pharmaceuticals, they recover differently from surgery, and they make different choices about end-of-life care.

Second, healthcare is rife with imperfect information, with providers possessing better information about a patient's condition than the patient. Even with this better information, there is often uncertainty about diagnosis and the best course of treatment. Once a diagnosis or treatment plan is established, however, patients have little ability to judge the quality of that diagnosis or plan because they lack the training possessed by providers. Unlike markets for goods like candy bars or lawn-care services, where consumers can easily evaluate the quality of the relevant good, patients in healthcare markets can find it difficult to get accurate information about the quality of care provided by health professionals, hospitals, nursing homes, and other care providers. Across nearly every dimension of healthcare, there is a lack of information that inhibits markets from functioning well.

Third, free entry or exit do not exist in the healthcare market. To combat the problems associated with imperfect information, states only allow certain individuals and organizations to provide healthcare services. Only individuals who have undergone appropriate training may be licensed as nurses, NPs, physicians, or other health professions. By setting minimum qualifications through licensing laws, states attempt to combat the problem that individuals cannot evaluate whether a clinician will provide high-quality care. Similarly, state and federal law govern hospitals and hospital-provided care. Drugs and medical devices must also proceed through lengthy regulatory processes with the Food and Drug Administration before they can be marketed to patients.

Finally, there often are not many buyers or sellers in a healthcare market. In our nursing labor market example, we know that nurses must be licensed to practice registered nursing, and there are a limited number of people who have met the qualifications for licensure. Healthcare settings that employ nurses, such as hospitals, require large **capital** investments, licensure, and a sufficient demand from potential patients to continue their operations. Thus, there are a limited number of employers able to purchase nursing labor. In the long term, the number of nurses can increase, as can the number of employers, but in the short term the market is not perfectly competitive.

Imperfect Competition in Nursing Labor Markets

Many of the problems that affect the market for healthcare in general can be found in the nursing labor market. As discussed earlier, there are a limited number of employers of nurses, and there are restrictions on the entry of nurses into the profession. Licensure

requirements cause delays between increases in wages and increases in supply, which can cause a shortage to persist for several years. Thus, if there is an increase in demand, as in Figure 1.8, the adjustment to the new wage W_2 may take several years, and during that interim shortages will be reported. This is thought to be an important explanation for recurrent shortages in the RN labor market (Brewer, 1996; Buerhaus, 1991; Yett, 1975).

Moreover, employers can be slow to react to changes in the labor market. When there is a shortage, employers should increase wages to induce more nursing supply. However, employers' ability to raise wages is often tied to annual **budgeting** processes, so they might be slow to offer higher compensation. They also may be in multiyear contracts with unions, and feel that they should wait until the next contract negotiation to make changes to wages. These delays in wage increases further slow the adjustment of the labor market.

When employers increase wages in response to a shortage of nurses, they should also reduce their demand for nurses. However, they may be unwilling or unable to adjust staffing (Spetz & Given, 2003). They may believe that good staffing is important for securing and maintaining **insurance** contracts and a steady flow of patients. They also may face regulations that prevent them from reducing staffing, such as in California where there are minimum nurse-to-patient staffing regulations. This scenario is depicted in Figure 1.12. The supply line appears as it is in the classic model, but the demand line is kinked, so that demand is never lower than N_{min}. If demand were not regulated, the market would be in equilibrium at wage W and number of nurses N. However, because demand cannot go below the minimum, demand is stuck at N_{min}. This forces the wage to be W_{min}, which is higher than the competitive wage. Research on California's minimum staffing regulation has found that RN wages in California rose more rapidly compared with other states after the regulation was implemented, which would be predicted by this model (Mark et al., 2009).

When there is a surplus of nurses, such as in Figure 1.11, wages are even slower to decline. It is rare for employers to force a reduction in wages on employees. What occurs more often is stagnant or slow wage growth, which is outstripped by increases in the cost of living. Thus, over time, inflation-adjusted wages gradually decline. This was observed in the mid-1990s when demand for nurses dropped as managed care health insurance expanded. RN wages did not keep up with inflation, so that between 1993 and 1997 average inflation-adjusted wages had declined (Spetz, 2004).

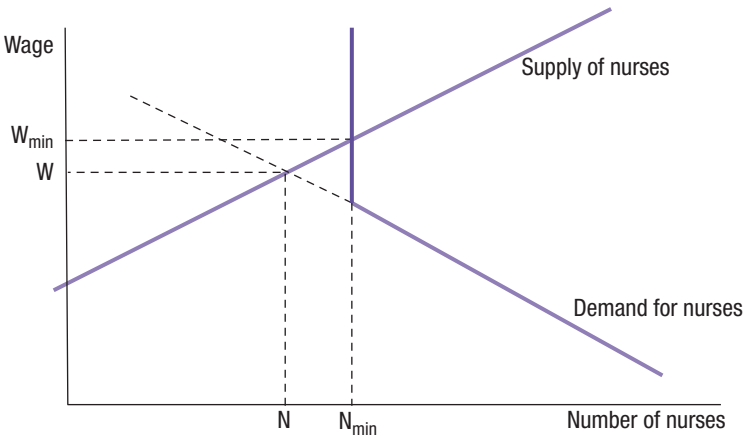

FIGURE 1.12 The effect of minimum staffing regulations on the nurse labor market.

The Role of Health Insurance

Health insurance plays an important role in the healthcare system of the United States. In order to understand how insurance impacts the economics of healthcare, one must first consider the purpose of insurance. All types of insurance are intended to protect people from **risks**, primarily financial risks. People purchase insurance for their homes so that they do not suffer an enormous financial loss if there is a fire, and auto insurance protects them from the cost of repairing their car and paying medical bills in the event of an accident. Note that insurance does not normally cover the cost of regular home or car maintenance, nor does it prevent calamities. It simply provides financial protection.

Insurance is a normal market response to uncertainty and risk, and naturally occurs in a competitive market when such uncertainty exists. However, the existence of insurance can change people's behavior in important ways. If people have auto insurance, they may be less concerned about whether they are parking their car in an area prone to auto burglaries. Similarly, if people have health insurance, they may be less concerned about certain health-related risks because the cost of care is covered.

More important, many health insurance plans cover not only the costs associated with major health events, but also the costs of routine care. In this way, health insurance differs materially from other types of insurance. Although most people expect that their health insurance will cover routine visits to their primary care provider, very few expect that their car insurance will cover routine oil changes. The addition of routine-care coverage to insurance probably has its roots in both an effort by insurance companies to compete for customers and the belief that paying for routine care might prevent higher cost care in the future. Regulatory changes over the past half century have also moved health insurance towardgreater coverage in general. But when people have insurance coverage for every visit they might make to the doctor, the price of seeking care is smaller for each visit. In other words, the *marginal cost* of seeing the doctor is lower. This leads people to seek more care than if they had to pay the **full cost** directly, because the marginal cost is more likely to be below the marginal benefit. Even if the price of the health insurance plan more than makes up for the cost of each office visit, the prepaid nature of insurance changes behavior on the **margin**. Economists call this *moral hazard*.

The Fundamental Problem of Healthcare Policy

The combination of health insurance and moral hazard creates a problem that every nation with a developed economy faces. Insurance is a natural response to uncertainty and risk, such as exists in healthcare, and thus it is a normal product in a developed economy. Insurance, however, creates moral hazard. Figure 1.13 illustrates this. The diagonal line is a stylized depiction of the marginal benefit of healthcare. For most types of healthcare services, as with most other products, the marginal benefit to the patient declines and the quantity consumed rises. The first visit to the NP can have very high value to the patient, but the 10th visit has much less value on the margin. In this example, the true cost of care is the same for all levels of consumption, at C_1, which reflects all the costs of the personnel, equipment, and supplies used to deliver healthcare. In truth, there might be economies of scale, so the marginal cost of providing healthcare is declining, but for this example we assume the marginal cost is constant.

If there were no health insurance, patients would pay the true economic cost, C_1, and they would thus demand healthcare at the point where the marginal cost and marginal benefit are equal—at Q_1. However, people do have health insurance. Even if health

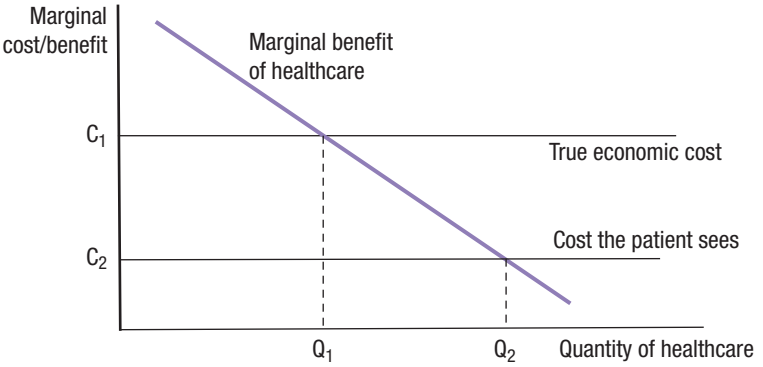

FIGURE 1.13 The fundamental problem of healthcare.

insurance requires the patient to pay a portion of the cost of care—such as a 10% copayment—the marginal cost the patient pays for each service, C_2, is well below the true cost of C_1. And, at this lower marginal cost, the patient will demand much more care, at Q_2. This is not only more care than the individual would otherwise demand, but it is more care than is optimal for the economy as a whole. The full marginal cost to society is C_1, but with patients demanding Q_2 care, there is a large difference between the social optimum and the actual consumption.

Another way to view the fundamental problem of healthcare is the failure of prices to serve as meaningful signals of value. In many of the previous examples, market participants changed their behavior—entering or exiting markets and changing the amount of a good they supplied or demanded—in response to changes in prices. When individuals have health insurance, they are essentially insulated from price changes in healthcare markets and fail to change their behavior in response to changes in prices. The difference between the socially optimal amount of healthcare consumption and the actual consumption that occurs when individuals have health insurance places a large opportunity cost on society. Resources are diverted in a suboptimal way from other things—such as schools, parks, and personal purchases—toward healthcare.

Whether a nation has a single-payer healthcare system, with the **government** controlling nearly all healthcare services and financing of the system through taxes, or a nation has a multipayer, market-based system such as the United States, it faces the problem of moral hazard. Nations with highly controlled and centrally financed healthcare systems often try to address this problem by establishing controls over how much care people can receive. This might involve explicit rationing or implicit controls such as limiting the number of hospital beds available in a community. In nations with less coordinated healthcare systems, it can be harder to address this problem. In these countries, the public is generally unwilling to accept strict rationing or government control, and insurance companies have little need to control expenditures because they can simply charge higher annual premiums to make up the difference.

U.S. HEALTH FINANCING AND REFORM

How Healthcare Is Financed in the United States

Healthcare spending in the United States reached $3.8 trillion in 2019, amounting to 17.7% of the nation's gross domestic product (GDP; **Centers for Medicare & Medicaid Services [CMS]**, 2021). Growth in healthcare spending was more than 6% per year from

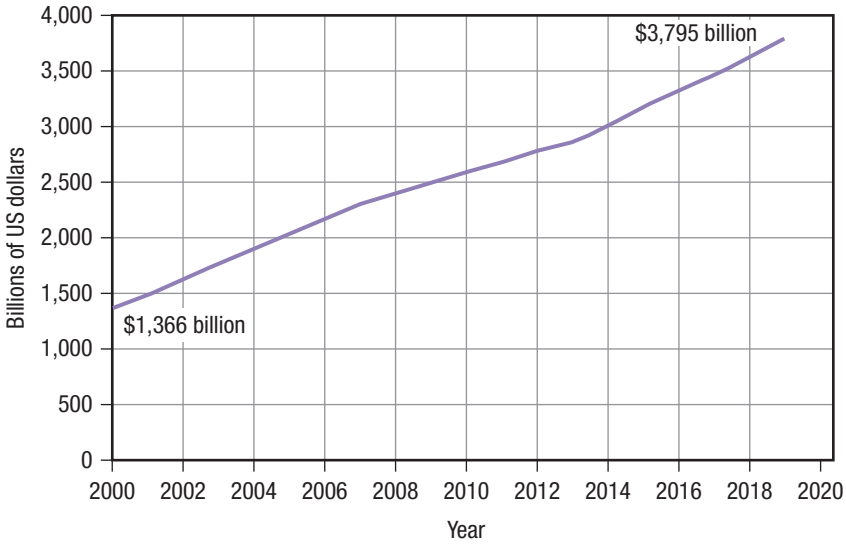

FIGURE 1.14 National healthcare expenditures, United States, 2000–2019.

2000 to 2007, and then dropped to lower levels from 2009 to 2013, ranging between 2.9% and 4.1%, as shown in Figure 1.14. However, spending growth increased again in 2014, at 5.3%, and again in 2015, at 5.8% (Martin et al., 2017). The slowdown in health spending growth followed the economic recession that began in December 2007, coinciding with a slow economic recovery. The uptick after 2014 occurred as there were expansions in health insurance coverage due to the Affordable Care Act of 2010 (ACA), which was designed to expand health insurance coverage for poor adults, near-poor individuals and families, early retirees, young adults, the self-employed, and those working in small businesses that do not offer health insurance to employees. This legislation is discussed in more detail in a later section.

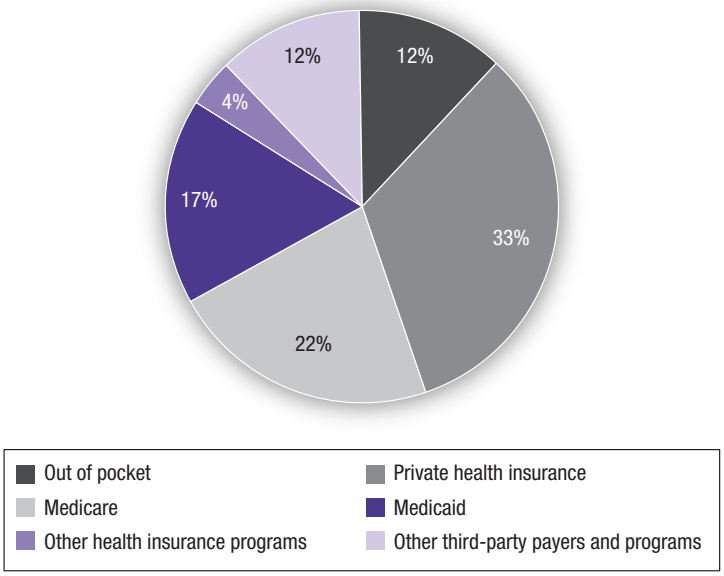

FIGURE 1.15 Sources of healthcare spending, United States, 2019.

The U.S. healthcare system is financed through a mix of public (government) and private payments (Figure 1.15). The main government programs that support healthcare are the **Medicare** program, which provides health insurance for the elderly and disabled, and **Medicaid**, which offers health insurance to people and families with low incomes and/or disabilities. Medicare was established in 1965 to provide hospital and outpatient insurance for people 65 years and older, as well as those who are disabled. The portion of Medicare that covers hospital care is fully funded by the federal government with automatic enrollment. Medicare insurance for outpatient care and pharmaceuticals is voluntary, partially subsidized by the government and partly paid by enrollee insurance premiums.

Medicaid also was established in 1965 and is a partnership between the federal and state governments. The federal government offers funds to participating states, at a rate that varies according to the state's poverty rate and other characteristics. A related program called the *State Children's Health Insurance Program* was created in 1997 to provide health insurance to children in households who do not qualify for Medicaid, but have low household incomes, making private insurance difficult to purchase. Together, these programs insured 37.5% of children in 2019 (Kaiser Family Foundation, 2021a).

Private health insurance accounts for about 33% of health spending (CMS, 2021). About 58% of nonelderly adults and children receive health insurance provided by employers (Kaiser Family Foundation, 2021b), although this share has dropped from 67% in 1999 (Long et al., 2016). Employer-sponsored health insurance originated during World War II, when employers faced wage controls but could compete for scarce labor by offering better benefits. A small but growing share of people now purchase health insurance independently. Most insurance plans require that patients pay a portion of costs out of pocket, through deductibles, copayments, and coinsurance. Most employers also require that their employees pay a portion of their health insurance premiums.

Many Americans do not have any type of health insurance and rely on a mix of publicly funded community and public health programs, charity care, and self-payment to support medical care. The elderly are guaranteed insurance through Medicare, but 22% of nonelderly adults and 8% of children were **uninsured** in 2010. The number of uninsured nonelderly Americans declined precipitously between 2010 and 2015 as the ACA was implemented, to 13% of adults and less than 5% of children (Ward et al., 2016). This trend, however, reversed in 2016. Between 2016 and 2019, the number of uninsured increased from 27.3 million to 29.6 million, which translates into an increase from 8.6% to 9.2% in the uninsurance rate (Gaffney et al., 2020). The uninsured usually receive some medical care services, particularly if they have an urgent need. However, their ability to obtain primary and preventive care services is usually limited (Hoffman & Paradise, 2008).

Why Might Changes in the U.S. Health System Be Needed?

The healthcare system of the United States fares poorly when compared with that of other developed nations in the areas of cost, equity, and health outcomes. First, the costs of the U.S. health system exceed those of other countries by a wide margin, measured both in per capita terms and as a share of GDP. Growth in healthcare costs has routinely exceeded overall economic growth, raising concern that the healthcare system will consume a greater share of our national economic activity. The sustainability of this trend is uncertain. Second, many Americans do not have health insurance and rely on a mix of poorly coordinated public and private services to obtain minimal care. The inequity in access to basic healthcare services, and impact of this inequity on public health, is viewed by many as worrisome.

Finally, despite having the costliest health system in the world, numerous studies find that the U.S. system performs poorly relative to other countries (Banks & Smith, 2011; Davis et al., 2010; Docteur & Berenson, 2009). Chapter 4 providers more information on the U.S. system and how it compares to those of other countries.

The Historical Context of Health Reform

Significant changes to the U.S. healthcare system have been considered for decades. The establishment of Medicare and Medicaid in 1965 was a response to problems faced by the elderly and poor in purchasing health insurance and receiving needed healthcare services. In 1972, President Nixon proposed national reform that would have mandated that employers offer health insurance to all their employees. President Clinton again proposed an employer mandate in the 1990s, to address the inequity of access to care. He also recommended other changes to control healthcare costs through market-based approaches. The intention of those changes was to increase people's sense of the true economic costs of healthcare, so that there would be movement toward the social optimum depicted in Figure 1.13. Finally, in 2010, the ACA was passed and signed by President Obama. However, there remained substantial resistance to the ACA among the Republican Party and, after the election of President Trump, efforts were redoubled to repeal the ACA and implement different health system policies.

To understand why the U.S. healthcare system has been viewed as needing reform, one must understand how the system arrived at its present state. As noted earlier, Medicare and Medicaid were established to address inequities for seniors and the poor. In the years following their establishment, healthcare expenditures in the United States grew more rapidly than anybody had forecasted. With the majority of the population insured, there was no limit to the amount and types of healthcare that could be demanded, because most people did not see the true marginal cost of care. Throughout the 1960s and 1970s, insurance had no price controls, no lists of preferred providers, and no formulary. Patients could go to any doctor they wanted, and doctors could bill Medicare or another insurer whatever they wanted. The same was true for hospital care. With no controls on the bills submitted to insurers and Medicare, new treatments and technologies were developed to address an ever-broadening array of ailments.

By the early 1980s, the federal and state governments began to act to address rampant cost growth in healthcare. California and other states passed laws that allowed for the growth of managed care insurance plans, in which insurance companies could develop their own networks of providers and restrict patients' choice of doctors and hospitals. In theory, insurance companies would bargain with doctors and hospitals to keep costs down, and employers would prefer these insurance plans because they lowered the cost of providing health benefits to their employees. Also in the early 1980s, Medicare introduced the first in a series of reforms that changed the fee-for-service payment system to one of prospectively determined payment rates, based on patient diagnoses and services provided.

After implementing these changes, insurance companies rapidly developed networks of physicians and hospitals that were willing to accept lower payments for services. Occupancy rates at hospitals dropped because hospitals had an economic incentive to treat patients in the outpatient setting or with shorter hospital stays. Cost savings during the 1980s largely came through lower payments to hospitals and physicians, and most people who signed up for a **health maintenance organization (HMO)** in the 1980s found little restriction in their choice of doctor or hospital.

By the early 1990s, these easy cost reductions had been tapped; in order to further control costs, insurance companies became more aggressive, and healthcare providers consolidated. Hospital mergers, in particular, have received substantial attention. Proponents of these mergers argue that they reduce cost and provider greater access. However, with fewer hospitals or health systems available, the remaining institutional providers may be able to charge higher prices. Research into the impacts of hospital consolidation suggest that, although costs generally decline (Schmitt, 2017), prices

increase, consistent with the remaining health systems enjoying greater market power (Walia & Boudreaux, 2019). Mergers do not generally increase readmission or mortality rates, but they are associated with worse patient experiences (Beaulieu et al., 2020).

As hospitals merged to form larger systems, physicians joined medical groups and independent practice associations (IPAs) so they could better manage their contracts with insurance companies. Some hospital organizations joined forces with physicians' groups, either through loose alliances or outright purchases. As these large groups negotiated with insurance companies, insurers continued to establish contracts with the lowest priced physician groups and hospital systems. National health expenditures grew in the 1990s at the lowest rates seen in over 30 years.

However, patients did not like the restrictions of these "managed care" insurance plans. They found their choice of doctors and hospitals more limited, and many patients complained that their insurance companies were micromanaging their medical care. By the end of the 1990s, the focus on reducing healthcare costs had waned substantially, and incentives to control utilization of health services lost favor. The insistence of patients that they receive better access to their doctors, quicker services from laboratories and hospitals, and unfettered use of the newest and best technologies led to the return of double-digit increases in healthcare costs, but little improvement in health outcomes. By the late 2000s, national health reform returned as an issue in the presidential election, and Congress passed and the president signed the ACA in 2010.

The Affordable Care Act

The ACA was created based on the previous mix of financing of health insurance in the United States (Kaiser Family Foundation, 2010). The main impact of the ACA was in the area of extending health insurance to nearly all Americans, using a variety of strategies. A centerpiece of the ACA was a mandate that all U.S. citizens and legal residents have health insurance. The intention of this mandate was to prevent people from choosing not to buy insurance, and then later getting care that would be paid for by the government and other payers. The ACA enacted a mix of policies to make health insurance affordable for various populations. An employer mandate (for employers with more than 50 full-time employees) was intended to lead more people to obtain health insurance through their workplaces. Small businesses that offer health insurance would receive tax credits to purchase health insurance for their employees (Kaiser Family Foundation, 2013).

States were given the opportunity to expand Medicaid to a larger number of lower income people, offering the program to all people with incomes up to 133% of the federal poverty level, with at least 90% of the cost paid by the federal government (Kaiser Family Foundation, 2013). Existing state Children's Health Insurance Programs also expanded. However, despite the significant financial incentive to expand Medicaid, only 32 states elected to do so (FamiliesUSA, 2016). It has been estimated that an additional 6.2 million people would have had health insurance in 2016 if all states had expanded Medicaid (FamiliesUSA, 2016).

Finally, states were expected to develop "health insurance exchanges" to make shopping for individual and small-group insurance easier (Kaiser Family Foundation, 2013). By grouping individuals and small groups together, the exchanges created purchasing pools similar to those available to large businesses that buy health insurance for their employees. They also made it easier for individuals and small businesses to compare health insurance plans. Finally, and most important, they provided a mechanism for offering federally funded subsidies to individuals and families who did not qualify for Medicaid, but who might find health insurance unaffordable because their

incomes are relatively low. States could elect to develop their own exchange or rely on a federal exchange. Eleven states and the District of Columbia established their own exchanges, 18 states relied entirely on the federal exchange, and the remainder worked with varying state–federal partnership strategies (The Commonwealth Fund, 2015).

Various protections were provided to Americans through the ACA, including prohibitions on insurance companies discontinuing policies of those who become ill, guaranteeing that insurance would be offered to those with preexisting conditions, and elimination of limits on the lifetime benefits received by enrollees. Families were permitted to enroll children in their health plans until age 26. Health insurance plans offered to individuals, small groups, and through the exchanges were required to offer a minimum set of benefits, including ambulatory care, emergency services, hospitalization, pregnancy/maternity care, mental health and substance use disorder services, prescription drugs, rehabilitative services and devices, preventive and wellness services, and pediatric dental and vision care. Most private health insurance plans are required to provide preventive services without cost sharing by enrollees. In order to further expand access to care for the poor and people living in communities with low access to health services, there was greater funding to community health centers, school-based health centers, and nurse-managed health clinics.

The Republican Party opposed the ACA when it was debated in Congress and continued to oppose it throughout its implementation. With the election of Donald Trump as president in 2016, the new Republican administration undertook several reforms to the ACA, but Congress never fully repealed the ACA. In 2017, Congress passed legislation that eliminated the individual mandate (so that, effective on January 1, 2019, the penalty for failing to obtain health insurance was $0), and the Trump administration approved various regulatory measures designed to give states more flexibility in how they operated their Medicaid programs. However, the ACA's Medicaid expansion, its health insurance exchanges, and many of its changes to the operation of health insurance remained in place.

During the Trump administration, various parties also sought to challenge the legal basis of the ACA in court. The Supreme Court of the United States rejected the most recent challenge to the ACA in the 2021 case *California v. Texas*. Plaintiffs argued that changes made to the ACA that set the penalty for failing to obtain health insurance at $0 rendered the entire Act unconstitutional. Though the court did not address the merits of the plaintiffs' arguments—it held that they lacked legal standing to challenge the ACA—this case represents the third time the Supreme Court has refused to overturn the ACA.

Regulatory Cost Containment

The insurance and access expansions of the ACA addressed concerns about inequity in the U.S. healthcare system, but the ACA did less to control costs. The cost-containment mechanisms of the ACA were generally framed as efforts to improve overall **efficiency** or increase the value of the health services received. Some of these approaches encouraged innovations and pilot projects, whereas others accelerated Medicare's movement into **value-based purchasing (VBP).** In VBP, healthcare providers are given financial incentives to improve the quality of care they provide—either a loss of funds for poor-quality care, or greater payment for high-quality care. The fee-for-service payment approach historically used in the United States gives healthcare providers an incentive to focus on the volume of care they deliver rather than the value of care. In this context, *value* is often described as outcomes such as quicker recoveries, fewer readmissions, lower infection rates, and fewer medical errors. Changes in the organizational and

financial incentives healthcare providers face are anticipated to achieve better outcomes at a lower cost (Cosgrove, 2013).

Medicare had already implemented some VBP programs prior to passage of the ACA (Lindenauer et al., 2007; Mehrotra et al., 2009). One of the early Medicare programs was the Hospital Inpatient Quality Reporting Program, which was established in the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003. This legislation authorized the CMS to pay hospitals more if they reported selected quality measures and eventually to penalize them if they did not report (CMS, 2013). In 2008, CMS stopped reimbursing hospitals for adverse events and conditions occurring during hospital stays, such as surgical-site infections, serious pressure ulcers, and blood transfusion incompatibility (National Conference of State Legislatures, 2008). These programs evolved into the CMS Hospital Value-Based Purchasing (HVBP) program, which provides incentive payments to hospitals based on how well they perform with respect to a selected set of outcomes, and/or how much improvement they achieve toward those outcomes (CMS, 2015b). Outcomes include measures of the process of care, patient experiences as measured through surveys, and patient outcomes such as heart failure mortality rates and hospital-acquired infections.

The ACA had two main provisions to advance VBP. One was the establishment of the Center for Medicare and Medicaid Innovation within CMS. This Center funds projects to test, evaluate, and expand innovative payment structures and care delivery approaches with the threefold aim of improving quality, improving health, and controlling costs. The second provision was the creation of the Medicare Shared Savings Program, which was intended to encourage the development of **accountable care organizations (ACOs)**. An ACO is an organization of healthcare providers that is accountable for the quality, cost, and overall care of patients. If ACOs meet quality performance standards and generate financial savings, they are able to share those savings with CMS (2015a).

The ACA included some additional cost-control measures. Medicare cost growth is limited for some types of care, payments to Medicare Advantage plans are reduced, and fraud is handled more aggressively. Private insurance plan rate increases are reviewed, and these plans must dedicate 85% of insurance premiums to patient care. Administration costs are reduced in part by establishing electronic billing standards that will reduce paperwork.

Although the ACA plays an important role in addressing the fundamental problem of healthcare, it is not the only recent federal law designed to control costs. Another example is the Medicare Access and CHIP Reauthorization Act (MACRA). MACRA changed how Medicare pays providers and created two payment tracks within the Quality Payment Program, which is designed to reward physicians who demonstrate the provision of high quality of care or participate in new models of care that reward quality and efficiency. The Merit-based Incentive Payment System (MIPS) adjusts payments to providers based on their performance in four separate performance categories, including cost, quality, interoperability, and improvement activities. The **Advanced Alternative Payment Models (AAPM)** include other programs that incentivize providers to deliver high-quality, cost-effective care, such as Comprehensive Primary Care Plus and Medicare ACOs.

State Regulation and Reform

Most debates over healthcare financing and reform focus on the role of federal laws like the ACA and MACRA. State laws, however, also affect the economic framework within which healthcare is delivered. For example, state laws can determine what constitutes "medically necessary" care under health insurance policies, thereby determining which

services individuals can access. Outside of the insurance context, states regulate both individual providers and healthcare institutions.

Among individual providers, state governments, not the federal government or provider associations, determine who can obtain a license to practice medicine, nursing, physical therapy, or other health profession. Each state maintains one or more licensing boards to issue licenses and monitor continued compliance with license renewal requirements like continuing education. It is important to note that states also determine the scope of practice for different professions. State legislatures often set general guidelines—for example, whether physicians must supervise NPs—while state regulatory agencies or licensing boards may make specific decisions within the bounds set by legislatures.

States also regulate hospitals in various ways. Some states directly regulate the entry of a new hospital into a new market by requiring that they obtain a "certificate of need." These laws are designed to inhibit competition among hospitals and other institutional providers and prevent the overuse of healthcare services. By specifically limiting the ability of new entrants in healthcare services markets to open new hospitals or add facilities to existing hospitals, laws requiring certificates of need both attempt to directly address the fundamental problem of healthcare policy.

In addition to regulations and statutes—the forms of law familiar to most—states also regulate the provision of healthcare through indirect channels. In all 50 states, patients injured by a healthcare provider's negligence can file suit against that provider. The threat of malpractice liability can incentivize the provision of safe and high-quality care. The Supreme Court of the United States has recognized that a liability award "can be, indeed is designed to be, a potent method of governing conduct and controlling policy" (Riegel v. Medtronic, 2008, p. 324). This important policy instrument is a creature of state law, and efforts to reform various aspects of malpractice liability occur at the state level.

A Return to Markets?

Many of the federal and state regulatory efforts described are aimed at combating the fundamental problem in healthcare policy. Recent trends in health insurance markets and healthcare services markets, however, may indicate that there has been a trend toward market-based solutions to fix this fundamental problem. The Bureau of Labor Statistics estimates that the number of private industry workers covered by a high-deductible health plan increased from 24% in 2010 to 45% in 2018 (Bureau of Labor Statistics [BLS], 2020). High-deductible health plans require that individuals contribute a substantial amount of their own funds for their healthcare before their health insurance offers coverage. Therefore, these individuals are effectively uninsured and fully sensitive to the price of care for a substantial amount of healthcare. Thus, they are incentivized to solve the fundamental problem of healthcare policy on their own, as they seek lower priced care.

This shift toward market-based health insurance by a growing share of individuals with high-deductible health plans has not gone unnoticed by policy makers. Near the end of his administration, President Trump issued an executive order requiring hospitals to post actual prices for a variety of services they provided. With this information, individuals—particularly those who are paying for their own care under high-deductible health plans—can make better informed decisions about where to obtain care. In the early months of President Biden's administration, this executive order has remained in effect. However, it is not yet known whether price transparency will have the desired effect of allowing patients to better compare prices across healthcare facilities and, ultimately, obtain lower cost care.

New market-based options have also arisen for individuals who wish to obtain lower priced care and know the price of their care ahead of time. For example, MDSave offers online consumers the option to search for **procedures** in their area. Consumers pay a listed price for the procedure and need not worry about future bills. Although these individuals may receive **reimbursement** from their health plans, companies like MDSave are facilitating traditional competitive markets in which consumers and suppliers are sensitive to prices. This may work to address the fundamental problem of healthcare policy described earlier, but the extent and impact of greater roles for market-based cost-control approaches is not yet known.

CONCLUSIONS

The economics, organization, and financing of healthcare have important effects on the work of all health professionals. The disjointed payment system used in the United States has made it difficult for policy makers or payers to address the root cause of escalating healthcare expenditures. The ACA attempted to tackle these issues through a variety of payment reforms and pilot programs. Other possible strategies include making patients more responsible for the costs of their care, while continuing to provide health insurance for the most expensive medical and healthcare. Within any healthcare organization, nurses—including advanced practice registered nurses (APRNs)—have multiple opportunities to improve both the quality of care and its efficiency. It is essential that nurses play a central role in defining and evaluating these changes.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. In 2011, a surplus of registered nurses was reported in many parts of California (Bates et al., 2011). Identify possible explanations of the emergence of a surplus. What might have changed in the labor market? How can you depict this in a chart? What changes would switch the labor market to reflect a nursing shortage in the future?
2. Medicare rules pay NPs 85% of the fee paid to physicians for ambulatory care. NP professional organizations are lobbying for equal reimbursement. What implications would that have? How might such a change affect the quality of care? Access? Costs?
3. A growing share of health insurance plans have high deductibles, so that an individual must spend up to $6,450 before insurance begins to pay for services. What problem(s) are these insurance plans trying to solve? Answer this question using economic terminology related to health insurance. For what reasons might these plans be successful? In what ways might these plans backfire?
4. The fundamental problem of health policy is presented in Figure 1.13. Countries that have single-payer or other universal health insurance systems, such as Canada and Germany, face this problem, as does the United States. How might health policy try to address the fundamental problem in the context of universal health insurance? Identify specific programs or strategies that might be used, and consider their potential benefits and drawbacks.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 2

Health Insurance and Reimbursement

Todd B. Smith and Teresa D. Welch

Everybody should have healthcare (insurance), on the one hand. But on the other hand, if you ask Americans, "Are you willing to pay for it?" they say no. So, I've never been able to understand this contradiction. The manner in which we finance health care in this country, in particular, is bewildering and inefficient. Compared to national health systems in the rest of the developed world, American health care and the American health system are exceedingly complex and almost beyond human comprehension. As America faces such a crossroads where we must decide how we should proceed with our health care and health reform going forward, the need to understand both is great, especially now.

—Uwe Reinhardt
Princeton Healthcare Economist

Over the past decade (the 2010s) in the United States, the most significant changes ever enacted in healthcare and healthcare reimbursement models occurred, and the highest rate of Americans was insured since the creation of Medicare and Medicaid in 1965. In 2010, the Patient Protection and Affordable Care Act (ACA) brought sweeping and comprehensive healthcare reforms, which included the largest scale Medicaid expansion in nearly 40 states (thus far) and dramatically decreased the rate of uninsured Americans across the United States. These changes also introduced new payment models that included pay-for-performance, the Bundled Payments for Care Improvement (BPCI) initiative, and The Hospital Readmissions Reduction Program (HRRP) in 2013. These programs changed the landscape for the provision of quality healthcare and reimbursements for all providers across the healthcare spectrum. However, when comparing the United States to much of the rest of the world, specifically to 10 of the world's wealthiest countries, the United States spends almost 18% of its gross domestic product (GDP) on healthcare dollars for healthcare services (17.7% of GDP in 2019, up from just 5% in 1960), whereas other countries spend on average 8.7%. Yet, the United States has the lowest rates for life expectancy and the highest rates of chronic disease burden, suicide, and obesity compared to its European counterparts (CMS.gov, 2020e; Tikkanen & Melinda, 2020). Despite some of these grim figures and continued legislative uncertainty, the fundamental principles of healthcare in the United States remain: value, integration, and quality—on which reimbursement for healthcare services is becoming increasingly

dependent. This chapter addresses these principles as well as trends and suggestions for DNPs navigating an uncertain future of insurance coverage and reimbursement.

In the United States, as compared with many other countries that have some form of socialized medicine (i.e., an overarching government-funded and often government-managed, healthcare system), the funding for healthcare services comes from a variety of sources (e.g., private insurance, employers, out-of-pocket payments, taxes, Medicare, Veterans Affairs, etc.) and the money goes toward a variety of sources (private hospitals, government hospitals, military doctors, academic physicians, pharmaceuticals, home healthcare agencies, etc.). In other words, we have a very fragmented healthcare system (Oberlander, 2010), and this fragmentation also appears in our methods of reimbursement. Reimbursement, in short, is simply how entities (physicians, pharmacies, hospitals, etc.) get paid for providing a healthcare service. In the United States, reimbursement typically occurs through a third-party, an insurance company (including government-funded insurance, like Medicare and Medicaid). Fewer than 100 years ago, however, reimbursement for healthcare services was a relatively uncomplicated fee-for-service exchange—an individual simply paid providers out of pocket for the healthcare services rendered. However, around the 1930s, various forms of health insurance, mostly employment-based programs, began to be offered for the employed. In the mid-1960s, Medicare and Medicaid brought the federal government into the healthcare arena as a method of payment for services rendered for elderly and indigent populations, respectively. Just a decade later, in the 1970s, prepaid insurance, such as managed care, entered the market en masse, in part to reduce healthcare expenditures and utilization by increasing the cost-sharing of healthcare services by the consumer. And since then, our healthcare system has increasingly focused on value—paying not simply for a given service but holding healthcare providers accountable to the services they provide to include the addition of incentives and/or disincentives (or penalties) in payments received based on said value.

Health systems can be viewed as having five components (Goldsteen et al., 2020), one of which is the focus of this chapter—the financing mechanism. The other four components of health systems are the facilities; the workforce; the providers of healthcare therapeutics, including pharmaceuticals and medical equipment; and the educational and research institutions that train the workforce and produce knowledge. Students in DNP programs and other professional doctoral programs form an integral part of the healthcare system because they are studying in educational institutions and assimilating new knowledge about how to translate evidence into practice. Again, there is no single national structure in America dedicated to paying for healthcare, thus we have a very complex healthcare system.

AMERICAN ASSOCIATION OF COLLEGES OF NURSING ESSENTIALS RELATED TO REIMBURSEMENT

The American Association of Colleges of Nursing (AACN) developed essential elements for nursing education that provide the framework for defining quality in nursing education curricula. *Domain 7: Systems-based Practice* pertains to organizational and systems leadership for quality improvement and systems thinking (*AACN Essentials*, 2021). Knowledge of business and finance principles, including those related to health insurance and reimbursement, equip the DNP to collaborate on an interprofessional basis to design systems that optimize quality outcomes and efficiency and in turn optimize reimbursement. Knowledge of payers, documentation, billing and coding processes, and the **prospective payment system (PPS)** complement the clinical and scientific knowledge base the DNP has developed.

This chapter begins with a focus on *acute care* settings, starting with a discussion of the context in which health insurance operates. Historical foundations of the financing mechanism, followed by a review of relevant *AACN Essentials*, give the reader an understanding of why this is relevant for DNP students. The discussion then proceeds at the macrosystem level and presents the view of executives in healthcare organizations and systems. This discussion includes trends in healthcare as reimbursements have moved from a volume-based model to a value-based model, requiring evidence of quality. Third-party collection in the **diagnosis-related groups (DRGs)** reimbursement framework for advanced practice nursing is detailed, followed by essential aspects of value-based purchasing and pay-for-performance models required to optimize reimbursement. Health insurance and reimbursement in *nonacute care* settings is also included in this chapter. Nonacute settings include long-term care, rehabilitation, and several emerging or "revitalized" settings. A legislative update is included in the section "General Trends and Issues" and points to the political difficulty facing healthcare reform. Knowing where the money comes from and how the money is paid equips the DNP graduate to appreciate the intricacies involved in transferring payment from consumers to healthcare providers, organizations, and systems.

HEALTH INSURANCE

Reimbursement varies by the source of payment, one of which is health insurance. Simply put, a health insurance policy is an agreement between a person and an insurance company that lists medical benefits provided by the policy. The insurance company agrees to cover the cost of certain benefits, often called *covered services*. Although a certain medical condition may lead a provider to indicate that treatment is needed (medical necessity), the treatment may or may not be covered by a specific insurance policy. Insurance companies decide what services they will cover. Insurance companies study populations and develop actuarial tables, which are predictions about what kinds of medical conditions may surface among different groups depending on factors, including age and health-related behaviors such as smoking.

Insurance and reimbursement take place within an **economic market**. As markets go, healthcare is an imperfect economic market and does not conform to the conventional economic theory of supply and demand. Why is the healthcare sector so different? Arrow (1963), in his classic work, described these differences as uncertainty, asymmetry of information, and nonmarketability of risks inherent in medicine and medical practice. For example, knowledge is exploding at an exponential rate, yet our understanding remains limited in many areas. Regarding asymmetry, patients often know more about their own history, yet providers know more about disease processes and treatment modalities—and sometimes neither of these two parties knows much about reimbursement. A caveat to this, however, is that many consumers are becoming more internet savvy and come to their appointments equipped with suggestions, questions, and challenges. Finally, *nonmarketability of risk* means that people behave differently in the healthcare marketplace when they are insured. This is also termed *moral hazard*. Therefore, in large part based in large part on these three differences—uncertainty, asymmetry of information, and nonmarketability of risk—the financing mechanism in healthcare represents only one component of health systems. Unlike other countries, the healthcare financing mechanism in the United States is not centralized from any single source; hence, the complexity.

The main sources of health insurance for Americans are the federal government, state governments, commercial insurers, and self-insurance (Keisler-Starkey & Bunch, 2020). The U.S. Census Bureau (2020; report based on 2019 **data**) reported that 8% of people are

uninsured, and of those who are insured, 68% had private insurance and 34.1% had public insurance (NOTE: All categories are not mutually exclusive, meaning some individuals may have more than one type of plan). Of those with private insurance, the vast majority of these individuals have a plan that is employment based. Of those individuals with public insurance, roughly half are covered by Medicare and the other half with Medicaid, with some individuals on both Medicare and Medicaid (i.e., dual-eligibles) and some others on another type of public plan (VA, CHAMPVA, etc.).

Insurance, and specifically health insurance, has its own set of terminology. The following terms offer important fundamental information about health insurance:

Benefit: The amount the insurance company pays when the insured suffers a loss.

Benefit Period: The amount of time involved in an individual claim. In the case of hospitalization, this includes the first day of the hospital stay through the day of discharge, and often up to 60 days after release from the facility.

Cafeteria Plan: Offers a choice between two or more benefits or a choice between a benefit or cash.

Claim: A request to the insurance company to pay benefits for a loss.

Consolidated Omnibus Budget Reconciliation Act (COBRA): A federal law that allows employees to continue their coverage through self-pay after they leave employment.

Co-payment: A small charge the insured pays at the time service is received.

Deductible: The amount of covered expenses the insured must pay out of pocket before the insurance company pays.

Federal Poverty Level (FPL): Poverty thresholds are the dollar amounts used by the U.S. Census Bureau to determine *poverty* status. Each person or family is assigned one of 48 possible poverty thresholds that vary according to the size of the family and the ages of its members. The same thresholds are used throughout the United States. *Poverty* thresholds are updated annually for inflation by the U.S. Bureau of Labor Statistics, using the Consumer Price Index for All Urban Consumers (CPI-U). Although in some sense the poverty thresholds in some sense reflect a family's needs, they are intended for use as a statistical yardstick, not as a complete description of what people and families need to live. In 2021, the FPL for one person is $12,880 and for a family of four is $26,500 (U.S. Department of Health and Human Services [DHHS], 2021).

Health Maintenance Organization (HMO): A medical organization providing a wide range of services for a specified group of enrollees for a **fixed**, prepaid premium.

Managed Care: Coordination of financing and delivery of healthcare services to produce quality yet affordable healthcare coverage. Managed care puts limits on the use of services and the charges of providers.

Out-of-Network Care: Medical services obtained by managed care plan members from noncontracted healthcare providers.

Preferred Provider Organization (PPO): Managed care arrangement consisting of a group of hospitals, physicians, and other providers contracted with an insurer, employer, or other group to provide healthcare services to covered persons in exchange for prompt payment and higher patient numbers.

Premium: The amount paid by individuals, typically monthly, for their healthcare coverage.

Preapproval: A requirement set forth by an insurance company to approve certain care before it is provided.

Denying the Claim: When an insurance company does not pay a bill because the service was not covered, or because preapproval or other conditions were not met.

Additional terms and definitions regarding health insurance can be found at https://www.cms.gov/CCIIO/Resources/Files/Downloads/dwnlds/uniform-glossary-final.pdf.

Primary Types of Insurance and the Uninsured

Federal: Medicare

Medicare provides access to care for individuals 65 years of age and older, those younger than 65 with long-term disabilities, and those with end-stage renal disease. More than 50 years old, Medicare has four parts:

1. **Hospital insurance (Part A):** Part A covers hospital care, limited care in a skilled nursing facility (SNF), and hospice and home healthcare. Part A is funded mostly by Social Security taxes.
2. **Supplementary medical insurance (Part B):** Part B covers physician and certain other health professional services, hospital outpatient care, and certain other services. Part B is funded from general revenues and enrollee premium payments.
3. **Medicare + Choice (Part C):** Part C permits Medicare beneficiaries to enroll in managed care organizations.
4. **Medicare Prescription Drug Coverage (Part D):** Part D is funded primarily through individual premiums.

State: Medicaid

Medicaid is designed to meet the healthcare needs of low-income adults, children, pregnant women, elderly adults and people with disabilities (Medicaid.gov, 2021). Medicaid is a government program, managed by the individual states, serving 74.5 million people, including 17 million individuals who enrolled as part of some states' Medicaid expansion available through the Patient Protection and Affordable Care Act (ACA) of 2010 ACA (Kaiser Family Foundation [KFF], 2021b). Medicaid is jointly funded by the states, which cover approximately 63% of the program, and by the federal government (CMS.gov, 2020c).

Employer-Sponsored Private Health Insurance

Employee-sponsored private health insurance refers to insurance offered by companies who provide health insurance plans (e.g., Blue Cross/Blue Shield, United Healthcare, Aetna, etc.) to companies and their employees. Typically, the cost of the premium is shared between the employee and employer. Some companies self-insure, but generally these plans are administered by a health insurance company. Employer-sponsored plans are typically offered either to individuals or an entire family, and average annual premiums for 2020 were $7,470 for single coverage and $21,342 for families (KFF, 2021a).

The Uninsured

The percentage of those who are uninsured in America dropped significantly after passage of the Affordable Care Act, from a high of 17.8% in 2010 to 10.9% in 2019 (Tolbert

et al., 2020), mostly due to the expansion of Medicaid programs in many states as well as private individual/family plans offered through the Health Insurance Marketplace. The uninsured are typically nonelderly adults and members of working families who are unable to afford coverage, do not have coverage offered through their employer, are younger than 65 and thus not eligible for Medicare, and/or are above the income thresholds for Medicaid eligibility (Tolbert et al., 2020).

REIMBURSEMENT

Healthcare Dollars: Where Do They Go?

Reimbursement to providers takes place in the economic macrosystem that involves national health expenditures. How much money are we talking about? In 2019, the United States spent approximately $3.8 trillion on health services (Figure 2.1), which is about 18% of the national GDP (Maizland & Felter, 2020). As mentioned, the GDP is the total of all the goods and services produced in the country. Therefore, approximately 18 cents from **every** dollar spent in the United States goes toward healthcare (and this is up from just 5 cents from every dollar in 1960; Nunn et al., 2020). Unlike countries with a single-payer system, in the United States all the money paid for health services comes essentially from the general population. How does the money travel from the population to those providing health services? There are three pathways: (a) via government, (b) via insurance and managed care companies, and (c) direct out-of-pocket payment (Goldsteen et al., 2020).

Money from the government, insurance companies and managed care companies, and individual payers goes to a number of different recipients. In 2019, from the total healthcare expenditures in the United States, approximately 31% went to hospitals, 20% to physicians and clinics, and 10% went to prescription drugs. The remaining recipients included medical nondurable and durable products, dental services, nursing care facilities and continuing care retirement communities, and public health (CMS.gov, 2020d;

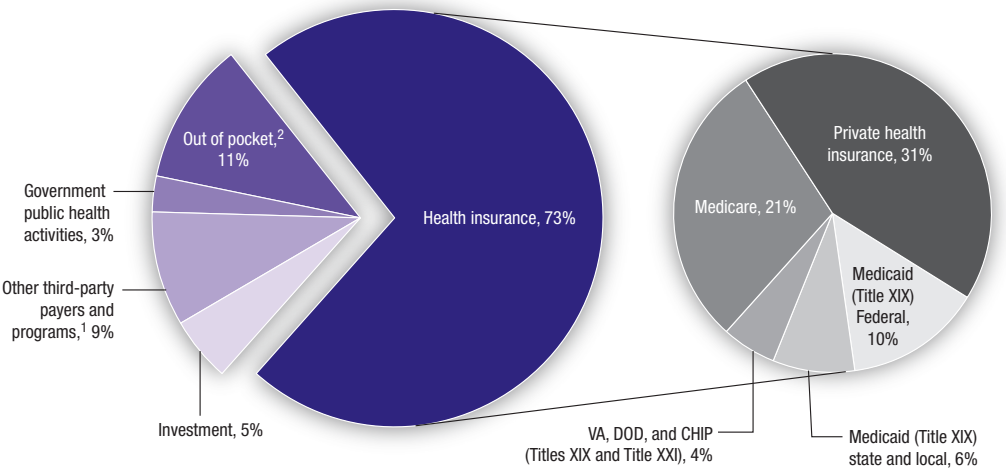

FIGURE 2.1 The nation's health dollar ($3.8 trillion), calendar year 2019: Where it came from. CHIP, Children's Health Insurance Pogram; DOD, Department of Defense; VA, Veterans Affairs. *Source:* CMS.gov. (2020d). *National health expenditure accounts—2019*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical

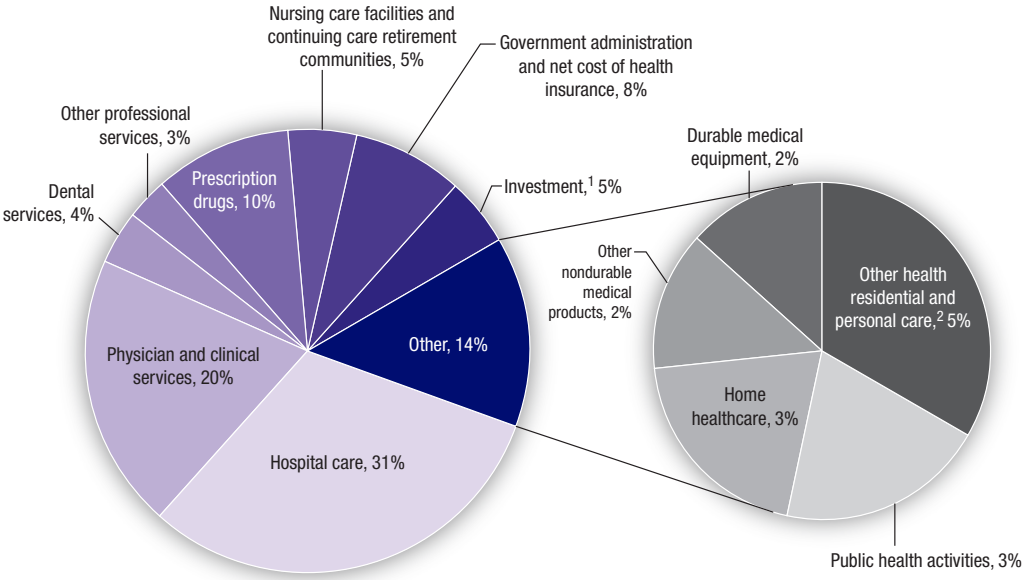

FIGURE 2.2 The nation's health dollar ($3.8 trillion), calendar year 2019: Where it went. *Source:* CMS.gov. (2020d). *National health expenditure accounts—2019*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical

Figure 2.2). In addition, in 2019 Medicare spending grew 6.7% to $799.4 billion and expenditures for acute care hospital costs increased 6.2% to $1.2 billion (CMS.gov, 2020b). With costs and expenditures growing at 2 times the national rate of inflation (Rome et al., 2016), nurse managers and directors are uniquely positioned to have a significant impact on controlling the quality and cost of healthcare. Overall though, the United States, unfortunately, still pays more for sick care than preventive care, as evidenced by only 8% of adults over the age or 35 receiving all recommended preventive services in 2015 (Levine et al., 2019) and more than 75% of all healthcare expenditures in the United States going toward people with chronic conditions (CDC.gov, 2009).

THE INFLUENCE OF GOVERNMENT IN HEALTHCARE

Nelson et al. (2011) view the macrosystem from the "outside in" (p. 332). **The most prominent aspect of the macrosystem with regard to financing healthcare is government.** Federal, state, and local governments participate in financing in three ways:

1. Direct payment is made for its own programs, such as the Department of Veterans Affairs, Department of Defense Military Health System, and to municipal hospitals serving the poor. The U.S. DHHS operates more than 100 different programs in 11 divisions. The Centers for Medicare & Medicaid Services (CMS) is one of the DHHS's 11 divisions (HHS.gov, 2021).

State governments also play a role in healthcare financing, most especially for mental illness treatment services and Medicaid operations.

2. Payment is made for grants and contracts for biomedical research and medical education (e.g., from entities such as the National Institutes of Health or the Health Resources and Services Administration).

3. Providers are paid for delivering care to patients (e.g., Medicare and Medicaid). These government programs were described in the previous section. CMS, including both Medicare and Medicaid, accounts for 37% of total healthcare spending in the United States (CMS.gov, 2020a), which contributes to the enormous influence that CMS has over the overall healthcare system in the United States

TYPES OF PROVIDER PAYMENT: REIMBURSEMENT MODELS

There are five basic types of payments made to providers: **cost/cost plus**, fee for service, **fixed price**, capitation, and value. Each type of payment model is briefly defined in the following text. We discuss provider and patient risk in relation to each model and provide an in-depth discussion of value-based models of provider payment. Figure 2.3 summarizes the different payment models and provider/ patient risk associated with each.

Cost/Cost Plus: The provider organization is reimbursed for actual costs plus an additional percentage of those costs to generate a margin.

Fee for Service: When the scope of work is clearer, this method is most common for the "other professional services" category in the national health expenditures data. A set fee is billed at the risk of needing additional servicesat the time of treatment. The local market drives the rates that patients are willing to pay. This method of payment is becoming less frequent as value-based systems of reimbursement become more common.

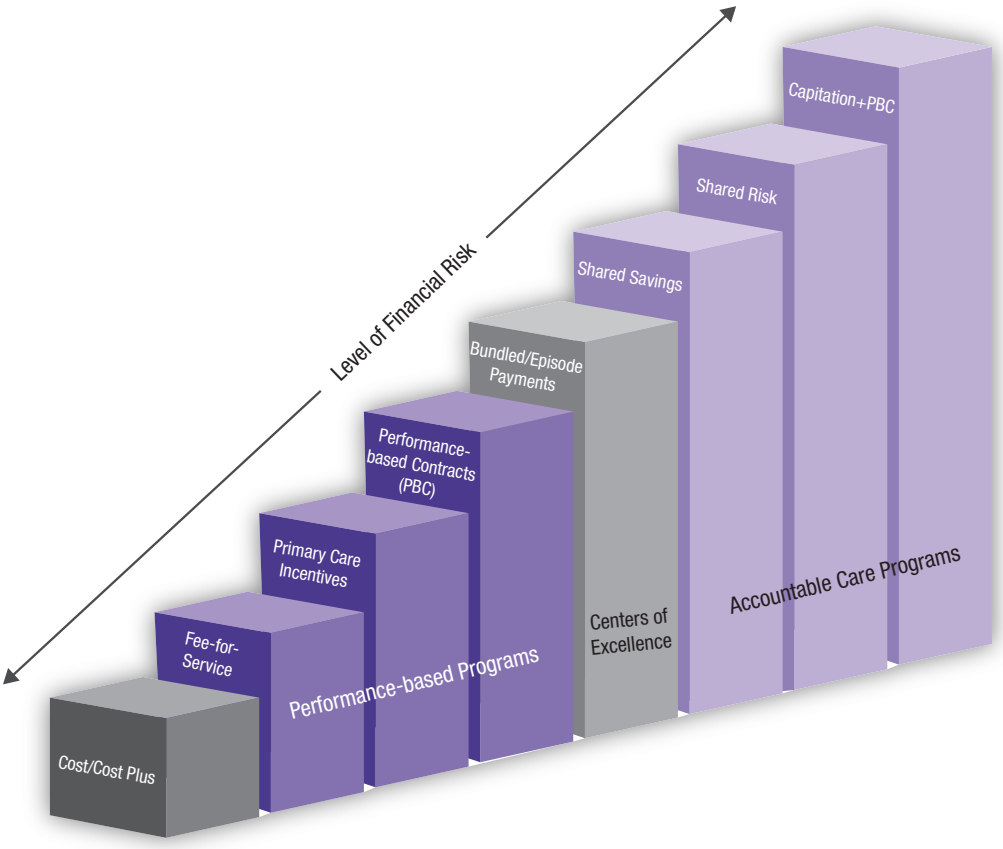

FIGURE 2.3 Reimbursement models: degree of care provider integration and accountability.

Fixed Price: This approach focuses on charging a fixed price for treating a certain disease condition. This is the category in which the DRG system falls. The provider is rewarded for efficiency. The dangers of this approach include (a) fraudulent "up-coding" to maximize reimbursement, (b) seeking healthier patients, and (c) giving prevention low priority. Disease classification determines the amount of payment that will be received (Goldsteen et al., 2020).

Capitation: In this prospective payment arrangement, the provider is paid a fixed amount per member of a health plan per month. The amount is called a **capitated rate**. This is the common way of paying for Veterans Affairs hospitals, state mental hospitals, and local health department clinics (CMS.gov, 2021c).

Value: This is the payment model in which the organization providing the services is rewarded for the value delivered. The federal government is increasingly defining *value* in terms of quality and safety. Hospitals will not be reimbursed for care resulting from avoidable falls, errors, infections, and other adverse events such as readmissions for the same diagnosis within 30 days of discharge.

Diagnosis Related Group-Based Reimbursement

Although the financing mechanism consists of no single payer, the traditional payment system used in the United States today is the prospective payment system (PPS). The PPS operates based on DRGs. Note that *financing* refers to funding source, whereas *payment* refers to the method used to move money from consumers to providers. The payment system is prospective in that defined reimbursement for services is set forth first, before the services are provided. The defined reimbursement is detailed in a system of thousands of what are termed *DRGs*. The hospital receives a preset flat rate for the DRG, regardless of the volume or type of services provided to the patient. The DRG system of codes is described later in this chapter. Entire new occupational specialties are now required to translate clinical care into codes on which payment is based. Most often, payment is made by an intermediary or "third party."

More than 13,000 diagnostic codes have been developed by CMS (World Health Organization [WHO], 2019). In 2009, the United States' (U.S.) Department of Health and Human Services (DHHS) released a final rule calling for the adoption of a new edition of the *International Statistical Classification of Diseases and Related Health Problems (ICD)* standards known as the *ICD-10,* which uses Clinical Modifications (CM) and the Procedure Coding System (PCS). The codes included in *ICD-10* are much more specific than those in previous revisions. *ICD-10-PCS* codes are strictly intended for use by hospitals to report inpatient procedures; these are not used for outpatient or physician billing (AHA.org, 2014).

Documentation: To bill for services, insurance companies require the use of specific medical documentation guidelines, classifications, reimbursement codes, and, in the case of the APRN, evidence of current credentials. A standard language is used to record and classify care (Hamric et al., 2013):

1. The evaluation and management (E&M) services guidelines, which have seven components (nature of presenting problem, history, physical examination, medical decision-making, counseling, coordination of care, and time)
2. *ICD-10-CM* codes
3. The Current Procedural Terminology (CPT) codes are used for outpatient procedures.

Billing and Coding: The structure of *ICD-10* codes is more expansive than the *ICD-9* codes. *ICD-10* codes consist of three to seven characters for coding diagnoses and

seven alphanumeric characters for coding procedures. *ICD-10-CM* codes are used for all inpatient and outpatient diagnoses. *ICD-10-PCS* codes are used for the hospital inpatient setting only (AHA.org, 2014).

Example *of ICD-10* diagnostic code: S12-9XX A

Key to deciphering the code format:

S12 = Category

9XX = Etiology, anatomic site, severity

A = Added code extension (seventh character) for obstetrics, injuries, and external causes of injury

(AHA.org, 2014)

Example of *ICD-10-PCS* structured format procedure code (medical/surgery): 1 2 3 4 5 6 7

Key to deciphering the code format (AHA.org, 2014):

1 = Section

2 = Body system

3 = Root operation

4 = Body part

5 = Approach

6 = Device

7 = Qualifier (AHA.org, 2014)

Technology: Payers recognize the need for data to inform them if levels of quality and cost are in an acceptable range. The electronic health record contains such information, but its use is not pervasive in the United States. DNPs serve an important role in helping design and implement these systems, in using the systems for data collection to answer empirical questions, and improving the interface between the systems and the people who use them.

Value-Based Reimbursement Options

Henkel and Maryland (2015) described six value-based reimbursement options. These options are collectively termed *fee for value,* and it is likely that healthcare systems will experiment with a combination of these models depending on their specific markets. Henkel and Maryland (2015) add that healthcare systems and providers have many value-based models to choose from. These include pay-for-performance (P4P), shared savings, bundled payments, shared risk, global capitation, and provider-sponsored health plans (PSHPs). These payment models are discussed in detail with specific emphasis on value-based purchasing (VBP) and the process used to calculate reimbursements, incentives, and disincentives to participating organizations.

Over the past 10 years, CMS has introduced multiple pay-for-performance or value-based care-purchasing models to promote quality and safety of patient care while improving efficiency and clinical outcomes to Medicare patients. According to the American Hospital Association (AHA), "the acronyms *P4P* and *VBP* are used to identify various methods that link payments to some measure of performance" (ANA, 2010, p. 4).

Purchasers and payers of healthcare services, to include CMS, have embraced P4P/VBP strategies to improve the quality and cost-effectiveness of care while achieving high value for their healthcare dollars. However, as of 2020, meaningful improvements in patient outcomes and quality of care have not been achieved, and some safety-net hospitals may be negatively impacted by these programs.

Hospital Value-Based Purchasing for Reimbursement

The hospital-based VPB (HVBP) program has three primary aims: (a) improve the quality of patient care, (b) improve efficiency of care and the services provided, and (c) improve patient experience and safety of care. Compliance with these goals is achieved through a process of incentives and disincentives to inpatient hospital reimbursements based on quality and patient satisfaction scores. These scores are compared on two levels:performance as it relates to established internal benchmarks, and hospital performance as it relates to the performance of all other hospitals (CMS.gov, 2021f). To fully meet the expectations of patient care as established by CMS, hospitals must strive to develop an innovative culture of continuous quality improvement focused on (CMS.gov, 2021f):

- Eliminating or reducing adverse events (healthcare errors resulting in patient harm)
- Adopting evidence-based care standards and protocols to obtain the best outcomes
- Incentivizing hospitals to improve patient experience
- Increasing the transparency of care quality for consumers, clinicians, and others
- Recognizing hospitals that provide high-quality care at a lower cost to Medicare(CMS.gov, 2021f)

Hospital Readmissions Reduction Program

The Hospital Readmissions Reduction Program (HRRP) of 2013 is a CMS value-based purchasing program that links payment to the quality of the hospital care provided and encourages improvement to the patient discharge process through incentives and disincentives. The aim of the program is to reduce avoidable readmissions to the hospital through improved communication processes and care coordination that engages the patient and caregiver at discharge (CMS.gov, 2021l). The CMS includes the following six conditions or procedure-specific 30-day risk-standardized unplanned readmission measures in the program:

- Acute myocardial infarction (AMI)
- Chronic obstructive pulmonary disease (COPD)
- Heart failure (HF)
- Pneumonia (PN)
- Coronary artery bypass graft (CABG) surgery
- Elective primary total hip arthroplasty and/or total knee arthroplasty (THA/TKA; CMS.gov, 2021l)

Hospital-Acquired Conditions Program

The Hospital Acquired Conditions (HAC) Reduction Program is a CMS pay-for-performance program that links quality of inpatient care to payment or reimbursements. The HAC Reduction Program encourages hospitals to implement evidence-based **best practices** to reduce their rates of hospital-acquired (iatrogenic) conditions and improve

patient safety, and, as of October 2008, avoidable hospital-acquired conditions were no longer reimbursed for payment by CMS (CMS.gov, 2021d). Each year CMS will evaluate the overall performance of the hospital by calculating a **Total HAC Score** for each hospital. The HAC score is based on the equally weighted average of the hospital's performance scores on the measures included in the program, hospitals with a Total HAC Score in the worst-performing 25% of all Total HAC Scores will be subject to a 1% payment reduction. "This payment adjustment applies to all Medicare fee-for-service discharges for the applicable fiscal program year when CMS pays hospital claims" (CMS.gov, 2021d; paragraph 2, Figure 2.4).

CMS uses the Total HAC Score to determine the worst performing 25% of all hospitals based on data for six quality measures:

- One claims-based composite measure of patient safety:
  - CMS Patient Safety and Adverse Events Composite (CMS PSI 90)
    - **PSI 03**: Pressure Ulcer Rate
    - **PSI 06**: Iatrogenic Pneumothorax Rate
    - **PSI 08**: In Hospital Fall with Hip Fracture Rate
    - **PSI 09**: Perioperative Hemorrhage or Hematoma Rate
    - **PSI 10**: Postoperative Acute Kidney Injury Requiring Dialysis Rate
    - **PSI 11**: Postoperative Respiratory Failure Rate
    - **PSI 12**: Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate
    - **PSI 13**: Postoperative Sepsis Rate
    - **PSI 14**: Postoperative Wound Dehiscence Rate
    - **PSI 15**: Unrecognized Abdominopelvic Accidental Puncture/Laceration Rate

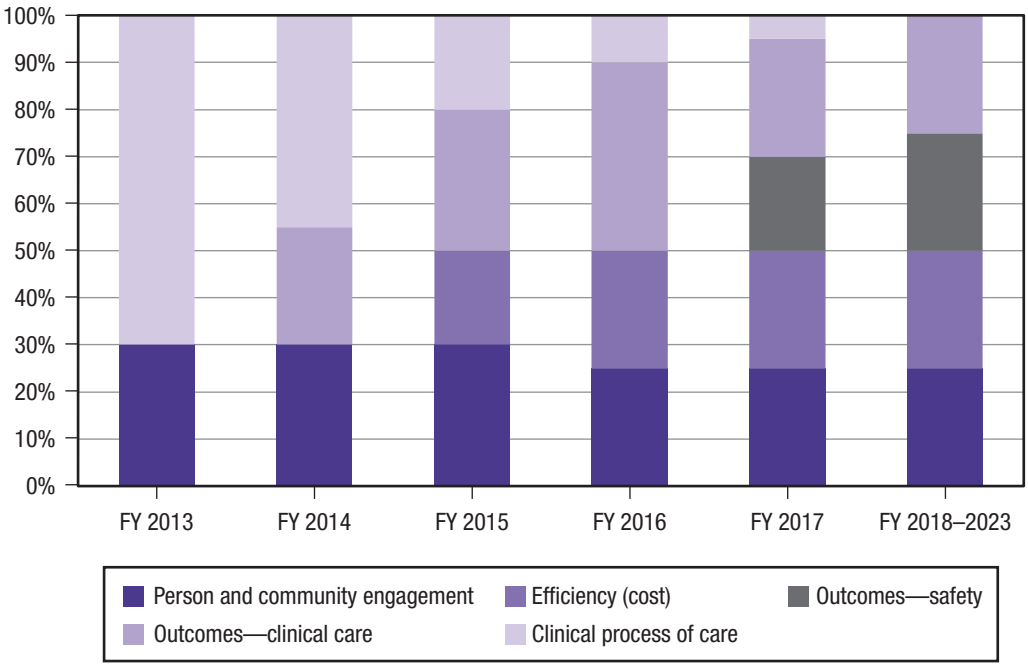

FIGURE 2.4 CMS quality measures, relative weights by fiscal year.
Source: Centers for Medicare & Medicaid Services. (2021h). *QualityNet: Hospital Value Based Purchasing (HVBP) Program*. https://qualitynet.cms.gov/inpatient/hvbp

- Five chart-abstracted measures of healthcare-associated infections (HAIs) submitted to the Centers for Disease Control and Prevention's National Healthcare Safety Network (CMS.gov, 2021g):
  - Central line-associated bloodstream infection (CLABSI)
  - Catheter-associated urinary tract infection (CAUTI)
  - Surgical-site infection (SSI) for abdominal hysterectomy and colon procedures
  - Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia
  - *Clostridium difficile* infection (CDI; CMS.gov, 2021d)

Never Events

According to the National Quality Forum (NQF), *never events* are errors in medical care that are clearly identifiable, preventable, and serious in their consequences for patients, and that indicate a real problem in the safety and credibility of a healthcare facility. As of fiscal year (FY) 2009, CMS no longer reimburses hospitals for never events of the associated costs of consequences associated with the event. Examples of never events include surgery on the wrong body part, foreign body left in a patient after surgery, mismatched blood transfusion, major medication error, severe "pressure ulcer" acquired in the hospital, and preventable postoperative deaths (CMS.gov, 2006, 2008, 2009).

OPTIMIZING AND CALCULATING REIMBURSEMENTS (PAYMENTS)

The Inpatient Prospective Payment System (IPPS) is the CMS program that manages in-patient hospital reimbursements based on FY discharged patients. Under the IPPS, each case is categorized into a DRG. Each DRG has a payment weight assigned to it, based on the average resources used to treat Medicare patients in that DRG. Reimbursements to hospitals are calculated using the DRG weight, the wage index for the labor market, and organizational Total Performance Scores (TPS) across a rolling 3-year performance period. CMS calculates a value-based incentive payment adjustment factor that is applied to the base-operating DRG payment amount for each discharge on a per-claim basis (CMS.gov, 2021b, 2021e).

The TPS for hospitals in FY 2021 will be determined by their comparative performance on performance standards in each of the domains of care. The four domains of care as outlined by CMS are as follows and are discussed in detail in the following text. Each domain contributes 25% toward the TPS:

- Clinical outcomes (25%)
  - Mortality and complications
- Patient Safety Indicator (PSI; 25%)
  - Healthcare-associated infections
- Person and community engagement (PCE; 25%)
  - Patient's perception of the experience
  - Measured through Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey
- Efficiency and cost (25%)
  - Medicare spending per beneficiary

The hospital's TPS is then compared to their previous baseline performance scores (organizational benchmark) to determine performance improvement achievements over baseline. In addition, they are compared to the performance of all other hospitals. Hospitals are rewarded or penalized based on how they compare both internally in the form of hospital change and externally as they compare to peers in the market. Payment reductions are applied to all underperforming hospitals. The total amount of these reductions is then used to fund value-based incentive payments to top-performing hospitals based on their performance in the comparison group (CMS.gov, 2021b).

Clinical Outcomes Domain

The focus of the clinical outcomes domain is to establish evidence-based care standards and protocols that result in the best possible outcomes for the most patients. FY 2023 clinical outcomes domain consists of three mortality **measures** and one surgical complication measure (CMS.gov, 2021h). Baseline measures: July 1, 2013 through June 30, 2016. Performance period: July 1, 2018 through June 30, 2021.

- AMI: 30-day mortality rate
- CABG surgery: 30-day mortality rate
- HF: 30-day mortality rate
- PN: 30-day mortality rate
- COPD: 30-day mortality rate

Patient Safety Domain

The patient safety domain is weighted 25% and is focused on the goal of eliminating or reducing the occurrence of adverse events (healthcare errors resulting in patient harm). For FY 2023 the patient safety domain consists of a composite patient safety score "Patient Safety and Adverse Events Composite" and five HAI measures as noted in the following list (CMS.gov, 2021h). Baseline period: October 1, 2015 through June 30, 2017. Performance period: July 1, 2019 through June 30, 2021. Benchmark for HAI's is zero.

- CLABSI
- CAUTI
- CDI
- MRSA
- SSI
- Colon resection

Person and Community Engagement Domain

The PCE domain is weighted 25% and is focused on the CMS goal of re-engineering hospital processes to improve patients' experiences of care and increasing the transparency of care for consumers. To meet these goals CMS has launched two broad initiatives: HCAHPS and Hospital Compare (CMS.gov, 2021h). The baseline period: January 1, 2019 through December 31, 2021. Performance period: January 1, 2021 through December 31, 2021.

HCAHPS is the first standardized, publicly reported national survey of patients' perspectives of their hospital experience. Pronounced "H-caps," the survey is the basis for the PCE domain, whichaccounts for 25% of the hospital's TPS. It is a 29-item instrument and data-collection tool that captures the patient's experience across eight

dimensions of care with one general-perception query related to the hospital rating. The dimensions are as follows:

- Six HCAHPS composite measures
  - Communication with nurses
  - Communication with doctors
  - Staff responsiveness
  - Communication about medicines
  - Discharge information
  - Care transition
- A dimension that combines the cleanliness and quietness items
- One global item (Overall Hospital Rating)

The survey is typically mailed to a random sampling of adult patients between 2 and 42 days after discharge from the hospital. The PCE domain score is based on the percentage of discharged patients who chose the most positive, or "top-box" survey response. The **validity** and **reliability** of the instrument and its methodology have allowed for valid comparisons of patient responses to be made across all hospitals both locally and nationally (Hospital Consumer Assessment of Healthcare Providers and Systems [HCAHPS] Fact Sheet, 2021).

Efficiency and Cost Domain

The efficiency and cost domain is weighted 25%. This domain is focused on the goal of improving the efficiency of healthcare services and recognizing those hospitals that are involved in the provision of high-quality care at a lower cost to Medicare. The FY 2023 efficiency and cost domain is measured by one spending measure and is calculated based on annual spending per Medicare beneficiary (CMS.gov, 2021h). Baseline period: January 1, 2019 through December 31, 2019. Performance period: January 1, 2021 through December 31, 2021. Benchmark mean of lowest decile of Medicare Spending Per Beneficiary (MSPB) ratios across all hospitals during the performance period.

OTHER VALUE-BASED PAYMENT MODELS

Bundled Payment

Bundled payment refers to a Shared Savings Program that is growing in popularity. With this model organizations enter payment arrangements that include financial and performance **accountability** for episodes of care. Healthcare providers receive a fixed amount of money to treat a patient either for a specific condition or episode of care (ex: pneumonia or an appendectomy) or within a certain time frame (e.g., 60 or 90 days). If the provider is able to treat the patient for less than the fixed amount provided, then the provider is entitled to a share of the surplus. If the cost exceeds the fixed amount, then the provider misses out on the opportunity for reimbursement under traditional reimbursement models (CMS.gov, 2016).

Accountable Care Organizations

Accountable care organizations (ACOs) are "groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high-quality care to their Medicare patients. The goal of coordinated care provided by an ACO is to ensure that patients, especially the chronically ill, get the right care at the right

time, while avoiding unnecessary duplication of services and preventing medical errors" (CMS.gov, 2021a). The concept was introduced in the ACA. "Under this model, a network of providers is responsible for quality, cost and overall care of Medicare beneficiaries. The network uses shared savings to promote structural changes in the delivery of care, especially coordination of care across the continuum of care providers. Among its requirements, an ACO must define processes to promote evidence-based medicine and patient engagement, report on quality and cost measures, and coordinate care" (ANA.org, 2010, p. 2). Implementation experiences and rural participation in the ACO concept were explored in a pilot study (Bagwell et al., 2017). Three themes emerged: (a) ACOs are growing, (b) there is an expanding emphasis on preventive primary care and chronic disease management, and (c) there is a need for improved information technology (IT) integration with clinical services and financial systems. Shared Savings, Shared Risk, and Capitation are examples of ACO models of reimbursement.

Shared Savings

The Shared Savings program is a Medicare program that "offers providers and suppliers (e.g., physicians, hospitals, and others involved in patient care) an opportunity to create an Accountable Care Organization (ACO). An ACO agrees to be held accountable for the quality, cost, and experience of care of an assigned Medicare fee-for-service (FFS) beneficiary population. The Shared Savings Program has different tracks that allow ACOs to select an arrangement that makes the most sense for their organization. The aims of the Shared Savings Program are to achieve better health for individuals, better population health, and lower growth in healthcare expenditure" (CMS.gov, 2021j).

Shared Risk

Shared risk is an association of independent practitioners, primary care physicians, who have been organized to encourage private practice practitioners to assume the role of health care **coordinators** and financial managers for their patients. In this model, often referred to as an ***independent practice association (IPA)***, each patient must choose one internist, family or general physician, or pediatrician. That physician must then refer the patient for all specialized care. The primary care physician will authorize payment for services from their own account for hospital and referral care provided to patients. The physician shares in any deficit or surplus remaining in the account at the end of the year (Casalino & Chenven, 2017).

Provider-Sponsored Health Plans

PSHPs are healthcare plans that are wholly owned and financially sponsored by a provider. That provider may be a hospital or integrated hospital system or physician group. These plans contract directly with employers, individuals, or Medicare and Medicaid to provide healthcare services and are licensed by the appropriate state regulatory agencies (Keckley et al., 2015).

Alternative Payment Model

Advanced alternative payment models (APMs): If you decide to take part in an advanced APM, you may earn a Medicare incentive payment for sufficiently participating in an innovative payment model. All APM and payment reforms that seek to deliver better care at lower cost share a common pathway for success: providers, payers, and others in the healthcare system must make fundamental changes in their day-to-day operations that improve quality and reduce the cost of healthcare (Health Care Payment Learning & Action Network, 2021).

Merit-Based Incentive Program

Implemented in 2017, the Merit-Based Incentive Payment System (MIPS) is a performance-based program that is part of Medicare Part B andincludes the physician fee schedule for Medicare. Advanced Practice Registered Nurses (APRNs), physicians, and other clinicians are typically eligible for this program. As of 2019, those who are eligible but do not participate will receive a 4% reduction in their Medicare Part B reimbursements in 2019. There are four performance categories within MIPS: (a) quality (e.g., patient outcomes), (b) advancing care information (which as originally related to Meaningful Use), (c) improvement activities (e.g., coordinating care, patient safety, etc.), and (d) cost (i.e., resource utilization; Apathy & Everson, 2020).

RELEVANT TERMS

Wage Index: CMS calculates the area's wage-index value as the ratio of the area's average hourly wage to the national average hourly wage. The wage index must be updated annually and is based on a survey of wages and wage-related costs of short-term acute care hospitals (CMS.gov, 2021k).

Performance Standards: Defined by the U.S. Office of Personnel Management (2021) performance standards are a "management-approved expression of the performance threshold(s), requirement(s), or expectation(s) that must be met to be appraised at a particular level of performance. A fully successful (or equivalent) standard must be established for each critical element and included in the performance plan. The standards should be written in terms of specific measures that will be used to appraise performance. In order to develop specific measurers, you first must determine the general measure(s) that are important for each elements" (OPM.gov, 2021; paragraph 2).

When assessing hospital performance on VBP measures, CMS will by compare the hospital's Achievement and Improvement scores to a threshold (50th percentile) and benchmark (mean of the top decile) to determine how many points are awarded for the Achievement and Improvement scores. The higher of the two scores is used to determine the individual score on the measure.

Benchmark: This represents the mean of the top decile of all hospitals' performance for each measure during the baseline period, other than the measure in the Efficiency and Cost Reduction domain, for which the benchmark is the mean of the top decile of hospital performance on a measure taken during the performance period (CMS.gov, 2021i).

Achievement Threshold: This marks the fiftieth percentile of all hospitals' performance for each measure during the baseline period, other than the measure in the Efficiency and Cost Reduction domain, for which it is the fiftieth percentile of hospital performance on the measure during the performance period (CMS.gov, 2021i).

The "Floor": This refers to the performance rate for the worst performing hospital during the baseline period, which defines the 0 percentile for this dimension. To calculate consistency points, a hospital's performance on its lowest dimension is compared to the "floor" (CMS.gov, 2021i).

The Domain Weight: This is a weight applied to each domain used to calculate a hospital-specific TPS. A hospital's weighted TPS is compared to TPSs for all hospitals to determine the hospital-specific gain (CMS.gov, 2021h).

Baseline Period: This refers to a specified period for which quality data is evaluated. The baseline period data is used for determining the floors, achievement thresholds,

and benchmarks (excluding the efficiency measure) and is also used in combination with other factors to calculate hospital-specific improvement points (CMS.gov, 2021h).

Performance Period: This is a specified period for which quality data is evaluated (CMS.gov, 2021h).

Hospital Compare: This term refers to transparency and public reporting of performance and quality scores**.** Under the Hospital Inpatient Quality Reporting Program, CMS collects quality data from hospitals that care for Medicare patients with the goal of driving quality improvement through measurement and transparency. The Hospital Compare website is a consumer-oriented website that provides information on how well hospitals provide care to their patients. This public display of data is intended to help healthcare consumers make informed decisions about where to go for healthcare. The website allows you to select multiple hospitals and directly compare performance-measure information related to heart attack, heart failure, pneumonia, surgery, and other conditions (Medicare.gov, 2021).

HEALTH INSURANCE AND REIMBURSEMENT IN NONACUTE CARE SETTINGS

Although 60% of employed nurses work in acute care, more than 25% practice in an ambulatory or postacute setting. Many of these nonhospital care providers and sites, sometimes referred to as *alternate care*, are growing in popularity as compared to inpatient care as our healthcare system continues to transition to more ambulatory care services rather than the often more expensive inpatient care alternative (Berlin et al., 2020). These settings can be categorized in several ways, to include the following:

- Long-term care
  - Skilled nursing, intermediate care, and subacute services
  - Assisted living
  - Community service agencies
- Dialysis
- Rehabilitation
- Physician offices
  - Primary care
  - Specialty care
  - Owned/managed care
  - Self-operated care
- Home health
- Behavioral health
- Hospice care
- Social services agencies
  - Adult day care
- Other
  - Dental, optometry
  - Schools
  - Correctional facilities

A contemporary (2016) organizing framework for the postacute and complex care settings simply views these settings as either (a) traditional or (b) revitalized. Traditional settings include an acute inpatient rehabilitation facility (IRF), long-term acute care hospital (LTACH), short-stay skilled nursing facility (SNF), home healthcare, or hospice. Revitalized settings include provider-based house calls, assisted living (AL) adaptation for short-stay joint rehabilitation, complex care coordination clinics, complex care patient-centered medical home (PCMH), new long-term care insurance products that promote and provide services to age in place, and care transition models (Groups, 2021). As with hospitals, reimbursement for care delivered in these settings is shifting from traditional fee for service (where reimbursement is based on volume) toward value-based programs. Programs, such as Medicare's Patient-Driven Payment Model (PDPM) for SNFs, Medicare Advantage, Managed Medicare, and provider-sponsored health plans, are requiring an increasing perspective toward quality, value, and risk in the postacute and ambulatory settings (Mendelson, 2019). Issues affecting care in primary care settings include reimbursement, telemedicine, the measurement of key metrics, cost and revenue, practice transformation, technology, and efficient operation (Medical Group Management Association, 2020). In long-term care, issues include but are not limited to reimbursement, staffing, compliance reviews, occupancy, and liability.

Most long-term care services are paid for by the government. Medicare and Medicaid together pay for the majority of long-term care claims. Because Medicaid is funded by both state and federal government, and because state budgets vary, there is significant variation in rates, adding to the overall complexity of services. Ng, Harrington, and Kitchener (2010) referred to this state of affairs as "piecemeal developmental history and shared federal–state responsibility" (p. 22), which confuses both providers and patients. They asserted that the system of long-term care needs structural reform.

When there are multiple payers in healthcare, this introduces conflicting incentives for providers, which may have negative implications for cost containment, service delivery, and the quality of care (Glazer & McGuire, 2002). Specifically, Grabowski (2007) described dual-eligible patients caught in this economic confusion. "Many persons who are dually eligible for both Medicare and Medicaid require both extensive acute and long-term care services. However, because Medicare covers relatively few long-term care services, Medicaid must cover the bulk of these expenditures for dual eligibles" (p. 580). The result is that neither government program takes full responsibility for care management. Some policy options to improve the reimbursement mechanisms for dual eligibility include capitation, pay-for-performance, "federalization" (where the federal government assumes Medicaid's costs for dual eligibles), and mandatory enrollment into integrated care programs (Grabowski, 2007; Grabowski et al., 2017).

A state-by-state scorecard, available at www.longtermscorecard.org, ranks states and the District of Columbia across five dimensions of long-term care: affordability and access, choice of settings and providers, quality of life and quality of care, support for family caregivers, and effective transitions (Reinhard et al., 2020). More than 20% of discharges for Medicare patients require immediate postacute care (Werner & Konetzka, 2018), making it necessary for acute care systems to partner with postacute care settings to ensure the care coordination that reimbursement systems increasingly require, especially in light of the goal to prevent hospital readmissions when possible (Smith et al., 2019).

PAYER MIX AND REVENUE CYCLE

Payer mix refers to the proportions of payments received from each kind of payer—federal, state, private, or self-pay. In short, payer mix tells you the types of patients coming to your facility. As our population continues to age, an increasing number of individuals are transitioning to Medicare from private plans, thus, revenue will decrease as

oftentimes private insurance pays more than Medicare. In addition, the increase in quality-based programs from fee-for-service is stagnating the reimbursement levels, necessitating changes in strategies for healthcare providers, including cost-cutting, modeling payment alternatives, offering additional services such as telehealth, and use of improved information systems to track metrics (Armstrong et al., 2019). A focus on the revenue cycle, which begins with patient registration and ends with the collection of all reimbursement, is also crucial for healthcare providers. Healthcare providers should focus on decreasing denials as well as the reasons for denials, enhancing and integrating information systems to capture all of the necessary data and metrics, increasing patient engagement, and streamlining processes (Bees, 2019; "Cost and Transparency Top Issues Facing Revenue Cycle," Relias Media, 2019).

APRN REIMBURSEMENT

Provider reimbursement can be considered along a continuum representing the financial risk borne by the buyer (patient) and the risk borne by the seller (provider). Any risk not borne by the buyer or the provider is borne by the third-party payer (Goldsteen et al., 2020). "The involvement of the **Advanced Practice Registered Nurse (APRN)** in the reimbursement process depends on whether the APN is allowed by the applicable state and federal regulations to practice and bill independently and is able to obtain direct reimbursement for those independently delivered services" (Hamric et al., 2013, p. 570). Current information about APRNs billing Medicare is available at www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/Medicare-Information-for-APRNs-AAs-PAs-Booklet-ICN-901623.pdf. The state practice environment is variable with respect to the best environments in which to practice and seek reimbursement for services. Information is available at www.aanp.org/legislation-regulation/state-legislation/state-practice-environment.

APRNs and advanced specialty nurses are becoming more aware of the need to bill independently for their services, and between 2010 and 2017 the number of midlevel providers billing Medicare more than doubled (DeGarmo, 2020). However, the legal requirements regarding the supervision of APRNs varies greatly across the United States (Ritter et al., 2018) and typically, the reimbursement rate is 85% of the Physician Fee Schedule for the same services (Poghosyan, 2018). The most important take-home point for APRNs is to continue to work toward independent billing and to recognize the strong ties to quality and customer satisfaction that are imperatives in value-based insurance systems.

CURRENT ISSUES AND TRENDS

The Environmental Scan 2021 (AHA, 2021a) and the FutureScan 2021–2026 (AHA, 2021b) reports are two documents published annually by the American Hospital Association (in conjunction with other professional organizations). The FutureScan report includes insight on healthcare trends from several healthcare leaders, whereas the Environmental Scan provides data on key issues that will likely impact the healthcare sector in the coming years. These reports are extremely relevant to the healthcare reimbursement arena particularly, as reimbursement does not typically take place in a neat and orderly system and is nearly always impacted by current and future trends in healthcare as well as the political and social environments. In addition, routine reports from the Healthcare Financial Management Association, the Medical Group Management Association, and other groups of healthcare professionals can be extremely valuable for those tracking trends and future directions in the healthcare reimbursement arena. However, many of the most recent reports from these organizations were quite different from past

years as they included a major focus on the impacts that have occurred in healthcare due to the COVID pandemic. Regardless of the impact of COVID though, it is important to remember that, overall, payments operate within a vortex of forces that include providers, government, consumers, the economy, technology, the workforce, and quality and safety requirements. Staying abreast of these reports and other relevant sources is critical for healthcare leaders.

COVID ISSUES

- Hospitals and health systems in the United States were projected to lose more than $323 billion in 2020, much of which was directly related to the COVID pandemic (AHA, 2021a); however, the federal government provided more than $70 billion to hospitals in 2020 to bolster their financial standing (Healthcare Financial Management Association, 2021).
- Compared to 2019, the overall federal **budget** deficit tripled in 2020, and more than 20% of states had a budget shortfall in 2020 which is due, at least in part, to COVID-19 (AHA, 2021a).
- Providers saw a dramatic increase in the use of telehealth, moving from approximately 11% of consumers using telehealth before the pandemic, to nearly 50% of consumers using telehealth just a few months into the pandemic (mid-2020); a dramatic positive shift in provider perceptions of telehealth also occurred over the course of 2020 (AHA, 2021a).
- In 2020, over the course of the pandemic, approximately 41% of adults in the United States deferred medical care, which could have long-term consequences for our healthcare system, (AHA, 2021a), including an increase in claims in the near future (Mehlman & Mendelson, 2021).

GENERAL TRENDS AND ISSUES

- More than 57% of hospitals are now participating in and are considered ACOs, up from just 30% in 2015, and more than 18% of hospitals' net patient revenue is based on a shared risk model, up from just 11% in 2015 (AHA, 2021a).
- **Providers:** The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) payment model was enacted in 2016, and since 2019, the baseline payments for providers have been frozen with the addition of the MIPS program, which focuses on quality and costs ("FAQ on MACRA and Medicare Payment Reform," American Academy of Family Physicians, 2021).
- **Government**: In 2020, Medicare tied approximately 20% of payments to value and quality, but they have a goal of having nearly 100% of reimbursements tied to value and quality by 2025. However, the Biden administration has placed a temporary pause on several key value-based programs to review the models details ("Transitioning to Value-Based Care While Reducing Risks," RevCycle Intelligence: xtelligent Healthcare Media, 2021).
- **Consumers:** Of the $3.8 trillion spent on healthcare annually in the United States, 90% is for expenditures related to chronic and mental health conditions. Obesity alone affects 42% of American adults and costs approximately $147 billion each year ("Health and Economic Costs of Chronic Diseases," 2021).
- **Economy:** In 2019, what the United States spent on healthcare was nearly 18% of our total GDP. Although this figure has somewhat stabilized from 2010 to 2020, the cost of healthcare has certainly not decreased.

- **Workforce:** APRNs have expanded their role in the primary care setting, increasing their presence from approximately 17% in 2008, to approximately 24% in 2016, and employment rates are continuing to escalate much faster that initially predicted. A recent report from the Bureau of Labor Statistics reported that employment for APRNs (nurse practitioners, nurse midwives, and nurse anesthetists) is projected to grow another 45% from 2019 through 2024 (*Occupational Outlook Handbook: Nurse Anesthetists, Nurse Midwives, and Nurse Practitioners*, [U.S. Bureau of Labor Statistics, 2021]). However, continued efforts to reach full scope of practice and reimbursement parity with physicians will be necessary to continue this expansion (Barnes et al., 2018).
- **Quality and Safety**: Today, a typical health system accepts patients from dozens of payers. Each of these payers has its own measures for evaluating performance. There is an astounding proliferation of quality measures . . . numbering more than a thousand . . . and we will see a renewed effort to align and simplify the measurement cacophony (DeVore, 2015). The quality and safety challenge extends beyond the acute care arena. "Inpatient procedures are shrinking and outpatient procedures are growing at double-digit rates" (Beasley, 2015, p. 22). The quality, cost, and value imperatives form the Triple Aim driving reimbursement (Institute for Healthcare Improvement [IHI], 2017) and require measurement and reporting.
- **Consolidations:** There will be an increase in strategic mergers and acquisitions, which will enable healthcare systems to better absorb the impact of a future major health crisis (AHA, 2021b).
- **Social Inequities:** The COVID-19 pandemic has further highlighted the unmet social needs and poor outcomes for some of the most vulnerable Americans, including minority populations. The AHA's FutureScan 2021–2026 report cites a study which indicates that through improved health equity, the United States could save more than $230 billion while improving the health outcomes for many Americans (AHA, 2021b).
- **Consumerism:** Americans have never had more opportunities to take a proactive role in their healthcare decisions than they do today. Innovations, such as retail healthcare, digital health, Internet pharmacies, and web-based healthcare providers, have made access, transparency, and choice a consumer market. Thus, healthcare leaders will need to understand their customers' needs, build collaborations, and enhance self-care opportunities in order to remain competitive and financially viable (AHA, 2021b).
- **Value-Driven Outcomes:** Healthcare leaders need to be able to reduce costs while simultaneously improving outcomes. A value- driven outcomes framework should enable the following:
  - "Identify the true costs of care at the patient-encounter level.
  - Compare those costs with medical outcomes data.
  - Organize the presentation of that data to support value improvement" (AHA, 2021b).

POLITICAL AND ECONOMIC ENVIRONMENT

Numerous professional organizations represent nursing on a variety of topics, including the American Nurses Association (ANA), the National Organization of Nurse Practitioner Faculties (NONPF), the American College of Nurse Practitioners (ACNP), the National Association of Pediatric Nurse Practitioners (NAPNAP), the American

Academy of Nurse Practitioners (AANP), the Gerontological Advanced Practice Nurses Association (GAPNA), and the National Association of Nurse Practitioners in Women's Health (NPWH). Some of the top advocacy issues facing these organizations over the next decade include the following:

- ANA (2021)
  - Health system transformation—Guarantees access to high-quality healthcare for everyone, including a focus on primary care, universal access, an adequate supply of skilled nurses, and cost-effective care.
  - Safe staffing—Enactment of safe staffing laws ensures patient safety.
  - The Nursing Workforce Development program needs to be reauthorized by congress.
  - Decrease workplace violence.
  - Addresthe opioid epidemic.
- AANP (2021)
  - Secure full practice authority and scope of practice for APRNs across the country.
  - Seek unlimited prescriptive authority for all APRNs within their scope of practice.
  - Set goal for all nurse practitioners (NPs) to practice autonomously and in coordination with healthcare professionals and other individuals.
  - Support efforts that increase patient access to the full primary care provider workforce and allow for patient choice in provider selection.
  - Reengineer reimbursement systems to reflect the true costs of care to ensure that all practice settings, including primary care practices, nurse-managed health centers, and emerging delivery models, can be self-sustaining.
  - Promote reimbursement based on services provided.
  - Track provider-specific services and outcomes; linking outcomes to specific providers promotes accountability in care.
  - Recognize outcomes of care as critical indicators in effective reimbursement models.
  - Include NP-led practices and NPs as full partners in medical homes, ACOs, insurance exchanges, and other developing innovations.
  - Continue to remove the outdated legislative and regulatory barriers that impede the use of NPs to the fullest extent of their education and abilities in addressing patient care needs.

Stuart Butler (2016) of the Brookings Institution suggested six aspects of the ACA that need rethinking considering disappointing early enrollment in the ACA exchanges and the growth of premiums and out-of-pocket expenses. First, subsidies to make coverage more affordable and understandable need revision. Second, the fact that health insurance expenses cannot be deducted from taxes is troubling and regressive from the perspective of economists. Third, the employer and individual mandates to offer or carry health insurance, respectively, need to be reconsidered at the state level, with the goal of giving clearer guidance to states regarding use of waiver authority. Fourth, lackluster enrollment in exchange plans needs to be reversed by turning Medicaid into a private option that is a subsidy for purchasing private plans on the exchanges. Fifth, the Independent Payment Advisory Board (IPAB) should be replaced to help contain the

Medicare budget. And sixth, the ACA should promote health rather than simply making health services and insurance more available. "In the future, blending health, housing, transportation, social services, and other budget streams are essential to improve health while reducing the need for costly medical services" (Butler, 2016, p. 496).

The ACA features that have been well received include coverage for preexisting conditions and subsidies for those at the FPL (Mathews & Radnofsky, 2017). In addition, the AHA is advocating a number of priorities for the next few years, including full support of the ACA and advancing affordability in health care;, sustaining the gains in health coverage; protecting patients' access to care; advancing health system transformation; and enhancing quality, patient safety and equity (AHA.org, 2021).

INTERPROFESSIONAL IMPLICATIONS: THE IDEAL INTEGRATED DELIVERY SYSTEM

More than 20 years ago, Shortell et al. (1999) suggested that an ideal healthcare system would use an integrated delivery system (IDS). That is, an IDS is a system in which patients, providers, and payers are well aligned. It is only now that all features of this vision are finally driving reimbursement. The following features characterize Shortell et al.'s (1999) IDS:

1. Serves a defined population.
2. Provides a defined set of services/benefits.
3. Integrates services, administratively and clinically, and uses an integrated information system that covers all the services offered.
4. For the most part, pays providers on a capitated basis.
5. Has hospital beds and one or more long-term care services.
6. Pools funds coming in from several sources.
7. Has a shared **mission**, philosophy, and vision.
8. Has centralized and joint planning and management.
9. Provides an organized continuum of care through healthcare teams.

Building on the aforementioned view expressed nearly a generation ago, while looking to the future, Dr. Don Berwick, a former acting administrator at CMS, advocates for a new era in healthcare that follows a model based on cooperation and prevention versus competition and treatment (O'Connor, 2016). In future IDSs, DNPs will play an important role on the team, especially related to optimizing reimbursement through quality care. To explain, "Clinically integrated systems of care are designed to collect and share data from all participating providers. This process fosters interdependence and collaboration among physicians and other clinicians that can lead to quality improvements and enhanced cost-effectiveness" (Henkel & Maryland, 2015, p. 6). Hallmarks of an IDS are "evaluation, continuous clinical performance improvement, reduction of unnecessary services, and management and support for high-cost and high-risk patients" (Henkel & Maryland, 2015, p. 6).

DNP ROLE AS RELATED TO REIMBURSEMENT

The DNP is in a strategically important position to optimize reimbursement through effective clinical leadership to promote clinically effective, evidence-based care. The Institute of Medicine (IOM) imperatives (IOM, 2000) are to provide care that is safe, timely, effective, efficient, equitable, and patient centered. All imperatives require clinical leadership.

Safe: *Patient safety* is defined by the IOM as "freedom from accidental injury; ensuring patient safety involves the establishment of operational systems and processes

that minimize the likelihood of errors and maximizes the likelihood of intercepting them when they occur" (IOM, 2000, p. 211).

Timely: Timely care is provided to align length of stay with reimbursable arrangements. Optimizing patient flow and reducing waiting times and delays for both providers and patients are aspects of timely care.

Effective: Care that produces the desired or intended results is effective. For example, hospitals intend treatment to be accomplished without infection. Preventing infection is challenging, but imperative. The financial cost of infection is staggering. Approximately 2 million patients acquire a nosocomial infection each year, resulting in 80,000 deaths and adding $5 billion to U.S. healthcare costs annually (IOM, 2000). Data from the Centers for Disease Control and Prevention (CDC; 2022) suggest that nosocomial infections are declining in both acute care and nonacute care settings, but more improvement is needed. DNPs who focus on infection control play a significant role in this daunting area of concern. Knowledge of how to enhance organizational adherence to infection control guidelines is a key capability of DNP graduates. The federal government and most insurers will no longer reimburse for days of stay resulting from preventable infections.

Efficient: This refers to care that reduces waste (e.g., unnecessary tests) and administrative or production costs (e.g., multiple entries, complex classification, layers of control).

Equitable: Providing high quality care that does not vary across various populations—gender, race, ethnicity, socioeconomic status, etc.

Patient centered: Care that "[e]ncompasses qualities of compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient" (IOM, 2000, p. 48).

Patients may be confused about their insurance coverage and billing and will look to the DNP to listen to their concerns. Lankford (2017) states that the Alliance of Claims Assistance Professionals (www.claims.org) offers free consultation and basic advice. Help with billing, coding, and coverage questions is available at www.medicalclaimshelp.org. Patients may also experience health literacy challenges and concerns about health insurance coverage options. The Kaiser Family Foundation identified three main concerns: (a) people's ability to determine their coverage eligibility and navigate the enrollment system; (b) navigating the broad choice of plans and the ability to compare insurance plans and coverage; and (c) once people are enrolled, it is a challenge for them to use their coverage to connect to the care they need (National Academy of Sciences, 2017).

Cost reduction is a key role of the DNP. Cost reduction involves (a) reducing variation by standardizing protocols; (b) removing unnecessary care by reducing errors, preventable readmissions, avoidable conditions, and unnecessary tests; (c) restructuring costs to use the lowest cost setting and provider possible for each service; and (d) adopting a system of care strategy, such as medical homes and disease management, that will reduce the overall need for hospital services. The DNP is a key leader to standardize protocols, minimize unnecessary care, advocate for the lowest cost setting and provider, and focus on chronic disease management (Larkin, 2011).

The DNP plays a crucial role in chronic care management. RPG Group's Bill Bellenfant stated, "the greatest opportunity to derive added value from health care today is in how we treat those with chronic conditions. How strong are our programs for managing diabetes? What are we doing for patients with hepatitis? The key is to get consensus from your clinical staff on optimal practices and standardize these treatments. Mine your data—identify the better patient outcomes, the shorter length of stay (LOS), the

good financial outcomes, the lower infection rates. And then replicate those protocols across your patient populations" (Healthcare Financial Management Association, 2011, p. 6). Highly collaborative care—especially for patients with complex medical needs—particularly during care transitions, is an important strategy used to help reduce costly hospital admissions and readmissions.

Jason Dinger, CEO of MissionPoint, and his team see healthcare evolving on three primary fronts: (a) healthcare as an internet of things, (b) the broader proliferation of video, and (c) a better focus on social determinants of health (Henkel & Maryland, 2015). These factors form yet another, albeit positive, triple overlay on the already complex healthcare reimbursement landscape described in this chapter.

RE-ENVISIONED AACN ESSENTIALS, 2021

In March 2021, the AACN approved the new re-envisioned AANC Essentials, *The Essentials: Core Competencies for Professional Nursing Education*, which is a competency-based model for curriculum development that contains 10 domains of competence that, when considered collectively, constitute a descriptive framework for the practice of professional nursing. The new format addresses entry-level competencies and advanced-level competencies as a continuum of professional nursing education and aligns with current healthcare trends. The goal of the new model is twofold: (a) to better prepare nurses entering the workforce to manage the complexities of current and future healthcare demands and advance the profession of nursing, and (b) provide a seamless foundation for the preparation and advancement of nurses across the educational continuum (AACN, 2021).

"Although the domains are presented as discrete entities, the expert practice of nursing requires integration of most of the domains in every practice situation or patient encounter, thus they provide a robust framework for competency-based education" (*AACN*, 2021, p. 11). The domains and descriptors used in the Essentials follow (AACN, 2021).

- **Domain 1: Knowledge for Nursing Practice Descriptor**: Integration, translation, and application of established and evolving disciplinary nursing knowledge and ways of knowing, as well as knowledge from other disciplines, including a foundation in liberal arts and natural and social sciences. This distinguishes the practice of professional nursing and forms the basis for clinical judgment and innovation in nursing practice.
- **Domain 2: Person-Centered Care Descriptor**: Person-centered care focuses on the individual within multiple complicated contexts, including family and/or important others. Person-centered care is holistic, individualized, just, respectful, compassionate, coordinated, evidence based, and developmentally appropriate. Person-centered care builds on a scientific body of knowledge that guides nursing practice regardless of specialty or functional area.
- **Domain 3: Population Health Descriptor**: Population health spans the healthcare delivery continuum from public health prevention to disease management of populations and describes collaborative activities with both traditional and nontraditional partnerships from affected communities, public health, industry, academia, healthcare, local government entities, and others for the improvement of equitable population health outcomes.
- **Domain 4: Scholarship for Nursing Practice Descriptor**: The generation, synthesis, translation, application, and dissemination of nursing knowledge to improve health and transform healthcare.

- **Domain 5: Quality and Safety Descriptor**: Employment of established and emerging principles of safety and improvement science. Quality and safety, as core values of nursing practice, enhance quality and minimize risk of harm to patients and providers through system effectiveness as well as individual performance.
- **Domain 6: Interprofessional Partnerships Descriptor**: Intentional collaboration across professions and with care team members, patients, families, communities, and other stakeholders optimizes care, enhances the healthcare experience, and strengthens outcomes.
- **Domain 7: Systems-Based Practice Descriptor**: Responds to and leads within complex systems of healthcare. Nurses effectively and proactively coordinate resources within and across complex health systems to provide safe, quality, equitable care to diverse populations.
- **Domain 8: Information and Healthcare Technologies Descriptor**: Information and communication technologies and informatics processes are used to provide care, gather data, form information to drive decision-making and support professionals as they expand knowledge and wisdom for practice. Informatics processes and technologies are used to manage and improve the delivery of safe, high-quality, and efficient healthcare services in accordance with best practice *and professional and regulatory standards.*
- **Domain 9: Professionalism Descriptor**: Form and cultivate a sustainable professional nursing identity, accountability, perspective, collaborative disposition, and comportment that reflects nursing's characteristics and values.
- **Domain 10: Personal, Professional, and Leadership Development Descriptor**: Participation in activities and self-reflection that foster personal health, resilience, and well-being; lifelong learning; and support the acquisition of nursing expertise and assertion of leadership.

The DNP-prepared nurse must develop competencies that integrate each of these domains as a framework for professional practice. However, the competencies organized within Domain 7: Systems-Based Practice pertain to organizational and systems leadership for quality improvement and **systems thinking** that directly speak to the focus of this chapter (insurance and finance). The advanced-level competencies are as follows:

- Apply knowledge of systems to work effectively across the continuum of care.
  - Participate in organizational strategic planning.
  - Participate in system-wide initiatives that improve care delivery and/or outcomes.
  - Analyze system-wide processes to optimize outcomes.
  - Design policies to impact health equity and structural racism within systems, communities, and populations.
- Incorporate consideration of cost-effectiveness of care.
  - Analyze relevant internal and external factors that drive healthcare costs and reimbursement.
  - Design practices that enhance value, access, quality, and cost-effectiveness.
  - Advocate for healthcare economic policies and regulations to enhance value, quality, and cost-effectiveness.
  - Formulate, document, and disseminate the **return on investment (ROI)** for improvement initiatives collaboratively with an interdisciplinary team.

- Recommend system-wide strategies that improve cost-effectiveness considering structure, leadership, and workforce needs.
- Evaluate health policies based on an ethical framework considering cost-effectiveness, health equity, and care outcomes.

- Optimize system effectiveness through application of innovation and evidence-based practice.
  - Apply innovative and evidence-based strategies focusing on system preparedness and capabilities.
  - Design system-improvement strategies based on performance data and metrics.
  - Manage change to sustain system effectiveness.
  - Design system-improvement strategies that address internal and external system processes and structures that perpetuate structural racism and other forms of discrimination in healthcare systems (AACN, 2021)

CONCLUSIONS

The federal government makes most of the rules that apply to healthcare reimbursement. The reimbursement conditions and rules operate in an imperfect economic market within a vortex of environmental factors. Healthcare entities typically receive reimbursement in a prospective method from government and private insurers, who are increasingly requiring quality measures with a focus on value. This is a marked change from prior eras, when straight-forward patient volume drove reimbursement. DNPs are in an excellent position to drive healthcare quality, which will not only ensure that patients are safely and effectively treated, but also that optimum reimbursement for services is realized. At the time of this writing, legislation and policies to further transform our healthcare system are once again being proposed. Some of the major topics being discussed include protecting and expanding the ACA, implementing a single-payer system ("Medicare for All"), expanding Medicaid in additional states, and make additional efforts to expand and enhance value-based reimbursement models (DeVore, 2021; Schaefer, 2021). Although large-scale healthcare reform (e.g., a single payer system) is unlikely, at least in the near future, smaller scale transformations to our health insurance programs and reimbursement models will almost certainly transpire, which will necessitate the active participation and engagement of DNP professionals in the development and implementation of these changes.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. List three ways the DNP provides leadership in helping a healthcare entity optimize reimbursement from insurers.
2. Choose two preferred financial and patient care outcomes from the following list and describe two ways to achieve each of them:
   a. Reduce overall hospital admissions.
   b. Reduce average length of stay.
   c. Reduce avoidable hospital readmissions.

d. Reduce high-tech imaging services.
e. Reduce amount CMS pays per beneficiary.

3. Discuss three of the CMS's major value-based programs. Define the programs and the criteria that are needed for each of these programs to be successful.
4. Can the kind of care proposed in an IDS be provided in a system that has a primary focus on either provider or corporate incomes and profit accumulation?
5. Why is it financially important for hospitals to institute effective discharge-planning programs?
6. Partnerships between acute care and community-based settings improve continuity of care. How do these partnerships influence reimbursement for health systems?

ADDITIONAL READING AND RESOURCES

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America's Health Insurance Plans: www.healthinsuranceproviders.com/health-insurance-association-of-america-hiaa

The Commonwealth Fund: www.commonwealthfund.org

Healthcare Financial Management Association: www.hfma.org Healthcare Financial Management Association)

Kaiser Family Foundation: www.kff.org

The Medical Group Management Association: www.mgma.org

Operational Excellence in Health Care: www.intalere.com

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 3

Nurse Practitioner and Nurse Leader Strategies for Practice and Population Health Management: Financial Implications

Lisa Duncan and Karen A. Van Leuven

Advanced practice registered nurses (APRNs) are registered nurses who have completed graduate education that expands their scope of practice via didactic and clinical education. Nurses practicing in APRN roles include nurse practitioners (NPs), clinical nurse specialists (CNSs), certified nurse midwives (CNMs), and certified registered nurse anesthetists (CRNAs). Initially, APRNs were educated at the certificate level; however, as the roles evolved, education transitioned to theMSN degree. Many APRNs are educated at the doctoral level. The American Association of Colleges of Nursing (AACN) 2021 Core Competencies for Professional Nursing Education defines 10 domains and four concepts that drive nursing education and practice. The competencies found within the domains are written at two levels—entry level and advanced nursing education. DNP programs are expected to incorporate a scholarly **project** that will be evaluated by faculty and that demonstrates students' attainment of level-1 subcompetencies, level-2 subcompetencies, and the competencies of their specialties (informatics, administration/practice leadership, public health/population health or health policy) or advanced nursing practice role (NP, CNS, CNM, or CRNA; AACN, 2021).

The essential domains defined by AACN are (a) knowledge for nursing practice; (b) person-centered care; (c) population health; (d) scholarship for the nursing discipline; (e) quality and safety; (f) interprofessional partnerships; (g) systems-based practice; (h) informatics and healthcare technologies; (i) professionalism; and (j) personal, professional, and leadership development. The concepts associated with professional nursing practice are woven into the domains and are clinical judgment; communication; compassionate care; diversity, equity, and inclusion; ethics; evidence-based practice; health policy; and social determinants of health (AACN, 2021). It is important for doctoral nursing students to understand the financial impact of the APRN practice and the potential impact on population health caused by restrictions on the APRN scope of practice.

BACKGROUND

The role of the APRN has evolved over a lengthy period of time and has become increasingly more important in the delivery of healthcare in the United States. The first APRNS were nurse anesthetists, beginning practice in the late 1800s by administering anesthesia, thereby freeing surgeons to concentrate on the surgical procedure (Diers, 1991; Savrin, 2009). Nurse midwives appeared next. Although midwives have existed since antiquity, this role, which combined nursing knowledge with advanced skills, is relatively new. Early professional midwifery services in the United States were supplied by nurse midwives from England who came to the United States to provide perinatal and delivery services to rural and underserved areas that did not have their own physicians. However,n 1925 in rural Kentucky in 1925, the Frontier Nursing Service began the first program in the United States to educate nurses to serve as midwives and public health nurses (Frontier Nursing Service, 2000). The third APRN role to appear was that of the CNS. This role evolved as the complexity of healthcare increased after World War II. The goal of the CNS was to provide clinical expertise that would improve patient care. This role placed the CNS in contact with staff nurses, physicians, and patients predominantly in acute care settings (LaSala et al., 2007). The NP is the most recent APRN role to develop. In 1963 in response to a shortage of primary care providers, the surgeon general recommended, in response to a shortage of primary care providers the NP role be developed to address this concern (LaSala et al., 2007). In 1965, Loretta Ford, a public health nurse working in rural Colorado, together with Henry Silver, a pediatrician, launched the first NP program. The program was a 3-month continuing-education curriculum focused on health promotion, disease prevention, and the healthcare needs of children and families (O'Brien, 2003). Currently, all NP programs are delivered at the graduate level. Curricula focus on management of health and illness, the NP–patient relationship, teaching and coaching of patients, managing and negotiating healthcare delivery systems, cultural sensitivity, and quality of care (American Academy of Nurse Practitioners [AANP], 2013). Although NPs are the most recent addition to the APRN group, they represent the largest and most visible group of APRNs (Savrin, 2009).

Since their beginnings, APRNs have contributed to the delivery of essential care services. This chapter looks at their role in managing population health and the financial implications of current billing and coding practices.

INCIDENT-TO VERSUS DIRECT BILLING

Although NPs have been delivering primary care services since 1965, direct reimbursement for NP services did not beginuntil 1990, when Medicare offered reimbursement to NPs—but only for those working in rural areas and skilled nursing facilities (SNFs). In 1997, Medicare amended its reimbursement of APRNs to include all geographical regions and included reimbursement for CNS, CNM, and CRNA services. Reimbursement by commercial insurers followed suit (Wound, Ostomy, & Continence Nurses Society [WOCN], 2012).

Although NPs can bill directly for services, the value of their services is often hidden as a result of the frequent practice of NP care being billing NP care under physician provider numbers. This situation occurs when the NP works as an employee or as contracted labor for a physician or group of physicians. Under Medicare guidelines, when physicians bill for services, reimbursement occurs at 100% of the negotiated physician-fee reimbursement. However, when an NP delivers the *same* care, but bills under their own provider number, the NP is reimbursed at 85% of the physician-fee schedule (Centers for Medicare & Medicaid Services [CMS], 2016). A work-around solution found in many settings is for

the NP to deliver care but to bill services under the physician's provider number (Buppert, 2015). This allows 100% reimbursement, but because NP salaries are typically below physician salaries, this results in increased profit to the practice, not the NP.

This is an interesting strategy that allows practices to use the work of NPs to deliver care and reap financial benefits by employing lower paid providers. Yet, on the grand scale, it makes it difficult to track the contribution of NPs in care delivery. Without this knowledge, lawmakers and regulators have no real incentive to create laws or positions that are favorable to APRNs.

Certain requirements must be met for **incident-to billing** to occur:

1. Services are provided to a Medicare beneficiary.
2. Services are provided in "noninstitutional setting" and not in a ferally qualified health center or rural health center.
3. A follow-up visit must be scheduled with an already established plan of care.
4. Care must be provided under "direct supervision" of physician.
5. Physician must "actively" participate in and manage course of treatment.
6. Both physician and NP must be employed by the same entity.
7. The service must be of a type usually performed in the office setting and part of the normal course of treatment (Verhovshek, 2018).

All criteria must be met for billing to be appropriate at the physician-fee schedule. Although this practice originated with Medicare, states and local healthcare agencies set their own requirements for credentialing (McMullen & Howie, 2019). Credentialing is a verification of the qualifications of a provider, which, when successfully completed, allows the provider to conduct business, including billing for that business, at a site or with members of a group. Refusal to credential NP providers is a denial of their legitimacy as healthcare providers. Furthermore, reimbursement can only be obtained by billing under the credentialed physician.

The Medicare Payment Advisory Commission (MedPAC), an independent congressional agency established by the Balanced Budget Act of 1997, advises Congress on care quality and access. It also provides recommendations on Medicare payment policies. In 2019 MedPAC recommended a requirement for APRNs to bill directly for services, eliminating incident-to to billing (MedPAC Staff, 2019).

With Coronavirus 2019 (COVID-19) and the ensuing public halth emergency (PHE), some requirements for supervision have been relaxed to include remote supervision. Other changes occurring with the PHE are permission for NPs to supervise the performance of diagnostic tests within their scope of practice and state law (CMS, 2020) and approval to provide certain medical services to Medicare recipients at SNFs (Zolot, 2020). Moreover, in May of 2020 six of the states requiring collaborative agreements between NPs and supervising physicians temporarily suspended the restrictions and an additional 14 states waived some practice agreement requirements (Table 3.1). It will be interesting to see how many of the temporary changes become permanent once the PHE has passed (Zolot, 2020)

At the time of this writing, only 22 states, the District of Columbia, and the Department of Veteran Affairs allow completely autonomous practice for NPs; most states require some form of collaboration or supervision by a physician. An annual update of these laws is published in the January 2021 issue of *The Nurse Practitioner*. However, this is a situation in flux because of numerous pending pieces of legislation. Up-to-the-minute information is available through the AANP and state NP organizations. State laws also dictate a ratio of NPs per supervising or collaborating physician. As you can see, it is possible for a massive amount of NP work to be hidden under this system.

TABLE 3.1 Changes in Practice Authority Due to COVID-19 PHE

Full practice authority	Temporary suspension of all practice agreement requirements	Temporary waiver of select practice agreement requirements	No action or executive orders expired*
Alaska	Kentucky	Alabama	Delaware
Arizona	Louisiana	Arkansas	Florida
Colorado	New Jersey	California	Georgia
Connecticut	New York	Indiana	Illinois
District of Columbia	Virginia	Massachusetts	Kansas*
Hawaii	Wisconsin	Missouri	Michigan*
Idaho		North Carolina	Mississippi
Iowa		Pennsylvania	Ohio
Maine		South Carolina	Oklahoma*
Maryland		Texas	Tennessee*
Minnesota		West Virginia	Utah
Montana			
Nebraska			
Nevada			
New Hampshire			
New Mexico			
North Dakota			
Oregon			
Rhode Island			
South Dakota			
Vermont			
Washington			
Wyoming			

* Executive orders have expired versus no orders.

Source: Adapted from American Academy of Nurse Practitioners. (2021). *COVID-19 state emergency response: Temporarily suspended and waived practice agreement requirements*. aanp.org

Historically, hospitals were reimbursed based on the fees charged for services, whether inpatient or outpatient. However, soaring fees led Medicare to develop the prospective payment system. This system involves paying a set amount per patient discharge or outpatient procedure based on the patient's diagnosis, without regard to actual costs. The reimbursement amount is tied to the patient's diagnoses and is set by Medicare based on average regional costs as well as knowledge of typical care associated with a disorder. Reimbursement is set before care is delivered, rather than in response to actual costs (Bodenheimer & Grumbach, 2016).

Medicare is the principal insurance company for the most likely users of the health system (those older than 65 or disabled). As a result, Medicare rules are quickly adopted by other payers. Many commercial insurance companies and Medicaid have followed Medicare's lead and now reimburse similarly. Hospitals must still submit cost reports to Medicare. In these cost reports, the expense of salaries and benefits of hospital employees

is delineated. Medicare uses this information to reassess fee structures on a regular basis. Hospitals should not include NP costs in the cost report. If a physician and NP from the same group both see a hospitalized patient on the same day, then the "shared visit" rule applies, and the services are billed under the physician (Buppert, 2020).

Medicare allows NPs to bill under Part B for physician services, defined as diagnosis, therapy, surgery consultation, and care plan oversight (CMS, 2021). However, if NPs are employees who are included in the cost report to Medicare, their services are not reimbursable under Part B. Instead, the cost of NPs is subsumed under the diagnosis-related fee reimbursement. If an NP is an employee of the hospital and has been hired under a nursing contract, the cost of their salary and benefits is included in the cost report to Medicare. Therefore, the NP's services are not eligible for Part B reimbursement. In addition, because maternity care and surgery services are usually bundled into a global fee, acute care-based NPs who provide service to admitted patients in lieu of the obstetrician or surgeon, such as pain management, removal of a drain, or management of complications, cannot bill for their services because it is assumed that the cost of this care is part of the global fee (WOCN, 2012). The physician may indeed reap tremendous benefit from the presence of acute care-based NPs, as the physician is able to engage in other services that are fee generating, yet the NP cannot generate revenue from these same activities. In addition, the fact that the NP improves the productivity of the physician is hidden because of the inability of the NP to bill for services. Furthermore, if the NP is employed by the hospital, the hospital is responsible for the cost of the NP, whereas the physician is reimbursed for care. In this case, Stark law also referred to as the Physician Self-Referral law, issues may be raised as the physician may be perceived as receiving a benefit from the work of the NP (Oppenheim & Joseph, 2017).

The services of acute care-based NPs are advantageous to hospitals. As on-site providers, NPs are available to promptly respond to changes in patient conditions, thereby limiting length of stay, which results in improved reimbursement patterns under the prospective payment model (Hoffman & Guttendorf, 2014). In addition, careful **monitoring** of patients improves quality and safety, reduces use of material and personnel resources, and results in higher patient satisfaction. However, without thorough understanding of reimbursement rules, inpatient-based NPs can appear to add cost rather than provide enhancements to patient care and potential revenue generators.

As length of hospital stay has diminished, use of SNFs has escalated. SNFs now provide services that have historically been delivered to hospitalized patients. Skilled services include wound care; intravenous therapy; enteral feeding; and speech, occupational, and physical therapy. Yet NPs are hidden providers here as well. The incident-to billing rules also apply to care delivered in SNFs. A physician must have an office for which fair market value is paid within the SNF, and the physician must be on site for the NP to bill at the 100% rate. Otherwise, billing must occur under the NP's provider number at the 85% reimbursement rate (CMS, 2016).

Similar to hospital regulations, all patients must be admitted to an SNF under a physician's care, and the physician must perform the history and physical within 72 hours of admission and see the patient at least every 60 days. However, the initial evaluation, which would include a complete examination and ordering of medications, labs, and treatments, as well as subsequent evaluation of progress, can be conducted by an NP and billed under an NP's provider number.

Although Medicare billing rules are changing, NPs continue to have opportunities to bill that are being missed. Understanding billing codes and acquiring business skills is essential to maximize revenue for the NP and to capture the value of the NP in the workforce.

UNDERSTANDING BILLING CODES

In order for NPs to assume a greater role in healthcare, billing in all settings must consistently be done under NP provider numbers so that the contribution of NPs can be fully appreciated. Billing for care is based on use of a series of accepted codes identified in the **Current Procedural Terminology (CPT)** code set (American Medical Association [AMA], 2017), which is maintained and updated by the AMA). The code set provides a uniform method used to describe medical, surgical, and diagnostic services. The *CPT* code is used in conjunction with the *International Statistical Classification of Diseases and Related Health Problems* (*ICD*) code for billing purposes. The *ICD* code identifies the disease, sign, symptom, or complaint that generated the visit. The first step to correctly bill for patient care is to gain an understanding of the *CPT* evaluation and management (E&M) codes.

CPT Coding

CPT E&M codes evaluate the complexity of care delivered and are associated with reimbursement based on documentation of patient care encounters. E&M codes transform a patient encounter into a five-digit code. The care setting (office, home, hospital, SNF, or domiciliary setting) determines the unique series of codes that may be considered for use. Patient encounters that occur via phone or online also have unique codes. Within settings, codes are divided into those appropriate for patients who are new to the site versus established patients. This distinction acknowledges the fact that when a patient is unknown to the provider, additional data must be gathered in order to deliver care safely. A *new patient* is defined as an individual who has not received services from a provider in the practice group in the past 3 years. An established patient is someone who has had care delivered by a provider at the practice within the last 3 years (U.S. Department of Health and Human Services [DHHS], 2016). Lapses in care of more than 3 years would therefore generate a new visit code, even though the patient may have an old file on record.

Recent changes have simplified E&M coding so the practitioner is able to spend more time with patients and less time with unnecessary documentation burdens. The 2021 *CPT* code updates provided a major overhaul to the E&M codes. For office visits the terminology *history and examination* has been replaced with *medically appropriate history and/or exam*. Practitioners may select the appropriate level of E&M service by using the medical decision-making (MDM) table or total time spent on the date of the encounter. The elements outlining the MDM levels have changed as well (Poland, 2021).

Within each series of setting-based codes, the NP must select the billing code that is associated with the level of medical decision-making used at the patient encounter. Four levels of care are present for new and established patients. The levels in increasing order of complexity are: straightforward, low, moderate, and high (AMA, 2021). The elements of medical decision-making include number and complexity of problems addressed, amount and/or complexity of data to be reviewed and analyzed, and risk of complications and/or morbidity or mortality of patient management. For example, the code associated with a moderately complex visit in an office setting with a new patient is 99204. The patient would have a medically appropriate history and/or examination and one of the following assigned numbers and complexity of problems is addressed:

- One or more chronic illnesses with exacerbation, progression, or side effects of treatment
- Two or more stable chronic illnesses
- One undiagnosed new problem with uncertain prognosis

- One acute illness with systemic symptoms
- One acute complicated injury

The amount and/or complexity of the data to be reviewed and analyzed must meet the requirements of at least one of three categories:

- **Category 1: Tests, documents, or independent historian(s)**
  Any combination of three of the following:
  - Review of prior external note(s) from each unique source.*
  - Review of the result(s) of each unique test.*
  - Order of each unique test.*
  - Assessment requires an independent historian(s).

- **Category 2: Independent interpretation of tests**
  - Independent interpretation of a test performed by another physician/other qualified healthcare professional (not separately reported)

- **Category 3: Discussion of management or test interpretation**
  - Discussion of management or test interpretation with external physician/other qualified healthcare professional\appropriate source (not separately reported)

The risk of complications and/or morbidity or mortality of patient management must be moderate (AMA, 2021).

Conversely, if using time to code a 99204-level encounter, a medically appropriate history and/or examination and moderate level of medical decision-making must occur, with 45 to 59 minutes of total time spent on the date of the encounter. Time includes chart review, documenting the elements of the visit, and ordering tests or procedures as well as time spent talking with the patient and/or family. There are also provisions for prolonged evaluation and management services with categories extending to more than 105 minutes (AMA, 2021)

To determine the billing code for a visit, NPs need to examine their documentation regarding the history, examination, and medical decision-making components of a visit. Although this may seem quite complex, in reality the levels reflect the degree of investigation and thought that are required when assessing and diagnosing patients in the clinical setting. As the complexity of care increases, the appropriate-level code rises. Higher level codes are reimbursed at a higher rate, so the NP is being reimbursed more as the evaluation and management of the patient become more complex.

It is important for NPs to become proficient in coding care so that reimbursement reflects services delivered. A study involving randomized chart reviews of outpatient visits conducted by NPs in an academic primary care center demonstrated that the documentation in four of 10 encounters was overcoded and in two encounters was undercoded (Allen et al., 2003)

ICD Coding

ICD coding complements E&M coding by defining the patient situation that warranted the services rendered. Prior to 1851, diseases were not uniformly categorized. Descriptions varied widely between providers and locales. However, the Great Exhibition in London of 1851 fostered an interest in statistical tracking of health problems. Two years later, at a follow-up conference in Brussels, several learned attendees began the task of

tracking causes of death. There was no standard nomenclature for disease, so attempts to devise a classification system ensued. After many attempts to define and classify illness, the first globally accepted system was launched in 1893, titled the *International List of Causes of Death* (Moriyama et al., 2011).

Since these early attempts, the *ICD* has undergone significant change. The World Health Organization, in cooperation with the National Center for Health Statistics in the United States, oversees all changes to the classification. The first revision of the list occurred in 1909 and was known as *International Statistical Classification of Diseases and Related Health Problems–First Edition (ICD-1)*. The most recent revision, International Statistical Classification of Diseases and Related Health Problems, Tenth Edition (ICD-10), was endorsed for acceptance in 1990 and launched into use in 1994. Globally, the *ICD-10* classification is widely used. However, its adoption in the United States was not mandated until October 2015. Delays in the adoption of *ICD-10* resulted from concerns about the financial burden and readiness for the switch among providers and insurers, as well as concerns about the increased complexity of the system. Fortunately, the transition to the newer system was relatively smooth and none of these concerns came to fruition (Bowman, 2016). Plans are underway to launch *ICD-11*, but it is predicted that they will not be adopted in the United States before 2023.

The *ICD* classification assigns a numeric code to a diagnosis, symptom, or cause of death. Health facilities and providers use these codes to identify a condition or health challenge that a patient faces. For example, if the patient is identified with primary hypertension, the appropriate *ICD-10* code would be I10, whereas the patient with concomitant heart failure would be correctly coded as I11.0. In contrast, a woman who develops hypertension in her first trimester of pregnancy would receive a diagnosis code of 013.1. Numerous online and text-based sources are available to help NPs learn diagnosis codes. Furthermore, many service sites generate billing sheets listing the most commonly seen disorders so that the provider merely has to circle the appropriate diagnoses.

The *ICD* code is used by insurers to assign payment in the prospective payment system, as well as by providers to identify the rationale for care. Agencies, such as the Centers for Disease Control and Prevention (CDC), track use of these codes to examine trends and patterns of disease as well as causes of death. Governmental agencies use *ICD* information to plan and fund disease-focused programs. Because these codes are internationally used, global health issues can be identified and tracked.

In addition to understanding *ICD* and *CPT* codes, NPs must understand what makes their services financially beneficial or deleterious to a practice. Most NPs and others working in advanced practice programs focus on the clinical skills needed for practice: assessment, disease management, and pharmacology are the cornerstones of such programs. However, business skills allow NPs to survive individually and as a profession.

BUSINESS SKILLS

One of the most important skills for NPs to acquire is the ability to assess their contribution to a practice. Without this knowledge, it is impossible to judge whether one's compensation is adequate and whether a position has long-term viability. In order to determine an NP's worth to a practice, it is necessary to track the services the NP provides over a representative sample of time.

CALCULATING WORTH OF AN NP

To calculate an NP's financial contribution to a practice, an assessment of services delivered is required. This is accomplished by tracking the number of patients seen per day

as well as the *CPT* codes used to bill these services. Because day-to-day variations may exist, it is best to examine data for a period of time. For example, if the NP is the only provider seeing patients on Wednesdays, this may be the NP's busiest day. However, when other providers are also present, the daily schedule may be lighter. Select a typical week to use to track number of visits and E&M codes either concurrently or by retrospective review.

First, identify the number of times each billing code is used for services in the week and then determine the billing rates for these services. To determine the billing rate, the NP must coordinate with the billing department. Knowing the amount at which services are billed is not sufficient. Instead, it is important to determine the average reimbursement for each E&M code. The Departments of Health and Human Services, Treasury, and Labor released a transparency-in-coverage final rule, including public disclosure of negotiated rates in October of 2020, making it possible for patients to be bettereducated consumers of healthcare (American Hospital Association [AHA], 2020). Most billing professionals can readily tell you about reimbursement rates based on insurance provider, as well as your typical payer mix. However, it is important to determine whether the NP payer mix is similar or distinct from the patient mix seen by other providers in the practice. For instance, if the NP sees a younger patient mix than other providers in the practice, the insurance coverage and average reimbursement may be different from that of other providers. Spend time talking with the billing agent to determine whether it is appropriate to use the average reimbursement or whether additional work is needed to determine the typical reimbursement for the NP's patient population. In addition, inquire whether billing is done under the NP's provider number or under a physician billing number. Recall that NPs are reimbursed at 85% of physician rates under Medicare and many commercial carriers.

Once the average reimbursement per E&M-level visit and the usual number of each type of visit per week is known, it is easy to calculate the amount of revenue generated per week. Multiply the reimbursement amount by the number of visits. This amount represents **cash flow** into the practice. It is does not represent income. To determine actual income into the practice, you will need to explore overhead costs.

OVERHEAD

Overhead costs represent the cost of doing business. Included in this amount are the salaries of support staff, cost of benefits, facility fees, utilities, and licensing. The Medical Group Management Association (MGMA) has published a cost-and-revenue survey listing line-item queries for charges, revenue, staff costs, expenses, provider compensation, income, and financial performance measures. The checklist can be used to estimate the cost of establishing a practice (MGMA, 2017). Efficient offices that keep support staff busy with the work of the business and are busy with patients when open have a lower overhead rate. On the other hand, many offices employ support staff who are only periodically busy. Offices that maintain traditional paper charts, for example, may employ a clerk to pull charts and refile material after use. In contrast, practices that use electronic health records will not have this cost, but they will have fees associated with maintenance of the charting system, computer server, and computer equipment used by providers.

There are variations in the number and composition of care team members in various practice types. Specialized practices may need support staff with specialized medical training to perform complex tests or assist with procedures. Primary care practices transitioning to Patient Centered Medical Home (PCMH) models of care are more likely to report having care managers/care coordinators, pharmacists, and behavioral health professionals as members of the care team (Swankoski et al., 2020).

Office layout may dictate support staff needs. Compact facilities with adjoining rooms allow providers and staff to spend more time with patients, but facilities on multiple levels or with distinct care-pod areas require more staff. Furthermore, satellite sites may require duplication of staff. This often occurs when a practice sees patients in distinct settings. If a practice has an office in the city as well as the suburbs, there is rent and overhead for both sites. Often, providers move between sites, but staff may be distinct. If both sites are open at the same time, it is impossible to have staff rotate with providers.

Staff expertise also affects overhead. Experienced medical assistants and clerical staff are usually more efficient. If there is high turnover of office personnel, a substantial amount of time is spent in training mode. New employees require more time to complete tasks and need more assistance to complete work. If the percentage of employees who have been with the practice less than 1 year is 30% or more, efforts should be directed at recruiting and retaining experienced personnel (Reeves, 2002).

Finally, the amount of work contracted to outside groups will affect overhead costs. Many practices employ outside agencies for billing, computer maintenance, janitorial services, or marketing. The key question is whether contracting is advantageous to a practice. For example, outside billing agents often operate by taking a percentage of revenue received. As a result, the billing agent is incentivized to follow up on unpaid balances or to seek contracts with insurance providers that are more lucrative to the practice. Although the initial cost of an outside agent may appear higher, these incentives may generate more revenue for the practice.

To calculate overhead, examine all of these features to determine whether the practice has high or low overhead. The billing agent or bookkeeper is an important resource in this calculation. Knowing this information is valuable not only for examining NP worth to a practice, but it also may identify areas for potential improvement in the practice.

POPULATION HEALTH

The Institute for Healthcare Improvement (IHI) developed a framework called the *IHI Triple Aim* in 2008 as an approach to improving the performance of health systems. According to Berwick et al. (2008), the three aims are "improving the experience of care, improving the health of populations, and reducing per capita costs of healthcare." For the Triple Aim to occur, a population must be identified, and an organization must accept the commitment by partnering with individuals and their families, be willing to redesign the way primary care is provided, manage population health, responsibly manage financial aspects of care, and integrate care into the larger community of service providers (Berwick et al., 2008).

Population health can be described widely as an approach used to improve the health of a community using nontraditional partnerships among various institutions such as government agencies, educational institutions, healthcare organizations, and so on (Deputy Director for Public Health Science and Surveillance, Center for Surveillance, Epidemiology and Laboratory Services, Division of Scientific Education and Professional Development, 2020). Others have come up with their own definitions (Kindig & Stoddart, 2003) and distinguish between *population health* and *population management* (Loehrer et al., 2016). Included in the practice of population health are the AACN Essential concepts of diversity, equity, and inclusion; health policy; and social determinants of health (AACN, 2021).

For a health system to know whether its efforts are effective, outcome measures must be identified and measured. Population health outcome measures include health outcomes, disease burden, and behavioral and physiological factors. Examples of health

outcome are mortality, health and functional status, and healthy life expectancy, whereas behavioral and physiological factors include measures such as smoking, alcohol consumption, blood pressure, and cholesterol level (Stiefel & Nolan, 2012). APRNs have been shown to favorably impact health outcomes. A systematic review of literature regarding the equivalency of NPs versus physicians working in primary care found that patient satisfaction was higher for NPs and quality of care provided by NPs was higher in some areas (Horrocks et al., 2002).

Research suggests that increasing NP scope of practice provides more accessible care in underserved area and reduces costs by reducing emergency room use (Traczynski & Udalova, 2018). Additional work by Morgan et al. (2019) showed that when adjusting for **acuity** of the case mix, the cost of total care was 6% to 7% lower for patients treated by NPs and physician assistants than by physicians, due to the provision of more emergency and inpatient services by physicians. It has been estimated that eliminating scope-of-practice restrictions in all states would result in annual Medicare cost savings of $44.5 billion nationally (Chattopadhyay & Zangaro, 2019). Another review suggests there is more work to be done in standardizing the role of NPs in primary care, as team factors are both barriers and facilitators of implementation (Torrens et al., 2020).

WHAT DOES THE NP CONTRIBUTE?

Perhaps the best way to examine NP worth to a practice is to look at an example. Table 3.2 delineates an office-based example for an NP working 4 days per week and seeing on average 20 patients per day. The NP's typical billing pattern is used to calculate the revenue generated from patient encounters. In consultation with the billing agent, the NP determines the average reimbursement rate for these visits as well as the percentage of revenue used to cover overhead.

TABLE 3.2 Calculating the NP's Contribution to a Practice

Level of medical decision making	Percentage of visits	Average reimbursement per visit	Amount reimbursed per week
Straightforward	10% of 80 = 8/week	$35	$280
Low	35% of 80 = 28/week	$50	$1,400
Moderate	35% of 80 = 28/week	$75	$1,400
High	20% of 80 = 16/week	$90	$1,440
Totals	80 visits/week	Average reimbursement/visit $56.50	$4,520[a]

[a]Jane Doe is employed at an office-based practice 4 days per week. On average, she sees 20 patients per day. Her average weekly number of visits is 80.[a]

Additional revenue may be received in the form of co-payments at each visit. This will vary widely based on insurance coverage of patients.

Allowing for 2 weeks of vacation per year, plus an additional 2 weeks of time for holidays, Jane works on average 48 weeks/year. As a result, the revenue she generates is: 48 weeks × $4,520 of reimbursement/week = $216,960 per year. Her office employs multiple support staff per provider. The billing agent estimates that overhead (the cost of doing business) consumes 50% of revenue. As a result, $108,480 of Jane's revenue is used to cover the cost of support staff, licensing, rent, benefits, and so forth. An additional $108,480 is available for salary and profits.

In addition to calculating revenue from NP–patient encounters, consider whether the NP contributes to the practice in other ways. Possible contributions include coordination of office staff; review of lab tests; prescription renewal management; response to patient calls or emails; and coordination of patient care with other health agencies, such as home health, SNFs, or specialists for other providers. This work ensures successful flow of patient care and efficient running of the practice. It also frees up other providers so that they can be more productive in generating revenue. As a result, all NPs should consider the amount of time they spend in practice-related business. If the NP schedule calls for an 8-hour day, of which 3 hours are spent managing and coordinating the practice, the NP is generating income for 5 hours but is pulled away from visits for 3 hours. It is difficult to quantify the value of this work. In fact, many practices consider this time as an expense for the business. However, if the NP services are crucial for the practice to operate, they should be factored in when computing salary. Consideration should also be given as to whether these tasks can be performed by others so that the NP is able to see patients instead.

OPPORTUNITIES

Knowledge of how revenue is generated and spent is key to understanding how the NP and a practice can be financially successful. Self-reflection as well as honest appraisal of the strengths and weaknesses of a practice will identify areas for improvement or enhancement.

The first task is to determine whether billing is actually being done in the name of the NP or under a physician provider. Although practices may want to bill under the physician to receive higher reimbursement, recognition of the NP is lost. Given the looming shortage of physicians entering primary care or internal medicine, coupled with a steady rise in NPs and other APRNs entering practice, there is substantial momentum for NPs to be recognized as providers (Huff, 2016; Naylor & Kurtzman, 2010). Billing the work of the NP under the name of the NP allows others—payers, employers, legal and regulatory bodies—to see the value of NPs. In order to do this, NPs must be nationally certified and obtain a national provider identifier (NPI), a unique healthcare provider identifier, which is part of a national registry. The NPI was mandated in the Health Insurance Portability and Accountability Act (HIPAA) of 1996 (National Plan and Provider Enumeration System, 2011), and, as of May 2008, is required for all billing and health information transmittals. An NPI can be obtained online at https://nppes.cms.hhs.gov. NPs working in acute care must also meet with finance and billing personnel to remove NPs from the cost reports that are submitted to Medicare, thereby allowing NPs to bill under Medicare Part B. A change in this status paves the way for billing to private insurance as well.

Next, it is essential to examine billing patterns. Billing is based on documentation of care. If the NP is obtaining histories and performing examinations but limiting charting, billing will occur at a lower rate than what the work warrants. Catch-all phrases, such as *within normal limits* and *noncontributory*, lower the level of the visit, because they do not indicate the depth to which a symptom was explored. Consider forms or charting systems that can aid with documentation. Electronic health records may be valuable for improving documentation because they allow development of templates. Forms or templates can be developed that can be used at all visits or can address specific diagnoses (e.g., diabetes mellitus, congestive heart failure) or purpose for a visit (e.g., well-child check, women's health examination). Improved documentation will result in a direct increase in revenue and money available for salary and profits.

Examination of workflow, need for support staff, and the setting of care can present opportunities for decreasing overhead and enhancing revenue. For example, reassigning examination rooms used by each provider may improve flow. Offering early-morning and/or evening appointments creates opportunities to capture visits that may be lost to clinics, emergency rooms, or other providers. Altering staff and provider hours to parallel busy times improves efficiency and may significantly reduce overhead. The more the NP knows about the practice, the more they can offer suggestions to the practice.

Finally, understanding the politics regarding reimbursement also provides opportunities for delivering care. For example, recent attempts to control the rising cost of healthcare have focused on preventing hospital readmissions, moving toward reimbursement based on health outcomes and patient satisfaction, and **bundling** reimbursement for services based on conditions and procedures (MedPAC, 2017). NPs are in an ideal position to develop care innovations that provide quality and satisfaction in a cost-efficient manner.

NEGOTIATIONS

Being knowledgeable about the amount of revenue you generate for a practice is a necessity when entering negotiations for salary and benefits. For example, the NP depicted in Table 3.2 would be foolhardy if they asked for a salary of $125,000 per year. This would represent a loss to the practice and would most certainly be denied. However, it may be completely appropriate to ask for a salary greater than the amount generated through patient visits if the NP contributes to the practice in other ways besides direct practice. If the NP provides coverage for colleagues that allows them to generate income and the NP is removed from potential revenue-generating patient visits, it would be reasonable to request compensation that includes this value-added dimension of their practice. The NP who is informed about financial issues of practices is in the best position to negotiate.

A successful contract specifies the intent of the contract and matches the personal goals, needs, and wants of the NP. First to consider is the type of contract used. Determine whether the contract is an employer-to-employee contract versus an independent contractor offer. Many medical groups prefer to offer independent contractor status as it shifts responsibility for paying taxes, benefits, and malpractice to the NP (Brown & Dolan, 2016). Next consider what services will be provided. It is important to know how many days per week the NP will see patients; if there are an expected number of patients to be seen per day; what the expectations of the physician are with regard to collaboration; and what, if any, nonpatient care duties are expected of the NP. Time to review labs and diagnostics, document care, and communicate with patients and other providers is crucial for patient care, so it is worthwhile to investigate whether there is time allotted for this in the workday.

Once this information is obtained, it is important to examine the salary structure. Discover whether the salary is set, determined by productivity, or based on actual reimbursement. Finally, look at benefits and terms. Benefits include continuing education, healthcare coverage, and malpractice insurance. Be sure to examine the type of malpractice coverage offered. Occurrence-based policies protect the NP if the policy was in effect when the incident occurred, whereas claims-made policies must be in effect at the time of the incident *and* at the time of the claim. NPs should consider negotiating for "tail coverage" if the latter is in place in order to protect them if they are no longer employed at the site when a claim is made. A typical contract lasts 1 year with a 30-day notice period for termination. NP contracts often contain noncompete

clauses. These clauses restrict NPs from working for a competitive practice. Be wary of these clauses because they may substantially inhibit career mobility (Brown & Dolan, 2016).

If the NP is applying for a new position, identify what is attractive about the position and how it will fit with personal goals. These goals may not always be practice related. An NP may want to work less in order to pursue a hobby or spend more time with family or friends. Honest self-reaction about goals is important before discussing financial matters with a practice manager. Consider the importance of time off as well as salary and benefits. Being able to articulate personal desires to a practice manager is integral to matching the goals and interests of the practice. If the NP is interested in working only half-time but the practice is very busy and is hoping for additional hours, conflict may arise. Be sure to clarify the interests and directions of the practice and realistically consider whether an alternative proposal, a third solution or compromise, will address the needs of both parties.

CONCLUSIONS

The APRN has become increasingly more important in the United States because of the limited availability of primary care physicians, coupled with a growing body of research that documents excellent outcomes when care is provided by APRNs (Institute of Medicine [IOM], 2010). NPs constitute the bulk of APRNs, although few operate their practice in an entrepreneurial manner. However, these are the skills that are necessary to allow a knowledgeable clinician to flourish in a highly competitive, cost-conscious clinical environment. Knowledge about financial transactions and billing matters enables NPs to become partners in healthcare practices and to contribute valuable suggestions for steering care toward approaches that are financially viable and contribute to improved patient outcomes. NPs must take on a greater role in the financial and business aspects of care if they wish the profession to flourish.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Examine the Nurse Practice Act in your state. What opportunities exist for APRNs to expand their scope of practice? What can you do to effect legislative change?
2. a. What is your current contribution to the practice you are involved with? Calculate the revenue you generate and your contribution to patient health as measured by obesity, blood pressure control, or other relevant metrics.
   b. Based on your revenue calculations, evaluate the overhead costs in your practice and whether changing the composition of the care team could enhance quality, decrease cost, or both.
3. Identify sources of revenue for your practice from various forms of insurance. What opportunities exist in your practice to attract a more favorable payment mix?
4. Identify the ideal patient mix for all practitioners in your practice. Consider the diagnosis mix, skill sets of practitioners, and limitations to scope of practice in your state as well as payer mix of the patients in your current practice.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 4

International Healthcare Finance Trends

Michelle Machon

> *The association between health spending and increasing life expectancy also holds for rich countries in Europe, Asia, and North America..... The U.S. is an outlier that achieves only a comparatively short life expectancy considering the fact that the country has by far the highest health expenditure of any country in the world.*
>
> *—Ortiz-Ospina and Roser*

In 2021, the American Association of Colleges of Nursing (AACN) approved "re-envisioned Essentials," which provide a new model for professional nursing education. In this model 10 domains are presented that "represent the essence of professional nursing practice and the expected competencies for each domain" (AACN, 2021, p.1). Domain 7 discusses systems-based practice and reminds RNs that having a knowledge of financial and payment models relative to reimbursement and healthcare costs is essential. It continues with the recommendation that all registered nurses must consider "the impact of local, regional, national, and global structures, systems, and regulations on individuals and diverse populations when evaluating patient outcomes" (AACN, 2021, p.8). This chapter focuses on broadening the knowledge of the doctorally prepared nurse as to the nuances of international healthcare finance, with a specific focus on nursing and nursing outcomes.

BACKGROUND ON HEALTHCARE SPENDING AROUND THE WORLD

To understand international healthcare finance, a reasonable place to begin is to review healthcare spending as a percentage of gross domestic product (GDP) in countries around the world. GDP has become an important reference point for the health of national and global economies:

> GDP measures the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year). It counts all of the output generated within the borders of a country. GDP is composed of goods and services produced for sale in the market and also includes some nonmarket production, such as defense or education services provided by the government. (Callen, 2021)

The following 20 countries have been chosen as examples from each continent and provide a cross-section of the healthcare and spending infrastructures of wealthy and poorer countries as they compare to the United States. This chapter reviews the healthcare finance structures of the following countries by continent (Figure 4.1).

To assess the general financial landscape of these countries, reviewing GDP per capita is beneficial as it is a benchmark in which to start any comparison. GDP per capita is an important indicator of economic performance and a useful unit to make cross-country comparisons of average living standards and economic well-being (Focus Economics, 2021).

Only Norway has a better economic performance (GDP per capita) than the United States in this 20-country comparison, and Table 4.1 details other economic comparisons as they relate to each country's spending on education, military, and on healthcare. When reviewed in detail, some interesting facts emerge related to the importance of what some countries spend on certain programs in comparison to their healthcare spending:

- The United States, which has the second highest GDP per capita on the list next to Norway, also spends the most on healthcare of the 20 countries, yet the United Arab Emirates (U.A.E.), with a similarly high GDP per capita, is the fourth lowest spender on healthcare.

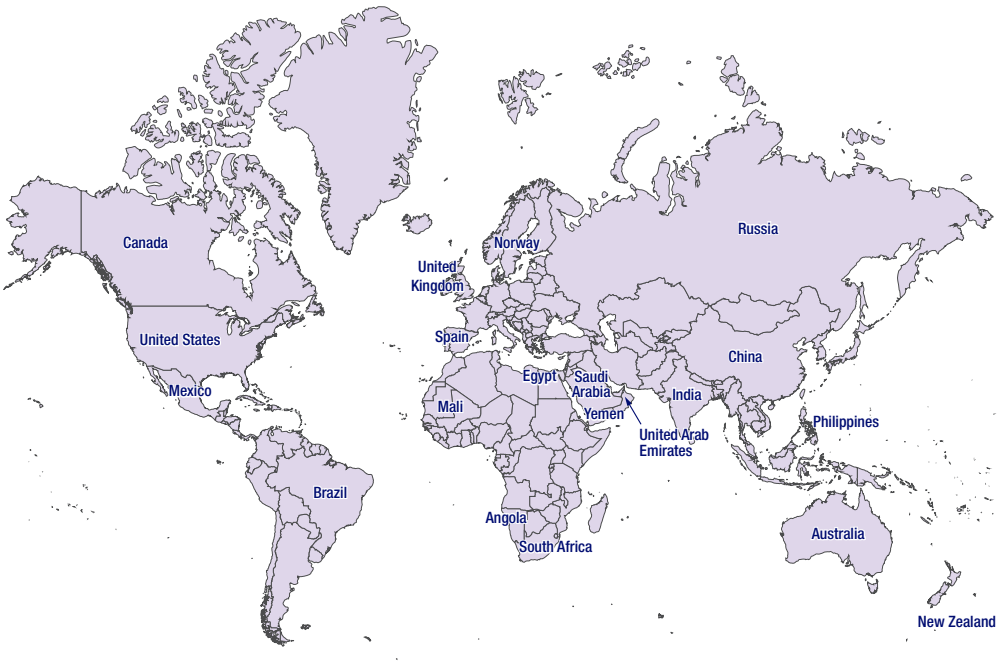

FIGURE 4.1 World map and countries reviewed per continent.

North America	South America	Europe	Middle East	Asia	Africa	Australia/ Oceania
Canada United States	Brazil Mexico	United Kingdom Norway Spain	Saudi Arabia United Arab Emirates Yemen	China Russia India Philippines	Egypt South Africa Angola Mali	Australia New Zealand

TABLE 4.1 Comparison of GDP per Capita Against Percentage (%) of GDP Spent on Education, Military, and Then Healthcare

	GDP per capita (in USD)- highest to lowest	Percentage of GDP spent on education	Percentage of GDP spent on military	Percentage of GDP spent on healthcare
Norway	**75,519**	7.9	1.7	10.05
United States	**65,297**	5	3.4	16.87
Australia	**55,057**	5.1	1.9	9.28
Canada	**46,198**	5.3	1.3	10.79
United Arab Emirates	**43,101**	14.3	5.6	4.23
United Kingdom	**42,328**	5.4	1.7	10
New Zealand	**41,577**	6.3	1.5	9.21
Spain	**29,564**	4.2	1.2	8.98
Saudi Arabia	**23,139**	5.1	8	6.36
Russia	**11,585**	4.7	3.9	5.32
China	**10,216**	1.9	1.9	5.35
Mexico	**9,946**	4.5	0.5	5.37
Brazil	**8,717**	6.3	1.5	9.51
South Africa	**6,001**	6.5	1	8.25
Philippines	**3,485**	2.5	1	4.4
Egypt	**3,019**	3.8	1.2	4.95
Angola	**2,790**	3.4	1.6	2.55
India	**2,099**	3.8	2.4	3.54
Mali	**879**	3.8	2.7	3.88
Yemen	**774**	5.2	4	4.88

GDP, gross domestic product.
Source: World Bank. (2021). *World Bank open data*. Author.

- From this list, Saudi Arabia spends the most on its military budget (8%), which is more than it spends on healthcare (6.8%). The Middle Eastern countries of Saudi Arabia, the U.A.E., and Yemen are the only countries that spend more on the military than they do on healthcare.
- The United Arab Emirates spends 14.3% of its GDP on education, yet only 4.2% on healthcare.
- India and Angola are the only countries on the list that spend more on education than on healthcare.

Now that we have reviewed the overall financial spending of these 20 countries, we can review the specific healthcare spending landscape in these countries in depth. Tables 4.2 through 4.10 provide an analysis of countries based on the specific metrics being viewed.

TABLE 4.2 Percentage of GDP Spent on Healthcare

	Percentage of GDP spent on healthcare	GDP per capita (in USD)	Ranking of percentage spent on healthcare (within these 20 countries)
United States	**16.87**	65,297	1
Canada	**10.79**	46,198	2
Norway	**10.05**	75,519	3
United Kingdom	**10.0**	42,328	4
Brazil	**9.51**	8,717	5
Australia	**9.28**	55,057	6
New Zealand	**9.21**	41,577	7
Spain	**8.98**	29,564	8
South Africa	**8.25**	6,001	9
Saudi Arabia	**6.36**	23,139	10
Mexico	**5.37**	9,946	11
China	**5.35**	10,216	12
Russia	**5.32**	11,585	13
Egypt	**4.95**	3,019	14
Yemen	**4.88**	774	15
Philippines	**4.4**	3,485	16
United Arab Emirates	**4.23**	43,101	17
Mali	**3.88**	879	18
India	**3.54**	2,099	19
Angola	**2.55**	2,790	20

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.2: Analysis of GDP per capita versus percentage of GDP spent on healthcare

- Although Norway has the highest GDP per capita, it spends 30% less on healthcare than the highest healthcare spender (the United States).
- South Africa has only 10% of the GDP per capita of the United States, yet it still spends 8% of its GDP on healthcare, the 11th highest amount spent on healthcare on the list.
- Yemen has the lowest GDP per capita of countries on the list, but manages to spend a higher percentage of itsr GDP than two other countries.
- Brazil is in the lower 70% of GPD per capita, but is in the top 30% of healthcare spending compared to the other countries.

TABLE 4.3 Hospital Beds per 1,000 Patients

	Hospital beds (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent
Russia	**7.1**	5.32	13
China	**4.3**	5.35	12
Australia	**3.8**	9.28	6
Norway	**3.5**	10.05	3
Spain	**3.0**	8.98	8
United States	**2.9**	16.87	1
New Zealand	**2.6**	9.21	7
Canada	**2.5**	10.79	2
United Kingdom	**2.5**	10	4
South Africa	**2.3**	8.25	9
Saudi Arabia	**2.2**	6.36	10
Brazil	**2.1**	9.51	5
Egypt	**1.4**	4.95	14
United Arab Emirates	**1.4**	4.23	17
Mexico	**1.0**	5.37	11
Philippines	**1.0**	4.4	16
Angola	**0.8**	2.55	20
Yemen	**0.7**	4.88	15
India	**0.5**	3.54	19
Mali	**0.1**	3.88	18

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.3: Analysis of percentage of GDP spent on healthcare versus number of hospital beds per 1000 patients

- Russia is in the lower half of spending, yet it is the country with the most hospital beds per 1,000 patients (7.1 beds per 1,000, more than twice as many beds as the majority of countries on the list), having obvious positive implications on access, throughput, and speed of care.
- Predictably, the poorer countries of India, Yemen, Mali, and Angola all have the least number of beds (0.1–0.8/1000), yet rich countries like the United Arab Emirates and Saudi Arabia still do not have a high number compared to Russia.
- The United States, with the highest spending on healthcare within the list, has less than half the number of beds per 1,000 than Russia, and falls behind other countries like Canada, Norway, and the United Kingdom with obvious implications for waiting lists and the pandemic.

TABLE 4.4 Life Expectancy at Birth

	Life expectancy at birth (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (*within these 20 countries)
Australia	**83**	9.28	6
Norway	**83**	10.05	3
Spain	**83**	8.98	8
New Zealand	**82**	9.21	7
Canada	**82**	10.79	2
United Kingdom	**81**	10	4
United States	**79**	16.87	1
United Arab Emirates	**78**	4.23	17
China	**77**	5.35	12
Brazil	**76**	9.51	5
Saudi Arabia	**75**	6.36	10
Mexico	**75**	5.37	11
Russia	**73**	5.32	13
Egypt	**72**	4.95	14
Philippines	**71**	4.4	16
India	**70**	3.54	19
Yemen	**66**	4.88	15
South Africa	**64**	8.25	9
Angola	**61**	2.55	20
Mali	**59**	3.88	18

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.4: Analysis of percentage of GDP spent on healthcare versus life expectancy at birth

- The United States spends by far the most on healthcare, yet the average life expectancy is 4 years lower than a country that spends 40% to 50% less on healthcare than the United States (Spain).
- Australia has the highest life expectancy (83 years), despite spending 40% less on healthcare than the United States.
- South Africa spends a relatively high percentage on healthcare (9th on the list of countries) yet has a low life expectancy of 64 years; 19 years fewer than the countries with the highest life expectancy.

TABLE 4.5 Infant Mortality per 1,000 Births

	Infant mortality per 1,000 births (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Mali	**60**	3.88	18
Angola	**50**	2.55	20
Yemen	**44**	4.88	15
India	**28**	3.54	19
South Africa	**28**	8.25	9
Philippines	**22**	4.4	16
Egypt	**17**	4.95	14
Brazil	**12**	9.51	5
Mexico	**12**	5.37	11
China	**7**	5.35	12
United States	**6**	16.87	1
United Arab Emirates	**6**	4.23	17
Saudi Arabia	**6**	6.36	10
Russia	**5**	5.32	13
New Zealand	**4**	9.21	7
Canada	**4**	10.79	2
United Kingdom	**4**	10	4
Australia	**3**	9.28	6
Spain	**3**	8.98	8
Norway	**2**	10.05	3

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.5: Analysis of GDP spent on healthcare versus infant mortality per 1,000 births.

- Norway, the country spending the third highest amount on healthcare, has the lowest infant mortality with only two deaths per 1,000 births.
- Although the United States spends the most on healthcare, it has an infant mortality rate 3 times that of Norway, at 6/1,000.
- Mali, although not the lowest spender on healthcare, has the highest infant mortality rate at 60 deaths per 1,000 births.
- The United Arab Emirates spends a quarter of the amount on healthcare that the United States does, yet it has the same low mortality rate (6/1,000).
- Canada spends 6% less of its GDP on healthcare than the United States, yet it hase a better infant mortality rate (4/1,000).

TABLE 4.6 Suicide Rate per 100,000 Population

	Suicide rate per 100,000 population (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Russia	**25.1**	5.32	13
South Africa	**23.5**	8.25	9
United States	**16.1**	16.87	1
India	**12.7**	3.54	19
Australia	**12.5**	9.28	6
Canada	**11.8**	10.79	2
Norway	**11.8**	10.05	3
New Zealand	**11.0**	9.21	7
China	**8.1**	5.35	12
United Kingdom	**7.9**	10	4
Spain	**7.7**	8.98	8
Brazil	**6.9**	9.51	5
United Arab Emirates	**6.4**	4.23	17
Angola	**6.1**	2.55	20
Saudi Arabia	**6.0**	6.36	10
Yemen	**5.8**	4.88	15
Mexico	**5.3**	5.37	11
Mali	**4.1**	3.88	18
Egypt	**3.0**	4.95	14
Philippines	**2.2**	4.4	16

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.6: Analysis of percentage of GDP spent on healthcare versus suicide rate per 100,000 population

- The United States spends by far the most on healthcare, yet the suicide rate is higher than in 17 other countries listed.
- Russia has the highest number of hospital beds/1,000 population; however, it has the highest suicide rate in this group of countries (25 per 100,000 patients).
- Eight countries with the lowest spending on healthcare also have the lowest suicide rates.
- Egypt and the Philippines have suicide rates 400% lower than the United States.

TABLE 4.7 Prevalence of Undernourishment (Percentage of Population)

	Prevalence of under-nourishment (Percentage of population, highest to lowest)	Percetage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Yemen	**38**	4.88	15
Angola	**19**	2.55	20
Philippines	**15**	4.4	16
India	**14**	3.54	19
Mexico	**7**	5.37	11
South Africa	**6**	8.25	9
Mali	**5**	3.88	18
Egypt	**5**	4.95	14
Saudi Arabia	**5**	6.36	10
Brazil	**3**	9.51	5
China	**3**	5.35	12
United States	**3**	16.87	1
United Arab Emirates	**3**	4.23	17
Russia	**3**	5.32	13
New Zealand	**3**	9.21	7
Canada	**3**	10.79	2
United Kingdom	**3**	10	4
Australia	**3**	9.28	6
Spain	**3**	8.98	8
Norway	**3**	10.05	3

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.7: Analysis of GDP per capita versus prevalence of undernourishment

- The war-torn country of Yemen records 38% of its population as undernourished.
- The top spenders on healthcare demonstrate a return on investment for nourishment, with 11 countries having an undernourished population of less than 3% of the population.
- Again, South Africa, which spends a relatively high percentage on healthcare, ranks higher in undernourishment (6%) than many countries.

TABLE 4.8 Maternal Mortality per 100,000 Live Births

	Maternal mortality per 100k live births (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Mali	**562**	3.88	18
Angola	**241**	2.55	20
Yemen	**164**	4.88	15
India	**145**	3.54	19
Philippines	**121**	4.4	16
South Africa	**117**	8.25	9
Brazil	**60**	9.51	5
Egypt	**37**	4.95	14
Mexico	**33**	5.37	11
China	**29**	5.35	12
United States	**19**	16.87	1
Saudi Arabia	**17**	6.36	10
Russia	**17**	5.32	13
Canada	**10**	10.79	2
New Zealand	**9**	9.21	7
United Kingdom	**7**	10	4
Australia	**6**	9.28	6
Spain	**4**	8.98	8
United Arab Emirates	**3**	4.23	17
Norway	**2**	10.05	3

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.8: Analysis of percentage of GDP spent on healthcare versus maternal mortality

- Norway again leads the group with the lowest maternal mortality rate (two per 100,000 births).
- Low spending on healthcare is clearly demonstrated in the highest number of maternal deaths.
- The African countries of Mali and Angola are highest in maternal deaths.
- The United States ranks 11th on the list,with 19 deaths per 100,000 births.
- Although Russia has the highest number of hospital beds per capita, it still has 17 deaths per 100,000 births.
- Spain spends less than half the amount on healthcare than the United States does, yet it has 4.5 times fewer maternal deaths.

TABLE 4.9 Number of Nurses/Certified Nurse Midwives per 1,000 People

	Number of nurses and midwives per 1,000 people (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Norway	**18.2**	10.05	3
United States	**14.5**	16.87	1
Australia	**12.6**	9.28	6
New Zealand	**12.4**	9.21	7
Brazil	**10.1**	9.51	5
Canada	**9.9**	10.79	2
Russia	**8.5**	5.32	13
United Kingdom	**8.2**	10	4
Spain	**5.7**	8.98	8
United Arab Emirates	**5.7**	4.23	17
Saudi Arabia	**5.5**	6.36	10
Philippines	**4.9**	4.4	16
China	**2.7**	5.35	12
Mexico	**2.4**	5.37	11
Egypt	**1.9**	4.95	14
India	**1.7**	3.54	19
South Africa	**1.3**	8.25	9
Yemen	**0.8**	4.88	15
Mali	**0.4**	3.88	18
Angola	**0.4**	2.55	20

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.9: Analysis of GDP per capita versus number of nurses and certified nurse midwives per 1,000 patients

- Russia, again in the lower half of GDP spending on healthcare, is the country with the most beds per 1,000 patients and Canada, the second highest spender on healthcare, only has half the number of nurses/1,000 than the country with the highest number of nurses and midwives, Norway.
- South Africa seems to have a disproportionately lower number of RNs per 1,000 (1.3) compared to Norway, the country with the highest (18.2).
- Mali, Yemen, and Angola have less than **one** nurse per 1,000 people.

TABLE 4.10 Number of Doctors per 1,000 People

	Numberof physicians per 1,000 population (highest to lowest)	Percentage of GDP spent on healthcare	Ranking of percentage spent on healthcare (within these 20 countries)
Russia	**4.0**	5.32	13
Spain	**3.9**	8.98	8
Australia	**3.7**	9.28	6
New Zealand	**3.6**	9.21	7
Norway	**2.9**	10.05	3
United Kingdom	**2.8**	10	4
United States	**2.6**	16.87	1
Canada	**2.6**	10.79	2
Saudi Arabia	**2.6**	6.36	10
United Arab Emirates	**2.5**	4.23	17
Mexico	**2.4**	5.37	11
China	**2.0**	5.35	12
India	**0.9**	3.54	19
South Africa	**0.9**	8.25	9
Philippines	**0.6**	4.4	16
Egypt	**0.5**	4.95	14
Yemen	**0.5**	4.88	15
Brazil	**0.2**	9.51	5
Angola	**0.2**	2.55	20
Mali	**0.1**	3.88	18

Source: World Bank. (2021). *World Bank open data*. Author.

Table 4.10: Analysis of percentage of GDP spent on healthcare versus of physicians per 1,000 patients

- Spending the most on healthcare (the United States and Norway) does not give you the most physicians.
- Russia, again in the lower half of GDP spending on healthcare, is the country with the most beds per 1,000 patients and the greatest number of physicians per 1,000 people.
- Although fifth highest in the ranking of spending on healthcare, Brazil is second to last on this list, with only 0.2 physicians per 1,000 people.
- Canada spends 45% less on healthcare than the United States, yet it has the same number of physicians per 1,000 people.

INTERNATIONAL MODELS OF HEALTHCARE

From our list of countries, let's review some of the international models of healthcare and evaluate the financial implications of each model (one from each continent). The data for the following section (unless noted separately) was obtained from The Commonwealth Fund's report "International Profiles of Health Care Systems" (Tikkanen & Osborn, 2020) and is used with the Fund's permission.

Australia (9.3% of GDP on Healthcare)

Model

- The universal health insurance program is called *Medicare.*
- Free public hospital care is offered with no deductibles and substantial coverage for physician services, pharmaceuticals, and certain other services.
- Healthcare is financed through tax revenue and government levy.
- Enrollment is automatic for Australian and New Zealand citizens, permanent residents, and people from countries with reciprocal benefits.
- Approximately half of Australians buy private supplementary insurance to pay for private hospital care, dental services, and other services, but the government offers a tax rebate (8.5% to 33.9% of this premium is reimbursed) and also charges a tax penalty (the "Medicare levy"; 1% to 1.5%) on high-income households that do not purchase this private insurance.
- Financial costs are contained through the annual government budget and control of pharmaceutical contracts.
- Quality and accreditation organizations include the Australian Commission on Safety and Quality and the Clinical Excellence Commission.

Implications/Results/Issues Noted

- 100% of the public is covered.
- Medicare and the Pharmaceutical Benefits Scheme are the major drivers of cost for healthcare in Australia.
- Disparities exist in health outcomes of Aboriginal and Torres Straight Islanders.
- Large areas of rural and remote areas result in healthcare disparities for the local population.
- All Australians have eHealth records: "My Health Record, " which is available through the Australian Digital Health Agency.

In the 2018 budget, the government provided added funds for key initiatives, including

- aged care and loneliness,
- suicide prevention,
- mental health.

Brazil (9.5% of GDP on Healthcare)

Model

- Follows a decentralized, universal public health system known as *Sistema Único de Saúde (SUS*).
- Healthcare system is funded with tax revenues (15%) and contributions from federal, state, and municipal governments.

- All residents and visitors, including undocumented individuals, can access free, comprehensive services, that includes primary, outpatient specialty, mental health, and hospital care, as well as prescription drug coverage.
- There is no cost-sharing for healthcare services.
- Of Brazilians, 75% rely solely on SUS, but 25% also have private health insurance to circumvent bottlenecks in accessing care; these insurance costs qualify as tax deductions.
- Financial costs are constrained by pervasive regulation of new technologies, centralized purchasing of high-cost medicines, and public–private partnerships for the national production of strategic products through technology transfer.

Implications/Results/Issues Noted

- The poor are disproportionality affected by out-of-pocket expenditures, presenting considerable financial burden for households. For example, in 2014, over 5% of households experienced such high health expenditures that they had to forgo paying for non–health-related items.
- Disparities exist in the black Brazilian populations, as well as in the LGBT, homeless, indigenous, and rural communities.
- Integrated, coordinated care remains a major challenge, especially in the private sector, resulting in fragmentation, redundancy, and major gaps in healthcare.
- Less than half of primary care units use electronic health records (EHRs), with 50% of those using the Ministry of Health's EHR and 50% using private systems.

Canada (10.8% of GDP on Healthcare)

Model

- Follows a decentralized, universal, publicly funded health system called *Canadian Medicare.*
- Funded and administered primarily by the country's 10 provinces and three territories (P/T), receiving cash assistance from the federal government on a per-capita basis.
- All citizens and permanent residents receive medically necessary hospital and physician services free and some P/Ts pay for excluded services, including outpatient prescription drugs and dental care.
- Approximately two-thirds of Canadians have private insurance that covers the services not provided by Canadian Medicare. Ninety percent of private healthcare is paid by employers, unions, or other plans.
- Costs are contained through single-payer purchasing, including
  - mandatory global budgets for hospitals/regional authorities,
  - negotiated fee schedules for providers,
  - drug formularies for provincial drug plans,
  - resource restrictions for physicians and nurses (such as provincial quotas for students admitted annually), and
  - restrictions on new investment in capital and technology.

Implications/Results/Issues Noted

- The federally funded Canadian Patient Safety Institute promotes best practices and develops strategies, standards, and tools.
- Financial incentives to improve quality has had little success in Canada

- Disparities exist between the indigenous and non-indigenous communities in Canada
- The Truth and Reconciliation Commission was set up in 2015 to bridge those gaps
- Uptake of EHRs has been slow and interoperability between the Provinces and Territories is limited, although 85% of GPs are using some form or electronic records.

China (5.3% of GDP on Healthcare)

Model

- Near-universal coverage is available through the provision of publicly funded basic medical insurance, paid for primarily via employer and employee payroll taxes.
  - In cities, those with jobs are covered by the mandatory Urban Employee Basic Medical Insurance.
  - In cities, the unemployed, self-employed, the elderly, and children may enroll in the voluntary Urban Resident Basic Medical Insurance program.
  - In rural areas, individuals may participate in the voluntary Newly Cooperative Medical Scheme.
- There is no annual cap on out-of-pocket spending. Complementary private health insurance helps cover cost-sharing and coverage gaps.
- Costs are contained through the use of global budgeting, a push to use less expensive rural hospitals, zero markup for prescription drugs, and the control of high-tech purchases.

Implications/Results/Issues Noted

- Most good hospitals are located in urban areas; in the country, village doctors are often untrained.
- Most healthcare providers have their own EHR system, which is linked to the health insurance system for payment but does not work with other health systems, so printed records are common.

India (3.5% of GDP on Healthcare)

Model

- All Indian citizens can get free care at government facilities.
- A decentralized approach is used in which the 29 states/7 territories are responsible for organizing their own health services.
- Private voluntary insurance is available, but uptake is limited to approximately 36% of the population.
- Currently, there is no single entity that is responsible for measuring all aspects of quality of care in healthcare facilities.
- An estimated 8% of the population is being pushed below the poverty line because of high out-of-pocket payments.
- Cost containment is achieved through annual budgets; however, significant shortages in the public sector have led patients to use private services, for which prices are unregulated and set far beyond the procured purchase price.

Implications/Results/Issues Noted

- Patient care is fragmented, and the referral system is severely underused because of overcrowding, lack of healthcare resources, a deficient infrastructure, poor regulation of the referral system, and patients' ability to bypass primary entry points to the health system.

- Because of severe shortages of staff and supplies at government facilities, many households seek care from private providers and pay out of pocket, yet 6.6% of Indian physicians and 3% of Indian nurses work overseas (Walton-Roberts & Rajan, 2020).
- A significant proportion of the population faces impoverishment due to lack of insurance and high out-of-pocket expenditures.
- Although a national EHR system was introduced in 2013, uptake has been poor and there is no national universal patient identifier.

Norway (10% of GDP on Healthcare)

Model

- Universal health coverage is funded primarily by general taxes and payroll contributions shared by employers and employees.
- Enrollment in the National Insurance Scheme (NIS) is automatic.
- The 428 municipalities organize primary healthcare, whereas the national government is responsible for specialty care, including hospital services, through the state-owned regional health authorities.
- About 10% of the population has private insurance, mainly to gain quicker access to and greater choice of private providers.
- High staffing levels and high salaries can partly explain the higher healthcare prices in Norway. Costs are contained throughan annual overall health budget and through oversight of the Norwegian Medicines Agency.

Implications/Results/Issues Noted

- Through common agreements, European Union (EU) residents have the same access to health services in Norway as in their home country.
- There are 54 national clinical registries and 17 national health registries used for quality assurance, research, and health-improvement activities.
- Few disparities are seen for immigrants or indigenous populations, although income disparities are greater than educational disparities.
- The National Health Network provides a linked EHR for all citizens.

South Africa (8.2% of GDP on Healthcare)

Model

- South Africa's Constitution guarantees every citizen access to health services.
- The majority of the population accesses health services through government-run public clinics and hospitals.
- Public health services are divided into primary, secondary, and tertiary services available through health facilities that are located in and managed by the provincial departments of health.
- The National Ministry of Health is responsible for policy development and coordination.
- The private health sector provides health services through individual practitioners who run private surgeries or through private hospitals that tend to be located in urban areas.
- The private sector serves 16% of the population, whereas the public sector serves 84%.
- Public healthcare facilities exhibit numerous shortcomings such as long waiting times, poor quality healthcare delivery, an old and poorly maintained infrastructure, and poor disease control and prevention practices (Mahlathi & Dlamini, 2015).

Implications/Results/Issues Noted

- Internal migration of nurses within the South African healthcare sector and emigration to other countries are two major factors that have contributed to the high turnover rate of South African professional nurses.
- Many problems in the South African healthcare system can be traced back to the apartheid period (1948 to 1993) in which the healthcare system was highly fragmented, with discriminatory effects, among four different racial groups (Black, mixed race, Indian, and White)
- Health problems in South Africa are worsened by unequal distribution of health professionals between the private and public sectors.
- Some challenges facing the healthcare system in South Africa are unequal distribution of resources, a management and leadership crisis, increased disease burden, and slow progress in restructuring the healthcare system, including strategies adopted by the government to improve the quality of healthcare delivery (Maphumulo & Bhengu, 2019).

United Kingdom (10% of GDP on Healthcare)

Model

- All U.K. residents are automatically entitled to free public healthcare through the National Health Service (NHS).
- The NHS is funded primarily through general taxation.
- Eighty-nine percent of prescriptions written in the United Kingdom were provided free in 2016.
- Approximately 10.5% of the population also carries private insurance, primarily to gain more rapid access to elective care.
- The government controls the NHS budget and the budget of the 191 local clinical commissioning groups (CCGs).
- Costs are contained through a national healthcare budget that cannot be exceeded, as well as trough pay increase freezes, the use of generic drugs and reductions in administrative costs.

Implications/Results/Issues Noted

- Primary care is delivered by general practitioners (GPs), who act as the gatekeepers for secondary care.
- The mismatch among funding, demand, and the cost of providing services has led to NHS hospitals and other providers accumulating an underlying deficit of GBP 4.3 billion (USD 6.1 billion).
- The financial pressure on the NHS has been associated with deterioration in the quality of care, most notable in increased waiting times.
- All GP practices are computerized and EHRs are accessible to patients.

United States (16.8% of GDP on Healthcare)

Model

- A mix of public and private, for-profit and nonprofit insurers and healthcare providers is used; there is no universal healthcare in the United States.

- The federal government provides funding for the national Medicare program for adults aged 65 and older and some people with disabilities, as well as for various programs for veterans and low-income people, including Medicaid and the Children's Health Insurance Program (CHIP).
- The uninsured rate, 8.5% (27.5 million) of the population, is down from 16% in 2010, when the Affordable Care Act became law.
- Two thirds of Americans' primary health coverage is accessed through private health insurance.
- Cost containment has not been successful in the United States; per capita, it has the highest healthcare spending in the world, which has grown 5.8% annually over the past 5 years.

Implications/Results/Issues Noted

- The Agency for Healthcare Research and Quality (AHRQ) publishes the annual National Healthcare Quality and Disparities Report, which found that the quality of U.S. healthcare had improved overall from 2000 to 2016, but that improvement was inconsistent. For example, although most person-centered care and patient-safety measures improved, affordability did not.
- Disparities exist: African Americans, American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders receive worse care than Whites in 40% of quality measures. Hispanics and Asian Americans received worse care in 35% and 28% of measures, respectively.
- As of 2017, 96% of nonfederal hospitals and 86% of physician offices had adopted the EHR.

Yemen (4.9% of GDP on Healthcare)

Model

- The Constitution of the government of Yemen, a unitary, presidential, constitutional republic, states that healthcare be provided for all people.
- The delivery of healthcare is achieved by public and private effort.
- The Yemeni health system is "on the brink of collapse" (World Health Organization [WHO], 2021) due to 6 years of war.
- Of a total population of 29 million, 17.9 million needed healthcare services in 2020.
- Only 50% of healthcare facilities are open and those that are open have severe shortages, including gloves, masks, and oxygen.
- There are 10 healthcare workers per 10,000 people; 18% of districts have no doctor, and current workers salaries have not been paid in full since 2017 (Project Hope, 2021).
- Many people have to travel hours to get to the closest healthcare, with WHO and other relief organizations offering many programs, including $150 million USD allocated by the World Bank in July 2021 (Alarabiya News, 2021).

Implications/Results/Issues Noted

- Death toll in Yemen in 2020 reached 233,000, with "half of the deaths caused by lack of food or access to healthcare" (Alarabiya News, 2021).
- Eighty percent of Yemenis are dependent on aid/ humanitarian assistance.
- Malnutrition is projected to affect 2.3 million children; 400,000 of these children have acute malnutrition, which can cause death (United Nations Children's Fund [UNICEF], 2021).
- Thirty-seven percent of children have missed their routine age-1 vaccinations.

COMPARING INTERNATIONAL HEALTHCARE SPENDING TO QUALITY AND SAFETY OUTCOMES

Now that we have a picture of healthcare spending and its models around the world, the doctorally prepared nurse can ask whether the spending invested demonstrates a proportionate return on investment in the quality of results and patient safety outcomes seen in those countries. The Commonwealth Fund, a private foundation that promotes improved healthcare access, quality, and efficiency (Commonwealth Fund, 2021), issued a report in 2019 to compare U.S. healthcare to that of other countries. The authors (Tikkanen & Abrams, 2019) found:

- Although the United States is among the highest spenders on healthcare worldwide, it has one of the highest disease burdens, with over 28% of adults over 18 having two or more chronic conditions (including arthritis; asthma or chronic lung disease; diabetes; heart disease, including heart attack; or hypertension/high blood pressure) as well as an obesity rate of 40%. This rate is 2 times higher than the Organization for Economic Cooperation and Development (OECD) average.
- Americans visit their physicians less frequently than citizens of other countries, but have a higher rate of diagnostic imaging than other countries worldwide; for example, 111 MRIs performed per 1,000 population compared to 45/1,000 in Australia and 4/1,000 in New Zealand. The low visit rate may be also attributed to a lower supply of physicians in the United States.
- Preventative medicine in the United States excels compared to other countries. Breast cancer screening is at 80% in the United States compared to 54% in Canada and overall immunization rates are 68% for adults over 65 in the United States compared to only 34% in Norway.
- Yet, although the United States has some of the highest breast cancer survival rates in the world (90.2%), it has some of the lowest survival rates for cervical cancer (62.6%).
- Preventable diseases, such as hypertension, are higher in countries like the United States (159 patients per 100,000) and lowest in the United Kingdom (18/100,000).
- Compared to peer nations, the United States has among the highest number of hospitalizations from preventable causes and the highest rate of avoidable deaths.

The Commonwealth Fund concludes that the performance of U.S. healthcare does not compare favorably to the amount spent on healthcare. The Peter G. Peterson Foundation/Kaiser Family Foundation partnership (Peterson-KFF) is a nonpartisan organization dedicated to addressing America's long-term fiscal challenges. It also compared U.S. healthcare outcomes to those around the world (Kurani et al., 2020) and found:

- The mortality rate for respiratory diseases is higher in the United States than in comparably wealthy countries.
- Mortality rates for diseases of the circulatory system have fallen dramatically over the last 37 years, but are still higher than in comparable countries worldwide.
- After a steady decline in premature death rates, the United States has experienced a recent uptick in such deaths and records 400 deaths per 100,000 individuals higher than comparable countries.
- The age-standardized disability-adjusted life year (DALY) rate (disease burden) per 100,000 population is 25% higher than in comparable countries (24,306/100,000 compared to the average in comparable countries of 18,533/100,000).

- Hospital admissions for chronic conditions that are risk factors for COVID-19 are more frequent in the United States than in comparable countries.
- Postoperative clots are more common in the United States than in some comparable countries, yet postoperative sepsis is less common in the United States than in some peer countries.
- The United States has higher rates of medical, medication, and lab errors (19% compared to 12%) than comparable countries.
- The United States has shorter hospital stays, fewer angioplasty surgeries, and more knee replacements than comparable countries, yet the prices for each exceed those charged elsewhere.

Peterson-KFF analyzed why the United States spends more on healthcare, attributing this to utilization and price, the number of healthcare visits and charges for services and determined that "Increases in either… can result in higher costs" (Kurani & Wager, 2021). It also states that many experts feel that in the United States, prices are the primary driver of higher healthcare costs as well as inefficiencies derived from the healthcare system complexities (Kurani et al., 2020). Peterson-KFF estimate that in U.S. healthcare, organizations spend an average of $940 per person on administrative costs, "four times more than… other wealthy countries and significantly more than [spending] on preventive or long-term healthcare" (Kurani et al., 2020).

NURSING OUTCOMES

Although this data compares U.S. healthcare in general to other countries, the doctorally prepared nurse might be more interested in learning about international comparisons to specific nurse-sensitive indicators like those measured by the National Database of Nursing Quality Indicators (NDNQI). These can be used as a benchmark to determine whether dollars spent = improved outcomes internationally. These indicators might include (Press Ganey, 2020):

- catheter-associated urinary tract infections (CAUTI),
- central line-associated blood stream infections (CLABSI),
- patient falls,
- pressure injuries,
- ventilator-associated pneumonia (VAP),
- ventilator-associated events (VAE),
- nurse turnover,
- RN education/specialty certification,
- staffing and skill mix,
- pressure iInjuries,
- pediatric pain assessment/intervention/reassessment (AIR) cycle,
- restraints outcome,
- assaults by psychiatric patients,
- assaults on nursing personnel,
- hospital readmissions,
- *Clostridium difficile i*nfections,
- pediatric peripheral intravenous infiltrations.

Within the United States, reviewing and comparing the outcomes of the quality and safety work of nurses is easily achieved, as there are voluntary and/or mandatory statewide and national databases that hospitals submit information to through non-rofit organizations like The Leapfrog Group (Leapfrog Group, 2021) or through statewide or federal programs like Center for Medicare & Medicaid Services (CMS's) Hospital Compare program

(CMS, 2021) or the AHRQ (2021). However, international comparisons for nurse-sensitive indicators and other quality and safety metrics are difficult to find. Comparing international Magnet® hospitals to non-Magnet hospitals is one way; however, there are only 14 Magnet-level hospitals worldwide in 2021 (American Nurses Credentialing Center [ANCC], 2021), so the number of hospitals available for comparison is limited. Joint Commission International is another way to compare nursing excellence, with 614 internationally accredited hospitals (JCI, 2021). However, outside of these types of institutional-level metrics, international comparisons of nursing quality and safety are yet to be found in any other single venue or database, and so determining the financial return on investment for these programs using an international benchmark is generally not possible. However, there are some individual indicators that can be seen internationally.

Care Experience

- Even though the United Kingdom spends only 10% of its GDP on healthcare compared to 16+% in the United States, and even though the nurse–patient ratios are "at best 1:8 in the NHS and at worst 1:12," their care experience results are better than in the United States. Of patients, 81% responded "yes always" that they were treated with dignity and respect and 90% always felt their privacy was maintained. Ninety-seven percent of patients felt their hospital was "very clean" (Griffiths et al., 2017).
- That being said, "communication about medications" is inferior in the United Kingdom as it elicited a negative response in 44% of patients (Griffiths et al., 2017).

Healthcare-Associated Infections

- Patient harm is the 14th leading contributor to the global disease burden; the main causes include medication and diagnostic errors, pressure injury, adverse events and hospital-acquired infections (HAI) and wrong-site surgeries in hospital care. TheWHO (2018) states that in high-income countries, 7/100 hospitalized patients will acquire a healthcare-associated infection and in developing countries, this rises to one of 10 patients.
- In 2017, the United Kingdom. reported 5% of all inpatients obtained an HAI (Guest et al., 2020) compared to a rate of 7.9% in Canada (Surveillance CNI, 2020) and greater than 5% in Norway (Organization for Economic Co-Operation and Development [OECD], 2020).

Falls

- Worldwide, falls are one of the most commonly reported adverse events in hospitals, with prevalence rates on the order of 10 per 1,000 patient days, or 5% to 15% of the patients worldwide succumbing to falls resulting in both minor and major injuries (Røyset et al., 2019).
- In Australia (2015 to 2016) the fall rate was 4.6 per 1,000 hospitalizations for public hospitals, compared to the average of 6.63 falls per 1,000 patients in the United Kingdom (Royal College of Physicians [RCP], 2015) and 4.8/1,000 patients in Norway.
- Finally, in the United States, the GDP spending seems to have positive results in the area of falls, as the fall rate of 3.56 per 1,000 patient days (Walsh et al., 2018) is considerably lower than that of the other countries mentioned.

Finally, no financial analysis of nursing outcomes would be complete without a discussion of nurse-to-patient ratios. Nearly 2 decades after the first nurse-to-patient ratios were implemented in California, it is still the only state in the United States with mandated nurse-to-patient ratios. Such ratios also been implemented in Queensland, Australia, and worldwide research by Professor Linda Aiken demonstrates that having

nurse-to-patient ratios results in improved patient outcomes (McHugh et al., 2021). Literature reviews have found that nurse understaffing results in increased risk for HAIs, higher mistreatment rates, and a decrease in patient outcomes (Ross et al., 2021: Sharma & Rani, 2020). In the United Kingdom, the odds of death for surgical patients were increased by 26% in hospitals with the lowest staffing on general wards (over 12 patients per RN, hospital-wide) compared to the best (8.4 patients per RN or fewer). For medical patients, the odds of death were reduced by 11% in hospitals in which each RN had six or fewer patients. Stroke units with 6.7 or more beds per RN on weekdays had 31% higher mortality compared to units with 3.3 or fewer beds per RN on weekdays, and the difference was even greater for weekend staffing levels, which are typically worse than weekdays (Griffiths et al., 2017).

In Norway, the government has been researching nurse-to-patient ratios and their effects on staffing and quality of care. A study of 150 municipalities revealed variations in staff planning and differing viewpoints on the optimal staffing levels and ultimately did not produce a recommendation for staff-to-patients ratio (WHO, 2020). In 2019, the nurse-to-patient ratio ballot proposal in Massachusetts was defeated after it was presented that it would cost the state's healthcare system $1.31 billion in the first year and $500 million a year thereafter (Gooch, 2018).

NURSING PAY DISPARITIES WORLDWIDE

Doctorally prepared nurses may not be surprised to learn of the pay disparities that nurses experience as American nurses are familiar with wage variation within the United States. However, how many realize that the scale of pay disparities worldwide includes paying nurses from $105 a month up to $6,476 a month? A cross-sectional analysis of the same wealthy and poor countries from our previous comparisons shows the wages typically paid to nurses in these countries (Table 4.11). It is worth noting that even within countries, there are nursing pay disparities. In California, where nurses also have the best nurse-to-patient ratios in the country, there are areas where the average nursing salary is 1.7 times more than the national nursing average and 2.1 times the average pay for other industries in the area (Smith, 2021).

Also worthy of note is that many nations, particularly those in the Gulf Cooperation Council (GCC) states of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates, offer a salary for migrant nurses and other workers based on their nationality/passport and not on their role in the organization. In these countries there is a two-tier system in which "health worker migrants to the GCC who are "Western trained" (European, American and Australian) are valued higher, compensated better, placed in urban centers, granted more senior positions, and have greater opportunities/training available" compared to nurses from third-world counties and where "compensation, seniority, value, and treatment of migrant health workers is linked to whether they are "Western-trained" or not" (Aspen Institute, n.d.). The average monthly salary for a Western expatriate in the United Arab Emirates is 34.8 percent higher than an Asian expatriate and 15 percent higher than the average Arab wage (Buller, 2013). Many employees feel the policy is unfair. One Asian national, making 3 times more than she would in the Philippines, but only 50% of what her European counterparts were making for the same job, felt it is "unfair to be paid less based on the color of her passport" (Redvers, 2018).

THE BUSINESS OF U.S. HEALTHCARE MODELS INTERNATIONALLY

Despite some poorer health outcomes, U.S. healthcare is popular overseas, with many U.S. hospital systems seeking to expand their care internationally. The global healthcare market is currently valued at approximately $7.7 trillion and was projected to exceed

TABLE 4.11 Nurse Salary Comparison (as of May 2021, Lowest to Highest)

Country	Local currency/month	In USD per month	In USD per year
Yemen	26,400 Yemeni rial	$105	$1,260
Angola	212,000 Angolan kwanza	$324	$3,888
India	24700 Indian rupee	$332	$3,984
Egypt	7090 Egyptian pound	$451	$5,412
Mali	268,000 Mali franc	$491	$5,892
Philippines	32,600 Philippine peso	$677	$8,124
Russia	76,800 Russian ruble	$1,020	$12,240
Brazil	6760 Brazilian real	$1,242	$14,904
Mexico	25,600 Mexican peso	$1,265	$15,180
South Africa	25,700 South African rand	$1,773	$21,276
Spain	2,350 euro	$2,825	$33,900
Saudi Arabia	12,000 Saudi Arabian riyal	$3,200	$38,400
United Kingdom	2,318 British pound	$3,206	$39,126
China	23,000 Chinese yuan	$3,552	$42,624
United Arab Emirates	15,400 Emirati dirham	$4,193	$50,316
New Zealand	6,400 New Zealand dollars	$4,591	$55,092
Norway	38,200 Norwegian krone	$4,596	$55,152
Australia	6,050 Australian dollars	$4,671	$56,052
United States	6,460 American dollars	$6,460	$77,520
Canada	7,960 Canadian dollars	$6,476	$77,712

USD, United States dollar.

Source: www.worldsalaries.org. *Exchange rates calculated on* www.xe.com.

$8.5 trillion by 2020 (Deloitte, 2019). Many U.S. health systems see this as a favorable time to look beyond U.S. borders to opportunities overseas. The overseas health systems see benefits like increased access to world-class healthcare, improved models of care to reduce costs, improved outcomes for their patients resulting in better population health in their countries. Deloitte (2019) continues by saying "the globalization of health care is upon us—and proven business models can be applied to organizational life cycles for expansion and growth." Organizations, particularly those with strong brand names, can go into other countries and "find new markets to commercialize their intellectual property and command a margin" (Coutre, 2017). The ability to organize continuing medical education (CME) programs abroad under the brand name of well-recognized U.S. academic health centers can benefit both sides of the business arrangement. The host country gains exposure to state-of-the-art medical care, while benefitting from the reputation of the educational excellence of U.S. institutions. For U.S. health systems,

research is easier to perform overseas, specifically in drug development, where "collaborations can provide a larger pool of patients to conduct outcome-based studies" (Are, 2009). Some U.S. systems provide "affiliate" status to already existing hospitals and healthcare systems, whereasothers built medical centers in their likeness overseas. Examples include Sanford Health "Sanford World Clinics," which operate in nine international markets; U.S.-based Christus Health with 33 hospitals and long-term care facilities in Mexico; UnitedHealth Group has operations in 130 countries; and Universal Health Services is now one of the largest providers of behavioral health services in the United Kingdom. Additional examples are described in the text that follows.

Cleveland Clinic

Mubadala Healthcare, the investment arm of the U.A.E. government, established an agreement with the Ohio-based Cleveland Clinic to bring the Cleveland Clinic to Abu Dhabi in keeping with the government's Economic Vision 2030 to develop a robust, world-class healthcare sector in the Emirate (Mubadala, 2021). The Cleveland Clinic is one of the most active U.S. health systems worldwide with affiliates and hospitals in the United Kingdom, Canada, and United Arab Emirates. In the United Kingdom, Cleveland Clinic London "is growing as an alternative option to the taxpayer-funded National Health Services system" (Coutre, 2017). While Cleveland Clinic London's business model is to target "UK patients with private health insurance and the growing number of people who are paying for treatment themselves, along with overseas patients," Cleveland Clinic London is also in discussion with the UK Government National Health System (NHS) about providing "complex procedures for NHS patients to help reduce waiting lists" (Kollewe, 2022).

Ascension Healthcare

Ascension Healthcare is a faith-based healthcare organization "dedicated to transformation through innovation across the continuum of care." The nationwide health system operates more than 2,600 sites of care, including 146 hospitals and more than 40 senior living facilities in 19 states and the District of Columbia (Ascension Healthcare, 2021). Ascension Global Mission oversees international "efforts that improve health and living status for poor and vulnerable populations in developing countries" and has partnered with overseas companies to spread its mission:

- Ascension partnered with Ramsay Health Care Limited in Australia in a new global supply chain joint venture. "The new organization will combine the purchasing power of St. Louis-based Ascension, the world's largest Catholic health system, and Sydney based Ramsay Health Care, which operates more than 230 healthcare facilities in six countries on four continents" (Smith, 2018).
- In 2014, Ascension partnered with Narayana Health of India to open Health City Cayman Islands (HCCI), a 104-bed hospital on Grand Cayman. However, in 2017, the company sold its stake in the Grand Cayman health system (Meuller, 2017).

Mayo Clinic

Mayo Clinic, the Minnesota-based health system, has developed a worldwide presence in recent years, offering various types of facilities on five continents worldwide (Figure 4.2).

The Mayo organization has clinics in London that "provides a variety of services, including comprehensive health assessments, specialty consultations, second opinions, a gateway to more than 4,000 Mayo Clinic experts and diagnostic services outside the United Kingdom's National Health Service" (Mayo Clinic, 2021). The organization also has offices in Canada and South America, as well as consulting offices in Morocco,

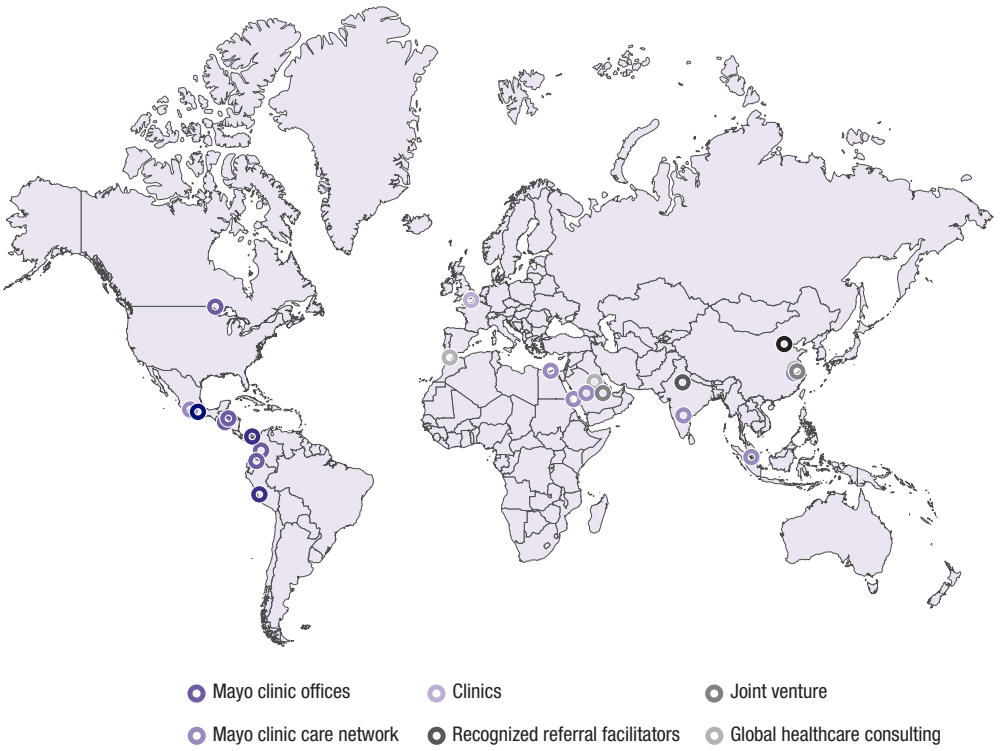

FIGURE 4.2 Mayo Clinic global locations.
Source: Reproduced with permission from Mayo Clinic. (2021). *Mayo Clinic global presence*. https://www.mayoclinic.org/products-services/international-business-collaborations/mayo-clinic-expertise

Kuwait, China, Panama, Qatar, the United Arab Emirates, and Peru. Their joint healthcare ventures extend to the United Arab Emirates and China. The Mayo Clinic Care Network has more than 40 members across the United States, China, Mexico, Saudi Arabia, South Korea, Singapore, and the United Arab Emirates (Mayo Clinic, 2021).

University of Pittsburgh Medical Center

The University of Pittsburgh Medical Center (UPMC) has had an international division for more than 20 years, with a goal of establishing UPMC as a multinational healthcare system. Its team of multidisciplinary experts help identify and assess what is needed to achieve success and build high-quality healthcare solutions. "UPMC's in-country facilities and partnerships, and clinical collaborations and training programs help to build health care solutions customized for the unique needs of the patient and region" (UPMC, 2021). Through various sorts of arrangements, Pittsburgh-based UPMC has a presence in Italy, Japan, Ireland, and elsewhere.

- **Italy**: UPMC has seven affiliates in Italy, including hospitals, medical research facilities, cancer centers, and spas.
- **Ireland**: UPMC has five centers in Ireland, including hospitals and a standalone cancer center.
- **China**: UPMC broke ground in 2019 on a hospital in Chengdu, China. It will be the first of five hospitals that UPMC will jointly operate with the Chinese conglomerate Wanda Group.

- **Kazakhstan**: Although UPMC has been advising its partners in Kazakhstan for more than 6 years, it has signed an agreement with Nazarbayev University to fully integrate patient care, education, and research at the university's hospitals and clinics (Paavola, 2019).

GLOBAL HEALTHCARE PHILANTHROPY (IN THE AGE OF A PANDEMIC)

Healthcare has been a traditional priority for philanthropy, but especially so during a pandemic. This section reviews the organizations that are helping finance global healthcare through philanthropic ventures amounting to $46 billion each year (Greenburg & Aluso, 2020).

The Bill and Melinda Gates Foundation, United States

- **Aim**: The Gates Foundation "aims to take a catalytic approach in its healthcare work, concerting its activities with public sector and philanthropic partners which include WHO and the U.K.'s Foreign, Commonwealth and Development Office"
- **Primary Areas of Concern**: Malaria, AIDS, tuberculosis, and polio
- **Financial Contributions**: $2.9 billion in grants to combat malaria
  - $2 billion to the Global Fund to Fight AIDS, Tuberculosis and Malaria
  - $1.6 billion to the Global Initiative to Eradicate Polio and with the WHO, UNICEF, and the World Bank, helped set up Gavi (the Vaccine Alliance)
  - $350 million to support global responses to the COVID pandemic and another $300 million from its Strategic Investment Fund to make it attractive for private enterprise to develop affordable and accessible health products in the service of developing a vaccine
- **Website**: gatesfoundation.org

Wellcome Trust, United Kingdom

- **Aim**: To fund research to tackle the big health challenges and raise the public profile of scientific research especially regarding health
- **Primary Area of Concern**: Infectious diseases, mental health, and climate and health
- **Financial Contributions**: Its spending in support of these objectives is around £900 million per year, according to its 2019 annual report and financial statements
- **Website**: wellcome.org

Open Philanthropy Project, United States

- **Aim**: To identify outstanding giving opportunities, make grants, follow the results, and publish findings
- **Areas of Concern**: Global health and development, and biosecurity and pandemic preparedness
- **Financial Data**: The Open Philanthropy Project (OPP) has made grants of $452 million, mostly to organizations recommended by the nonprofit-monitoring platform, GiveWell, with whom it has a close relationship. Its interest in biosecurity and pandemic preparedness is based on OPP's belief that pandemics, whether natural or engineered, represent "one of the biggest current risks to global welfare and stability.'" It also sees 'relatively little philanthropic support in this area' but believes that philanthropy could have an important role to play in it.
- **Website**: openphilanthropy.org

The Gavi Alliance, Switzerland and United States

- **Aim**: A cross-sector alliance involving foundations, international nongovernmental organizations (INGOs) and multi- and bilateralfunders, Gavi, or the Vaccine Alliance, has helped to vaccinate over 760 million children in the world's poorest countries since its inception in 2000.
- **Areas of Concern**: Immunization of children against rotavirus, meningococcal meningitis A and pneumococcal disease, yellow fever, and Japanese encephalitis are primary initiatives. More recently, it has become one of the leaders of the COVAX initiative to provide equitable access to COVID-19 vaccines. The idea behind this is to pool the buying power of participating economies and to provide volume guarantees across a range of promising vaccine candidates so that their manufacturers can go ahead with their production.
- **Website**: gavi.org

Michael Bloomberg and Johns Hopkins Health Initiatives, United States

- **Aim:** Bloomberg Philanthropies has been instrumental in the health programs of Johns Hopkins University.
- **Areas of Concern**: Public health training is given to individuals engaged in organizations tackling critical challenges facing the United States in the following areas: addiction and overdose, adolescent health, environmental challenges, obesity and the food system, and violence. Johns Hopkins has been a leading source of global data on the prevalence of COVID-19.
- **Financial Contributions**: A $300 million contribution was given to establish the Johns Hopkins Bloomberg School of Public Health, the largest gift ever made to the School of Public Health.
- **Website**: americanhealth.jhu.edu

Free the Vaccine, United States

- **Aim**: Philanthropically backed movement of 300 self-styled activists spread around the world
- **Area of Concern**: Campaigning for free access to a COVID-19 vaccine
- **Website**: freethevaccine.org

Global Health 50/50, United Kingdom and Australia

- **Aim**: Uses a gender lens to tackle global health inequalities.
- **Area of Concern**: Using its Gender and Health Index—the single-most comprehensive analysis of gender equality and diversity in the global health system today, Global Health 50/50 also tracks official sex-disaggregated data from 175+ countries to reveal how men and women are affected differently by the COVID epidemic.
- **Website**: globalhealth5050.org

CORRUPTION AND WASTE IN HEALTHCARE

The Organisation for Economic Co-operation and Development (OECD) estimates that 20% of healthcare spending worldwide is related to operational and governance-related waste and 6% of health expenditure is spend on corrupt practices (OECD, 2021).

The National Academies of Sciences, Engineering, and Medicine reviewed healthcare corruption and determined:

- Fraud and corruption account for approximately $455 billion of the $7.35 trillion spent on healthcare annually worldwide.
- Forty-five percent of global citizens believe the health sector is corrupt or very corrupt.
- Globally, 1.6% of annual deaths in children under 5—more than 140,000 deaths—can be explained in part by corruption.
- Chronic government underfunding, insufficient regulatory oversight, and lack of transparency in governance can breed corruption and reduce the quality of healthcare (National Academies Press, 2018)

The result of healthcare corruption is multifaceted and includes increased infant and child mortality, poorer immunization programs, reduced access to healthcare, increased wait times, less equitable care, unnecessary financial burden, absenteeism, and theft. Corruption in healthcare can come in many forms, including:

- smaller scale acts by doctors and nurses who charge bribes or "informal payments,"
- larger scale acts at the ministerial or hospital administrator level, when people in power siphon money or redirect resources away from those who need it for their own benefit,
- construction of facilities,
- purchasing of equipment and supplies,
- medication purchasing and distribution,
- distortion of medical research,
- bribery, and
- purchasing referrals.

India has been highlighted by the *British Medical Journal* (*BMJ)* in a series of articles regarding corruption in that country. Rampant corruption is observed at all levels, and a survey by Transparency International in 2013 found the practice of paying bribes for services is twice as common in India as elsewhere. The culture of paying bribes to get "a little ahead, a little extra, a little quicker" has become ingrained in people's attitudes (Jain et al., 2014). Pharmaceutical corruption was also highlighted in India and was due to be banned in 2015, but is still an issue in the country. The *Uniform Code of Pharmaceutical Marketing Practices* now bans Indian drug companies from giving doctors "freebies" and lavish gifts, cruise tickets to exotic locations, paid vacations, or sponsorships to educational conferences and seminars (Mukherjee, 2014).

In 2014, U.S. drug and device makers were forced to disclose payments exceeding $10 (£6.5; €7.6) to physicians, and the data was required to be posted on a publicly accessible website that is be administered by the Centers for Medicare & Medicaid Services, where patients could see what, if any, financial ties their own doctor has with a drug or device maker (Silverman, 2013). Honduras has been plagued with corruption in its central medication warehouse, which is the country's largest distributer of supplies and medication, costing the state millions of dollars and denying patients the access to care that they needed (Transparency.org, 2019). Finally, the Eastern European countries of Poland, Bulgaria, Lithuania, Romania, and Hungary, as well as many Asian countries, have had a longstanding system of informal payments to health professionals and hospitals because of patient perception that they must make an "additional payment" to get good care (Richards, 2019).

CONCLUSIONS

In their 2021 report "Mirror, Mirror 2021: Reflecting Poorly," (Commonwealth Fund, 2021) Healthcare in the United States compared to other High-Income Countries, the Commonwealth Fund confirmed that the highest performing healthcare systems worldwide are found in Norway, the Netherlands, and Australia, with the United States performing last in the ranking of 11 high-income countries. The report specifies that although the United States spends more of its GPD on healthcare than the other countries, its low rankings are specifically related to access to care, administrative efficiency, equity, and healthcare outcomes. Financially, it has been recommended that all counties follow OECD's recommendations, published in its 2015 "Fiscal Sustainability for Health Systems report" (Braendle & James, 2015).

Financing innovations in healthcare will be the catalyst to improving costs, quality, and access to healthcare internationally in the future. Billions of dollars have been spent in the United States to improve the quality and cost of Medicare and Medicaid services. Joint ventures between healthcare organizations and Amazon, Berkshire Hathaway, J.P. Morgan, and Apple are powerful examples of innovations occurring in the United States. The Australian government is investing millions of dollars in services for older Australians and those at risk of isolation, which will support those communities in need as well as supporting youth healthcare and suicide prevention programs. If U.S. healthcare leaders listen to the Commonwealth Fund's most recent report (2021), they will innovate by removing cost barriers, invest in primary healthcare that provides services equitably, reduce administrative burdens, and invest more in social services. Finally, the COVID-19 pandemic has taught us that innovation is not a choice anymore, especially in the areas of telehealth and remote working environments, and the financial benefits of these innovations will be noted worldwide.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Devise a business plan to promote your organization overseas:
   a. What are the unique attributes that your organization can bring to an overseas market?
   b. How would you conduct a needs analysis of the target countries?
   c. What are the categories of costs that would need to be covered for a "pitch" to be made to your executive leaders?
2. In your target country overseas, there is a country-wide policy of paying nurses based on their country of origin, resulting in some nurses earning more than double the salary of nurses working in the same job category. Using the DNP Essentials, critically analyze this policy considering a number of elements:
   a. Is it fair that nurses doing the same job earn different salaries?
   b. If you paid equally for all nurses, some nurses would be making the same as in their home countries and some would be get a 100% pay increase.
   c. If you pay the same amount to every nurse, it might destabilize other healthcare organizations in the region and affect their ability to hire nurses.

3. The project to bring your organization to an overseas country is gaining momentum. Pick a country *not* featured in this chapter, and determine whether your chosen country has healthcare disparities that your organization might need to tackle in order to be financially and ethically viable.
4. Based on the healthcare landscape of Yemen provided in this chapter, what would be your leadership approach to managing the crises there? What strategies could a doctorally prepared nurse use to assist the Yemeni government or aid agencies in improving healthcare in this or other war-torn countries? (*Dr Lisa Gifford is acknowledged for her contribution to this case study and the chapter content.)*

ADDITIONAL READING AND RESOURCES

- **The Commonwealth Fund**: www.commonwealthfund.org
- *The Lancet*: Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: a systematic analysis from the Global Burden of Disease Study 2016 (https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30994-2/fulltext)
- **The World Bank**: Healthcare spending per GDP; https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS
- **World Health Organization**: WHO Healthcare Financing Worldwide https://www.who.int/health-topics/health-financing#tab=tab_1
- **The Commonwealth Fund:** International Profiles of Health Care Systems: Australia, Canada, China, Denmark, England, France, Germany, India, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan, and the United States (https://www.commonwealthfund.org/international-health-policy-center/system-profiles)

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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PART II: Budgeting, Strategic Planning, and Financial Statements

CHAPTER 5

Budgeting in Acute Care Settings

ChrysMarie Suby

The focus of this chapter is to provide the DNP-educated nurses in executive leadership in acute care settings with the most essential skills and tools needed to develop and oversee the management of annual **full-tme equivalent (FTE)** budgets, as well as the ability to translate FTEs into annual and daily hours and shifts for employee scheduling, daily staffing, and management reporting. These essential skills and tools help the DNP executive nurse leader to successfully oversee care delivery models and workforce management, promote healthful work environments and safe workplaces, manage emergency preparedness, formulate programs to encourage work–life balance, develop recruitment and retention strategies, and measure and meet healthcare outcomes. For this chapter, unit leadership reporting to the DNP executive nurse leader includes unit managers, assistant unit managers or their equivalents, and shift charge nurses.

Annually, the Labor Management Institute, Inc., (LMI) works with healthcare executive leaders to identify sources for FTE budget, schedule, and payroll leakage that create unnecessary shift shortages and overages as well as unnecessary overtime and premium pay, averaging 2.5 FTEs or $100,000 per **cost center** per year. In every case the single greatest source for these financial losses and staff dissatisfaction is the failure to translate the budget FTEs into annual and daily targets for direct, indirect, total worked or productive hours, and deficit demand replacement hours for employee scheduling and daily staffing decision-making. DNP/nurse leaders and their unit leadership must understand the importance of calculating and assessing direct-care RN hours to meet RN-to-patient ratios as this is a more sensitive indicator for the unit than the general guidelines of published ratios by unit type.

Balancing available labor resources and workload **units of service (UOS)** for optimal workforce management and cost-effectiveness can only be achieved when the DNP/nurse leader in acute care settings truly understands and sets the expectation with unit leadership regarding financial principles, formulas, and the interrelatedness of the 1-year annual budget in FTEs. For optimal workforce management, the annual FTE budget is best expressed in both hours and shifts in the employee schedule (also known as the *1-month budget*) to the variable staffing plan (VSP) (also known as the *1-day* or *24-hour budget*) expressed. Employee schedules must be produced and daily staffing decisions must be made that meet financial constraints, workload UOS volumes, and patient acuity. Employee schedules must address the unit's needs for employee experience, skills, and competencies and employee needs for requests to meet work-life balance.

NURSING UNIT LEADERSHIP ACCOUNTABILITY

Accountability for the unit's labor and supply expenses, delivery of quality patient care at the cost -center level requires that nurse managers reporting to the DNP/nurse leader act as the unit's chief executive officer as well as the chief encouragement officer. Although clinical and leadership experience in acute care settings is very important, success requires accountability for unit financial dollars in the form of payroll dollars and labor expenses, and the expense and revenue relationship based on the budget, schedule requirements, schedule development, employee request management, supplemental staffing response to deficit demands, proactive daily staffing, and management reporting. The expense and revenue relationship requires defined strategies to add or increase employee-worked hours from least to most expensive, and conversely, strategies to reduce worked hours from most to least expensive when necessary.

Accountability and teamwork are crucial to achieving best practices in budgeting, employee scheduling, daily staffing, management reporting, and workforce management. Frontline staff must be engaged to improve patient safety and the quality of care and FTE budgets; schedule requirements and daily staffing plans must be transparent and understood. It is important to remember that the staff RNs of today are the charge nurses and nursing managers of tomorrow.

Good financial and resource management requires a commitment by the DNP/nurse leader to work with unit leadership to develop their business cases for their annual budgets using actual data 9 to 11 months in advance of the final approval date. They must work with their staff to improve basic services creatively and collaboratively; optimize their efficiency; eliminate redundancy; improve quality; manage costs to maximize revenue sources, while working on employee engagement, reductions in turnover, increases in retention, and where possible, reductions in the cost of new employee orientation. With data we can defend our budgets, FTEs, and Hours/UOS, negotiate for changes, and have and hold a seat at the decision-making table. In the words of W. Edwards Deming "without data, you're just another person with an opinion" (Jones & Silberzahn, 2016).

ESSENTIAL BUDGET COMPONENTS

The DNP/nurse leader for acute care settings needs to understand the essential components of the budget, which identifies the expected workload volume (e.g., patient days, emergency visits, procedures, and so forth) or UOS, allocates labor resources in the form of hours and FTEs, and defines the budget key performance indicators (KPIs), including direct RN, total direct, indirect, and total worked or productive hours per UOS. Given proper information and expectations, most nurse leaders can perform to the levels expected. However, there is little incentive to perform optimally when information is not available. Alternatively, when the information is provided and nurse leaders are not meeting financial, employee scheduling, daily staffing, and management report targets, then DNP/nurse leaders should evaluate the managerial knowledge of their nurse leaders for their ability to hold their positions. Accountability is the imperative at every level of leadership.

WORKLOAD UNITS OF SERVICE: FLUCTUATING, ERRATIC, AND MOST FREQUENT VOLUME

The unit workload UOS is the foundation of each unit's workforce management story. It provides the data for defending or asking for increases in budget FTEs and hours. The volume forecast is a basic element in estimating workload and unit revenue. It is essential for the patient care services/nursing and finance departments to work together to determine and agree upon the volume forecasts. Revenue forecasts follow forecasted volumes, which are usually provided by the finance department. *Patient days* are the sum

of the census at midnight for the survey period. For example, the midnight census of 22 for 2 nights is a total of 44 patient days. There is common agreement between nursing and finance that the midnight census does not fully describe the impact of the work on the unit, as it usually excludes the bedded outpatients and observations, unit-based procedures (e.g., blood transfusions), and treatments or visits in the obstetric units.

Effective budgets cannot be planned without workload UOS or volume forecasts. A primary workload UOS must be defined for every cost unit. The UOS for inpatient units is patient days, which are the sum of the census at midnight for the survey period; the metric by which we compare care delivery is reported as worked labor **hours per patient day (HPPD)**. The worked hours per UOS will vary by the type of work done in the unit. For example, in emergency rooms, the primary workload type is **hours per visit (H/Visit)**; in obstetric units, the primary workload type is **hours per delivery (H/Del)**.

Secondary workload or UOS may be possible. For example, bedded outpatients kept for observation in an acute care unit will create hours of work to admit, discharge, and/or transfer patients within a cost center that is not counted in the midnight census workload by many clinical systems. Finance may agree to a productivity credit formula that gives the unit credit for this work, which is represented as equivalent or adjusted workload. A commonly accepted formula is 24 observation hours = 1 patient day.

Workload variations should be identified by day of the week, as planning for these trends can reduce costs without reducing care. The workload UOS or volumes can be viewed in the following four ranges:

1. **Peak Volume***:* Capacity of the unit
2. **Possible Volume***:* Workload between the most frequent and peak UOS or capacity of the unit
3. **Most Frequently Occurring or Probable Volume***:* Includes the most frequently occurring workload, actual average daily workload, and actual average daily workload UOS by day of week (weekday and weekend) on 50% or more of all days in the survey period
4. **Certain or Most Common Volume***:* The most common workload UOS is the one that rarely drops below this volume

The most frequent volume (MFV) helps unit leadership measure the "range of staffing elasticity" that direct-care staff reflected in **admissions, discharges, and transfers (ADTs)** within the shift that may or may not require additional staff (Table 5.1).

TABLE 5.1 Sample Comparison of Budget UOS to MFV and Scheduled to Required RNs with a Target Direct RN-to-Patient Ratio of One RN to Four Patients

Comparison of BA UOS to MFV and RNs scheduled vs needed	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg.
BA UOS	20	20	20	20	20	20	20	20
Actual MFV by DOW	26	24	26	22	16	14	12	20
Number of RNs needed at BA UOS if target ratio is 1:4	5	5	5	5	5	5	5	5
Number of RNs needed to MFV if target ratio is 1:4	6.5	6	6.5	5.5	4	3.5	3	5
Variance over/understaffed when scheduled RNs based on BA UOS compared to MFV	**−1.5**	**−1.0**	**−1.5**	**−0.5**	**+1.0**	**+ 1.5**	**+2.0**	**+ / − 4.5**

BA, budget avaerage; DOW, day of week; MFV, most frequent volume; UOS, unit of service.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

Average Daily Census (ADC) or workload UOS in acute care settings occur in two patterns:

1. Fluctuating workload UOS occurs when the UOS volumes are *within* the target RN-to-patient ratios when measured in 4, 8, 12, 16, or 24 hours.
2. Erratic workload UOS occurs when the workload UOS is greater or less than the target RN-to-patient ratios when measured in 4, 8, 12, 16, or 24 hours (Table 5.2.)

TABLE 5.2 Sample Fluctuating or Erratic Workload for a Tele/Step-Down Unit

Example: ADC is 20 and RN- to-patient ratio is 1:4							
Time of day	Census Unit A	+/– Change	Erratic or fluctuating		Census Unit B	+/– Change	Erratic or fluctuating
5 am	22	0	Fluctuating		22	0	Fluctuating
9 am	23	+ 1	Fluctuating		26	+ 3	Fluctuating
1 pm	19	– 2	Fluctuating		18	– 8	Erratic
5 pm	21	+2	Fluctuating		26	+8	Erratic
9 pm	22	+ 1	Fluctuating		19	– 7	Erratic
1 am	21	–1	Fluctuating		18	– 1	Fluctuating
24-Hour average	**21.33**	**–1**	**Fluctuating**		**21.5**	**–5**	**Erratic**

ADC, average daily census.

In Table 5.2, Unit A's census is unchanged or fluctuates between a range of -2 to +2 of the target RN-to-patient ratio of 1: 4 at 4-hour intervals across the 24 hours. Neither the decrease or increase of patients is equal to four patients, which would justify the addition of another nurse, or the cancelling or floating of a nurse for the shift or portion of the shift. However, Unit B's census increases and decreases by four or more patients in three of seven time intervals across the 24 hours. Without specific staffing strategies, these census changes are very disruptive to the unit

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

WORK INTENSITY MEASURED BY ADMISSION, DISCHARGE, AND TRANSFER (ADT) FOR ACUTE CARE INPATIENT UNITS

Measuring the ADT Work Intensity is an indication of how busy the unit is and not patient turnover. It correlates well to workflow realities. To be most helpful, it must be used with other information and does not ignore midnight census. It is useful to define times when worked hours measured in the HPPD are required in the face of declining midnight census or short length of stay (LOS). As ADT rises and LOS falls, the bed demand will increase. LMI worked to develop a formula to describe how "busy or intense" a unit was during certain periods of the day (Suby, 2008a) that is not necessarily reflected by the midnight census. The formula developed by LMI to calculate the ADT Work Intensity is:

$$\frac{\text{Total admissions + Discharges + Transfers in 24 hours}}{\text{Midnight census}}$$

If HPPD is above budget and the workload units are at or below budget, often the reason for this is that the ADT work intensity is very high and turnover in patients is not being captured in the midnight census.

Most common, midnight census is the UOS used to predict nurse staffing, and the unit-evel workload increases with the movement of patients into and out of the unit (ADT). The patient turnover method used by Unruh adds the inverse of the length of stay (I/LOS) to the midnight census that considers the turnover of the same healthcare organization bed within a 24-hour day (Unruh & Fottler, 2006). This metric adds more staffing to units with shorter LOS and less staff to units with longer LOS and is not usable by shift.

In 2013, an analysis of 183 units from 32 healthcare organizations in the United States from the LMI Workforce Assessment Two-Week Survey of Hours was used to calculate nurse staffing requirements to meet unit workload using three different metrics (Hughes et al., 2015). The three metrics were midnight census, the I/LOS (Unruh & Fottler, 2006), and ADT Work Intensity Index (Suby, 2008a).

The analysis showed that the midnight census and LOS alone did not account for the workload intensity. When ADT is considered, the workload of direct-care nurses increases beyond the patient care workload demands based only on the midnight census. Key findings included:

- Shift-level staffing by unit type was used to evaluate whether ADT increases nurse staffing requirements more than midnight census alone. After differences in staffing were considered, about 37% of the variance in staffing over the midnight census requirement was related to ADT.
- The ADT Work Intensity produced a larger increase in calculated nurse staffing requirements than the patient-churn method, which uses LOS compared to midnight census by an average of 2.35 RN HPPD in telemetry and medical–surgical units.
- When the ADT Work Intensity Index was used in determining direct-care RN staffing across all healthcare organizations (teaching, community and rural) and all three shifts, each type of healthcare organization unit would have needed additional RN staffing in the range of 0.91 to 6.98 additional RNs when patient churn was the highest because of ADT.
- The number of RNs assigned per shift within each patient care unit is often based on the budgeted average daily (midnight) census and adjusted for the acuity of the actual patients and the target RN-to-patient ratios. When unit workload is assessed each shift for actual census, ADT activity, and acuity, and staff are deployed to maintain target **hours/UOS (H/OUS) a**nd RN-to-patient ratios, there is lower reported employee stress and greater job satisfaction.

ADT Work Intensity will reflect the workload when the shift census is at or below the midnight census. When unit-level workload fails to address ADT activity by shift, the deployment of nursing staff is considered ineffective, which in turn increases employee feelings of stress and dissatisfaction from working short, which contributes to increased turnover.

LMI has determined the following unit thresholds by acute care unit type (Table 5.3). DNP/nurse leaders may consider the benefits of an "ADT nurse" during days and times of peak activity to ensure that the ADT work is being completed in a timely manner. DNP/nurse leaders are expected to build a business case to support negotiations with finance to meet these needs through some of the following strategies:

1. Receive an "earned productivity credit" *after* the pay period or fiscal period is over to offset the actual worked hours for high ADT Work Intensity. A credit will reduce the overage of worked and paid hours to bring the cost unit into financial alignment. However, the credit always occurs after the fact and does little to prevent or

reduce overtime (OT) or premium pay hours encountered on a shift-to-shift basis. To be the most successful, try to negotiate 50% of the productivity credit as part of the budgeted FTEs and daily worked hours and the balance awarded at the end of each pay period based on actual ADT activity.

For this approach to be successful, the DNP/nurse leader must assess the workload UOS by day of week and shift for the prior year to compare actual versus scheduled direct staffing by skill mix (e.g., RN, LPN/licensed vocation nurse [LVN], NA) to assess for patterns of workload activity and scheduled to staffed resources. The goal of the assessment is to better define scheduled staff to the MFV and ADT Work Intensity as part of the scheduling process to use more predictable hours at the regular rate of pay and reduce OT and other premium pay or working short of staff.

2. Eliminate the assistant manager role and/or reassign the "charge nurse" position from indirect care (no patient assignment) to a direct-care position with an expectation that the charge nurse takes a 50% to 100% patient assignment while also serving as the shift "resource" and ADT nurse until a patient can be assigned to another staff nurse who has had a discharged patient or until the mutually agreed-upon ratio has been met and the unit receives another RN.
3. When possible, based on state and union agreements, it is helpful for the DNP/nurse leader try to negotiate the charge nurse position to be responsible for a 50% patient assignment to allow time for the charge nurse to serve as the unit "resource nurse" and coordinator of ADT activity. When this approach is possible, it is important that DNP/nurse leaders monitor the workload of the designated charge nurses who become overburdened and too overwhelmed to be a resource to the staff on the shift. When it is not possible for charge nurses to take an agreed-upon patient assignment, it will mean that all other staff must increase their patient assignments by one to offset the difference and/or the unit will need to add another nurse. This becomes a source of staff dissatisfaction, burnout, and turnover. It is helpful to analyze if the charge nurses record their patient assignment numbers each shift to provide data to assess the impact of their taking or not taking a patient assignment to help explain staffing overages, complaints of short staffing, and perceptions of unfair assignments.
4. Reduce or eliminate nursing assistants (NAs) or their equivalent to maintain or increase direct RNs in the units. To retain nursing assistant positions, assess the unit's highest days and shifts of ADT activity as well as number of non-RN required patient transports to identify when NAs will be needed most.

TABLE 5.3 LMI's ADT Work Intensity Index Thresholds by Acute Care Unit Type

Acute care unit type	Threshold range in ADT index percentage (%)
Critical care	85–90
Intermediate care (telemetry/SD)	65–75
Medical–surgical	50–60
Mother–baby/postpartum NICU/PICU	80–90
Mental health	35–40
Rehab-skilled nursing	25–30

NICU, neonatal intensive care unit; PICU, pediatric intensive care unit, SD, step down.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

5. Reduce or eliminate patient safety attendants (PSAs) or their equivalent to maintain or increase direct RNs in the units. To retain them, assess the unit's highest days and shifts of sitter needs to identify when they will be most needed on your unit. There is potential for telemonitoring, virtual sitters or video attendants, depending on the unit type (e.g., mental health vs geriatrics, skilled nursing etc.); however, the cost is usually shared across multiple units on a prorata basis each pay period. It is important to define schedule requirements that calculate the per shift demand to allow for 2-hour rotations in assignments to prevent video fatigue, resulting in patient falls or injuries.
6. Reduce or eliminate clerical support (clerks, secretaries, unit supply coordinators) or their equivalent to maintain or increase direct RNs in the units. To retain them, assess the unit's highest days and shifts of ADT activity to identify when they will be most needed on your unit.
7. Many organizations will reassign the nursing assistant, PSA, and clerical positions into the resource pool and float them to the unit on an as-needed basis, so the assessment will help to schedule and place them. Cross-training between nursing assistant, PSAs, video and monitor attendants is a great opportunity to flex staff to meet ADT demands and promote 2-hour video-monitor assignments across a shift when the unit is within the supervision of the central staffing office and resource pools.
8. **LMI Workload Best Practices include:** (a) Define annual financial plan exist for primary and secondary workload UOS; (b) trend workload volumes by day of week (DOW) for MFVpatterns; (c) develop employee schedules based on the MFV that reflect DOW patterns; (d) proactively assess erratic and fluctuating volume changes by unit each day of the week at 4, 8, 12, 24, 48, and 72 hours; (e) make staffing practices consistent with daily staffing policies; and (f) identify sources for supplemental staffing replacement FTEs and hours for mutually agreed-upon goals such as actual workload greater than the budget, unplanned employee absences for emergent call-ins, leave of absences (LOAs) greater than two per shift, or unit vacancy at or above 20% of total budgeted positions.

UNIT STAFFING BUDGET FOR ACUTE CARE UNITS

The budget is the annual plan that establishes the revenue-and-expense relationship. It specifies the primary and secondary workload UOS, and it sets the foundation for the resource management plan. The flexible, or variable budget, is the foundation for units where the workload volumes are variable, expenses and revenue remain relative as agreed, workload volumes will be projected for each schedule, and daily staffing responses will be adjusted to the actual volumes and worked hours as determined for each workload UOS.

The cost center is a financial unit or code from which wages are paid and costs are identified and controlled by a specific DNP/nurse leader. Usual accounting practice is to assign all labor costs to the home cost centers and to allocate to all other cost centers the **hours worked** on those units. It is critically important in organizations where scheduling, staffing, and time and attendance have been automated that all employees correctly clock in and out of their shifts using the correct codes. With identified costs allocated to each cost center, definitive corrective action can be taken when appropriate.

The annual budget should consider the model of care delivery or the nurse staffing model, which impacts the distribution of care hours. Examples of commonly used pre-pandemic models of nursing care included Team, All RN, Primary Nursing, Relationship-Based Care, and many more. The nursing care model must address the requisite skill-mix groups in the annual budget. For example, an "All RN" nursing care model is limited to all RN positions, so work previously assigned to nursing assistants and clerks will need to be done by RNs.

The COVID-19 pandemic forced organizations to close elective surgery and many outpatient and ambulatory care units and to restructure the acute care units to include non-traditional nurse anesthetist, respiratory therapists, and to augment FTEs with nurses previously allocated for important administrative roles in education, information, quality, and so on. When these nurses left their acute care positions, they did not have opportunities to remain clinically competent to the same degree as acute care bedside nurses. Many organizations are considering the development of internal "acute care readiness programs" whereby these nurses could complete a program every 2 years, along with a targeted simulation day every year, to help them be prepared and less anxious should another disaster occur.

All FTEs and staff positions should be identified as *core* direct (variable) or core indirect (fixed) by shift and skill mix in the unit's schedule requirements. LMI recommends core FTEs and positions comprise at least 85% of all FTEs or positions in your budget and **position control**. Core employees are expected to work equal weekend rotations. The total number of core positions in the position control are equal to the required FTEs and hours needed to create employee schedules for the budget workload UOS without the need for OT or other premium pay. All core employees must work to their hired work agreement each pay period before receiving extra hours or other premium pay. Employees must use their accrued benefit time to make up any shortage of hours in their hired work agreements because they are accruing benefits they have not earned if their actual worked hours are less than those stipulated in their hired work agreement. Core employees should be prevented from receiving OT or other premium pay if there are other core employees who are not otherwise scheduled to fulfill their hired work agreement.

Supplemental FTEs and positions refer to those employees who have work agreements equal to 8 to 12 hours per pay period or per diem/casual or contingent employees hired to work 0 hours per pay period. The primary purpose of supplemental FTEs is to serve as the source of replacement staff due to unplanned employee absences, or when workload and patient acuity are erratic and above budget. Supplemental FTEs or positions should be limited to a maximum of 15% for optimal scheduling and daily staffing flexibility. If your supplemental staff are not working a minimum of 12 hours per pay period, keeping them as active employees is costing the organization money.

FULL-TIME EQUIVALENTS

The concept of FTEs needs to be clearly understood by all DNP/nurse leaders and other leadership who have budget accountability. FTEs are reported as direct, indirect, total worked or productive (direct and indirect), nonproductive, and total paid or annual. *FTE* is the term used for comparison of personnel employed by the healthcare organization. Acute care units operate 7 days for 24-hours each, employing a variety of full-time (FT), part-time (PT), and per-diem/casual or contingent employees. The term *FTE per occupied bed* is often used. *Occupied beds* are defined as the number of beds that are licensed and physically available, staffed, and occupied by a patient (Agency for Healthcare Research and Quality [AHRQ], 2005).

HOURS PER UNIT OF SERVICE

H/UOS are derived by dividing the worked hours in each classification of hours by the total workload UOS for the selected survey period (e.g., day, week, pay period, fiscal period, quarter, bi-annum, annual). Primary hours per UOS for acute care units include HPPD, hours per ED visit (H/Visit), **hours per delivery (H/Del)**, hours per surgical case (H/S.Case).

The H/UOS is the usual standard used to compare levels of care between cost centers in the same healthcare organization. The worked labor hours are grouped into five classifications consisting of (a) direct RN, (b) total direct care, (c) indirect care, (d total

worked or productive, and (5) total paid hours. Comparisons, within or among facilities, are valid only when comparable data are available. It is essential to determine whether compared hours are total worked (or productive) or total paid (or annual) because the difference between the two may vary significantly in any analysis or comparison. A definition of the *essential hours* includes the following key terms:

Hours Classification: A distinct grouping used to classify hours, correlated with financial industry standards. Standard hour classifications include direct, indirect, total worked (or productive) hours, **nonproductive hours** (benefit; and—at some healthcare organizations—education, meeting, and orientation [EMO]); and total paid (or annual) hours.

Direct-Care Worked (also known as *Variable***) Hours:** The number of hours of direct labor used in providing a service or making a product. In acute care, this refers to the hours spent by all staff providing direct, hands-on care to patients. These hours are variable and are adjusted to respond to patient census and/or acuity or other identified unit workload UOS or volumes. *If the healthcare organization does not separate direct and* **indirect hours**, *the total worked hours and direct hours will be the same*.

Indirect Care Worked (also known as *Fixed***) Hours***:* These are hours worked by staff (i.e., unit nurse leader, clerical, monitor tech, and others) providing service to the unit, but *not* directly with patients or by taking a patient assignment. Indirect (or fixed) hours may also include other personnel not involved in direct care, such as the unit-based educator, clinical nurse specialist (CNS), case manager, supply coordinator, and so forth. Approximately 60% organizations include the worked EMO time as indirect hours because the employees are working and getting paid, but their time is not directly worked with patients.

Total Worked (or Productive) Hours: This is the total hours worked. *If the healthcare organization does not separate direct and indirect hours, then direct and total worked will be the same*. Total worked (or productive) hours include actual worked hours by staff who float into the unit from other cost centers or by resource pool, agency, or traveler nurses.

Nonproductive Hours*:* This is a term used for all hours the healthcare organization defines as *nonproductive*. Nonproductive hours always include benefit time or paid time off (e.g., vacation, sick, holiday) and approximately 30% of organizations may include EMO hours as nonproductive time.

Total Paid (or Annual) Hours: All hours paid from the cost center, including total worked (or productive) and nonproductive hours. Total paid hours may also be called *total annual hours* or *total hours*.

EMO Hours: Total hours by employees used to complete orientation; required education; and meetings for the unit, the department, and service line. Approximately 30% of healthcare organizations classify the EMO hours as nonproductive hours and approximately 10% of organizations will assign EMO hours to an administrative cost center and pro-rate them back to the cost centers at the end of the fiscal year.

Whenever employees are absent from the unit or their primary work assignments, the DNP/nurse leader and unit leaders consider these EMO hours for which they need to create a "backfill replacement plan." When EMO time is not correctly recorded in the scheduling, staffing, and time and attendance systems, the employee's hours will default to direct or indirect worked hours, which will cause the unit to be above the required target hours and will be viewed as an unnecessary expense. Annually LMI collects the EMO hours in the *PSS™ 30th Annual Survey of Hours Report* and compares them by service line type (Table 5.4). (Suby, 2021a)

Budgeting for education,orientation hours, and FTEs is essential to the creation and administration of a back-fill plan, which is needed to replace employee absences when their time is spent in essential training, upskilling, orientation, and for preceptor hours. Very often the budget allocation from finance will be based on the actual hours documented in the prior year in the organization's time and attendance system. If employees fail to clock in/out for the education and orientation activities, their worked hours will be recorded as regular worked hours, defaulting to direct or indirect care based on their job codes and/or category groups. The lack of documentation puts the DNP/nurse leader at a disadvantage when defending the budget or explaining variances between required and actual H/UOS. Creating a budget for education and orientation hours for the employees by job code by required program helps to document the units' needs and consistent administration throughout the fiscal year.

The example given in Exhibit 5.1 is designed to identify required unit-specific, service-line–specific, department-specific, and organization- (HR, Payroll, IT etc.) specific (human resources, payroll, information technology, etc.) specific programs that all employees must complete annually. Biannual requirements, such as Advanced Cardiovascular Life Support (ACLS) recertification, can be divided in half for each employee allowing that 50% of the employees will complete the program in the current year and 50% will complete it in the subsequent year. When completed, the DNP/nurse leader can use the budget EMO form with their unit leaders as a strategy to guide them in helping the staff on their shifts complete required education prior to the cancellation of any staff during the 4-hour staffing windows when temporary reductions in staff may occur. In addition, this strategy is helpful in ensuring that EMO time is completed at the regular rates of pay versus OT when employees request additional vacation or paid time off (PTO) after schedules are posted.

ANNUAL STAFFING BUDGET BASIC FORMULAS

To successfully manage the financial targets of the cost units and assess reports for workforce management, the DNP/nurse leader and unit leadership must commit to memorizing the formulas for the following financial terms, which are needed to speak the language of finance. Nursing leaders must resist creating new terms or using unique formulas to explain practices unique to their cost units, service lines, or departments that interfere with organizational reporting and communications. Persevere to build your financial acumen

TABLE 5.4 Education, Orientation Guidelines for Acute Care Service Lines

Unit type	Average education percent of hours	Average orientation percent of hours	Total percentage of EMO to total worked or productive hours needed for backfill planning
Critical care	2.0	2.4	4.4
Intermediate specialty care	1.6	2.5	4.1
General medical–surgical	1.8	2.7	4.5
Women's and children's	2.0	3.1	5.1
Behavioral health	3.1	3.6	6.7
Rehabilitation and skilled nursing	2.5	3.9	6.4
Emergency services	5.9	2.0	11.0

Source: Suby, C. (2021a). Labor Management Institute's 30th PSS™ Annual Survey of Hours Report©. Bloomington, MN: Labor Management Institute. Reproduced by permission.

EXHIBIT 5.1

Sample Budget for Education/Meetings/Orientation Hours and Full-Time Equivalents

Unit Name: 3M Med-Surg Cost Center: 1985 Budget Year: 2021–22 FTE Definition: 2080 Hours/1 FTE

Instruction: Customize the programs for your units and assign the number of hours for each program to each employee.

		Unit Mandatory Required Programs							Dept., Service Line Required Programs			HR Programs				
		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#1	#2			
Skill- Mix Cat.	Employee Name Last/ First)	ACLS Recert. (16Hrs./ 2 Years)	CPR Recert. Annual	EMR Update Annual	Charge Review Annual	Unit Competency Review Annual	Staff EDU On-Line Hr/Yr	Staff Meetings 1Hr. /Mo. X 8	Service Line Skills Review Annual			Fire Safety		Unit Orien-tation	Total Hours	Total FTEs (Divide Hours by FTE Definition)
RN	Doe, Jane	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Smith, Sally	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Jones, Mary	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Miller, Anne	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Johnson, Betty	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Edwards, Martha	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Doe, Roxanne	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Smith, John	8	2	2	2	2	4	8	4			1			33	0.0159
RN	Jones, Walter	8	2	2	2	2	4	8	4			1			33	0.0159

(*continued*)

EXHIBIT 5.1

Sample Budget for Education/Meetings/Orientation Hours and Full-Time Equivalents (*continued*)

		Unit Mandatory Required Programs							Dept., Service Line Required Programs			HR Programs				
		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#1	#2			
Skill- Mix Cat.	Employee Name Last/ First)	ACLS Recert. (16Hrs./ 2 Years)	CPR Recert. Annual	EMR Update Annual	Charge Review Annual	Unit Competency Review Annual	Staff EDU On-Line Hr/Yr	Staff Meetings 1Hr. /Mo. X 8	Service Line Skills Review Annual			Fire Safety		Unit Orien-tation	Total Hours	Total FTEs (Divide Hours by FTE Definition)
NA/Tech	Miller, John		1.5	1		2	2	8	1			1			16.5	0.0079
NA/Tech	Doe, Jason		1.5	1		2		8	1			1			14.5	0.0070
NA/Tech	Smith, Ben		1.5	1		2		8	1			1			14.5	0.0070
NA/Tech	Flynn, Amy		1.5	1		2		8	1			1			14.5	0.0070
NA/Tech	Holmes, Gwen		1.5	1		2		8	1			1			14.5	0.0070
															0	0.0000
RN	RN 1 Orientee	16				2		1	1	4		1		360	385	0.1851
RN	RN 2 Orientee	16				2		1	1	4		1		360	385	0.1851
NA/Tech	NA/Tech 1 Orientee	0	4			0		1	1	2		1		120	129	0.0620
NA/Tech	NA/Tech 2 Orientee	0	4			0		1	1	2		1		120	129	0.0620
Totals		104	33.5	23	18	32	38	116	45	12	0	18	0	960	1399.5	0.6728

ACLS, Advanced Cardiovascular Life Support; EDU, education; EMR, electronic medical record; HR, human resources; FTE, full-time equivalent; NA, nursing assistant.
Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

and experience and financial management will become second nature. As Ralph Waldo Emerson famously said (Emerson, 1959), "That which we persist in doing becomes easier, not that the task itself has become easier, but that our ability to perform it has improved."

In acute care units, the number of employees required to work varies with the workload UOS and patient acuity. The budgeted number of direct and total worked hours for each patient or UOS (e.g., HPPD, H/Visit, H/Del etc.) is the *labor standard* or *key performance indicator* (KPI) that the DNP/nurse leader and unit leaders are accountable for. Acceptable variances usually allow a range of 5% below to 5% above the target of the budgeted KPI. For example, a target of 10.57 total worked HPPD has an acceptable variance range of 0.5285 HPPD below or above the target, meaning an HPPD between 10.04 and 11.09 will be judged as having met the target HPPD goal. Productivity reports do not always make these comparisons available, so it is important for the DNP/nurse leader to seek out this information for variance reporting, assessment, investigation, and resolution.

Total direct hours vary with workload volume. Budgeting that uses this approach is usually called *variable or flex,* budgeting. **Total paid hours** per UOS range between 12% to 20% higher than **total worked (or productive) hours** per UOS, depending on two key components: a) the amount of benefit time provided by the healthcare organization based on the actual accrued hours of the employees in the unit, or, b) if it is based on the annual average turnover of employees, which is usually the equivalent of an employee who has left after 2 years of full-time work.

For example, in Exhibit 5.1 3 South Med–Surg is a blended medical–surgical unit. The total worked and total paid hours and total patient days shown in this sample 2-week period was 347.90. The UOS is patient days reported as HPPD (Table 5.5).

TABLE 5.5 Sample Table of Hours Classifications and Formulas for a Medical–Surgical Unit

1. *Total worked or productive hours*:	3,570.19
3,234.31 total direct worked hours (includes 2091.85 hours for direct RNs and 1142.46 hours for nursing assistants)	
+ 335.87 total indirect hours (nurse leader and clerks)	
2. *Total nonproductive hours*:	526.55
526.55 benefit hours for time paid, but not worked	
3. *Total paid hours*:	4096.74
3570.19 total worked (or productive) hours of work	
+ 526.55 nonproductive benefit hours for time paid, but not worked	
4. *Hours per unit of service (HPPD)*:	
Total direct RN worked hours per UOS or HPPD	2091.85 ÷ 347.90 = 6.01
Total direct (or variable) worked hours per UOS or HPPD:	3,234 ÷ 347.90 = 9.29
Total indirect (or fixed) worked hours per UOS or HPPD:	336 ÷ 347.90 = 0.97
Total worked (or productive) hours per UOS or HPPD:	3,570 ÷ 347.90 = 10.25
Total paid hours per UOS or HPPD:	3,570 + 256 = 3,826 ÷ 347.90 = 11.77
5. *Average daily UOS (example average daily census)*	347.90 ÷ 14 = 24.857
Divide the total UOS (patient days) by number of days in the survey period.	

HPPD, hours per patient day; UOS, units of service.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

PRODUCTIVE COST, OR DOLLARS PER PATIENT DAY

Total worked (or productive) dollars per patient day is a key component in maintaining fiscal accountability. The cost of care per day or unit of service is a mathematical calculation of the cost of care in worked hours per day or UOS using average salary costs by category skill-mix positions and is the primary metric for UOS (e.g., HPPD). Once hours per UOS and FTEs are determined, average salary information by category skill mix of employee is used to calculate dollars, or cost per UOS targets by unit.

Department targets for dollars or cost per UOS will vary from unit to unit depending on the tenure of employees, special pay incentives, approved OT, and use of agency/registry or travelers. To evaluate operational decision-making, both total worked (or productive) and total paid targets are useful in budget monitoringto evaluate operational decision making. For example, if the total worked (or productive) dollars per UOS is budgeted as $18,984.00 for the 2-week period when divided by 14 days in the pay period, the budgeted average cost per inpatient day is $1,356.00. If the total worked (or productive) hours during the 2-week period is 2,096 and the actual total worked (or productive) cost or dollars is $23,730.00, then the actual average cost per inpatient day is $1,695.00. The national mean average total worked salary cost per inpatient day was $1,406.61, based on data from 155 health are organizations in the *PSS™ 30th Annual Survey of Hours Report©* based on fiscal year (FY) 2019 data (Suby, 2021a).

It is imperative that the DNP/nurse leader know the formulas to be able to quickly assess whether the unit's actual costs match its budgeted comparisons, and if they do not match, be able to identify the reasons why and assess the responses by shift charge nurses and other leaders. For example:

1. When the actual cost per inpatient day is above budget, and the HPPD is within budget, the DNP/nurse leader staffed the unit with OT and other premium pay (incentives or agency/registry and travelers). Although the total worked (or productive) hours of care may have met target goals, LMI finds that there may be an increase in adverse outcomes to the patients and staff when OT is more than 5% of total worked hours, combined with a decrease in core staff below 85%, and/or an increase in nonunit supplemental staff greater than 15%.
2. If the total worked (or productive) hours during the 2-week period is 2,096, the actual total worked (or productive) cost or dollars is $15,187.20, and the HPPD is within budget, then the unit was staffed with fewer RNs and more non-RNs (e.g., LPNs/LVNs and nursing assistants). The average salary cost per inpatient day is $1,084.80, which is below the budget of $1,356.00.
   a. If the reduced work hours were due to a reduction in patient acuity during the survey period and safe patient care could be given with reduced hours, then thismay be considered good management.
   b. However, if the patient acuity was not reduced and the unit was staffed below the target direct RN, total direct and total worked (or productive) hours of care, LMI finds that there may be an increase in adverse outcomes to the patients when direct-care RN hours are reduced below 50% of total **direct-care hours**.

NONPRODUCTIVE BUDGET

Hours paid but not worked are included in the nonproductive portion of a personnel budget. Planned time off usually includes vacation and holidays. Because vacant positions are usually submitted with notice and remain unfilled longer than 2 weeks, they

are included in planned absences. Unplanned time off usually includes sick time, emergency absences, funerals, jury duty, and Leave of Absence (LOA)/Family Medical Leave Act (FMLA) hours. Approximately 30% of healthcare organizations include EMO hours in their nonproductive hours, and approximately 10% of healthcare organizations assign EMO hours to an administrative cost center.

Deficit demands include all the reasons (paid and unpaid) that scheduled employees are not working and need to be replaced whether they are hired as FT, PT, or per diem/casual or contingent. Paid nonworked hours assume increasing budgetary importance as benefits increase, tenure increases, and PT employees receive improved benefits. For units that must replace most planned and unplanned absences, the nonproductive portion of the budget is used to provide replacement for employees using benefit time. It is important to note that units with high numbers of PT, per-diem/casual employees may have little or no accrued time off to use in their replacement plans. However, when an individual is absent from a scheduled shift, it represents a deficit that must be replaced regardless of whether there are budgeted hours for it.

The terms *nonproductive budget* and *benefit replacement* are often used interchangeably, even though EMO is not a benefit and employees are working when they use it. This portion of the budget must be projected and managed separately from the productive (worked) budget because organizational policy determines employee benefits and nonproductive hours correspond to employee paid absences and EMO hours if they are included in the nonproductive hours.

ACCRUED VERSUS BUDGETED NONPRODUCTIVE AND CARRYOVER TIME

Accrued hours are based on the healthcare organization's policy for earned benefit time based on hours worked annually by date of hire or by pay period based on worked hours. Some healthcare organizations' benefit hours increase the accrued hours for longevity and sometimes job classification. Most finance departments budget each year's nonproductive time based on the actual hours used in the previous year.

It may be possible that employees do not take their accrued time off and "carry it over" to the following year or years based on the policy preferring the cash to the time off. Most healthcare organizations limit the total benefit hours that may be "carried over" and held for future payment. The healthcare organization's policy will specify the conditions under which the time can be used for time off or for payment (or "cashed out") in subsequent years and at what rate.

The challenge DNP/nurse leaders encounter when replacing benefit time or dollars in the current year that were accrued by the employee in prior years is that the replacement factor or percentage is not adjusted to accommodate any unused benefit hours or dollars the employee may be planning to use or cash out for payment.

For example, if the budgeted nonproductive percentage this year is 12%, and 5% of the total accrued benefit time earned in the previous year is not taken, the current year's required hours are now increased to 17% to accommodate the total liability, although the actual budget is not increased. Consequently, the actual nonproductive hours may be over budget if employees take their "carryover time" from previous years in the current fiscal year, and the cost of the nonproductive time will be higher than previously budgeted, as it is paid at the current pay rates. If employees elect to be paid for their accrued time from previous years, the nonproductive dollars or costs may be above budget although the hours replaced may be within budget.

THE UNIT STAFFING BUDGET: THE LONG-TERM PLAN (1 YEAR)

The focus of this section is to help the DNP/nurse leader interpret the budget FTEs from finance into an annual unit staffing budget that focuses on the distribution of the annual budget FTEs and hours by shift and UOS. There are several types of budgets the DNP/nurse leader should be familiar with. The *master budget* encompasses all the departmental budgets. Based on the organization's **strategic goals** and vision, the master budget is the actual statement of projected revenues and expenditures for the entire healthcare organization. The *unit annual staffing budget* is the basis for defining the distribution of hours by shift; classification of hours for direct, indirect, and total worked; employee category or skill mix (RN, LPN/LVN, NA, etc.) for core and supplemental positions; distribution by day and shift; the unit's schedule requirements; and the unit's VSP.

The unit staffing budget or annual FTE budget focuses on the budget FTEs, daily and annual UOS with any known adjustments for "other workload" (e.g., productivity credits for **observation hours**, ADT Work Intensity etc.), distribution of working hours by shift, planned use for the nonproductive (benefit and EMO, if included) hours, budget FTEs and hours annually and by shift and UOS (Table 5.6).

TABLE 5.6 LMI's Budget Summary Key Points About FTEs and Hours/UOS

Definitions	
FTE (full-time equivalent) =	The number of employees needed to cover the number of hours or shifts required during a specific period, such as a week, pay period, or year. 2,080 hours is the most common definition. Note: Some organizations' finance departments use other definitions such as 2,082 as a blended average to accommodate for leap year. Be sure to use your organization's definition and be sure the definition is the same across all cost centers.
HPPD (total hours divided by patient days) =	The average hours of care provided for each patient during a specific period measured in patient days. 1 patient day = the care of one patient during a 24-hour day of service excluding the day of discharge.
H/UOS (total hours divided by the total workload units of service) =	The average hours of care provided for each patient during a specific period measured in other workload units of service (e.g., visits, deliveries, etc.).
Categories of hours (direct, indirect, total worked, nonproductive, total paid)	The average hours reported for each category of worked, paid but not worked and total paid hours.
FTEs and hours/unit of service can both be expressed as:	
Direct (also known as variable) =	FTEs or HPPD for the direct caregivers. Includes RNs, LPN/LVNs, NAs, techs or equivalent that flex to the volume of patients or UOS
Indirect (also known as fixed) =	FTEs or HPPD for the nurse leader, unit clerk, or other fixed personnel. Often includes the education, meeting, and orientation hours. These positions do not flex to the volume of patients or UOS.
Total worked (or productive) =	FTEs or HPPD for all worked hours, direct plus indirect.
Nonproductive =	FTEs or HPPD for hours paid out but not worked, vacation, holiday, and sick. At some healthcare organizations this includes the education, meeting, and orientation hours.
Total paid (or annual) =	FTEs or HPPD for worked plus nonproductive hours.

(continued)

TABLE 5.6 LMI's Budget Summary Key Points About FTEs and H/UOS (*continued*)

Formulas	
HPPD =	$\frac{\text{Total hours worked or paid for a certain period}}{\text{Patient days for the same period}}$
H/UOS =	$\frac{\text{Total hours worked or paid for a certain period}}{\text{Other workload units of service for the same period}}$
FTE (for a 1 week staffing pattern) =	$\frac{\text{Total Shifts in the Week x The Paid Shift Length}}{\text{40 hours}}$

FTE, full-time equivalent; HPPD, hours per patient day; H/UOS, hour/unit of service; UOS, unit of service.

Source: Suby, C. (2021a). Labor Management Institute's 30th PSS™ Annual Survey of Hours Report©. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission.

The annual staffing budget provides the stepping-stone from converting the assigned FTE budget by category group or skill mix into a "distribution of hours by shift" across the 24 hours. If the unit is scheduling all employees to 12-hour shifts, the form may be adapted to day and night 12-hour shifts. If the unit is using "flexible scheduling" with 4-, 6-, 8-, 10-, and 12-hour shifts, then the distribution of care hours should be done in traditional 8-hour shift increments across the 24-hour day to synchronize with automated financial systems and demonstrate how the shifts are adjusting to the workload UOS across the 24 hours.

The best budget formats provide DNP/nurse leaders with a distribution of the direct and total worked hours by shift, so that the charge nurses or shift leaders can compare the hours worked on their shift to the census and see whether they are at, over, or under the target H/UOS. This helps them be able to negotiate and ask for more staff and/or advise staff why hours are being cancelled and/or floated. It also provides a budget for the use of the nonproductive hours daily.

Good formats will include a budget summary of hours comparing the *average daily census or UOS* by shift as well as per day. The plan for the worked hours for *direct care* is distributed by shift and per day based on the desired skill mix (RN, LPN/LVN, NAs etc.). The direct-care RN hours are the basis for calculating the RN-to-patient ratios. DNP/nurse leaders must know how to calculate the direct-RN percentage into RN hours and ratios as it is more sensitive to the patient acuity of the unit than using generalized RN-to-patient guidelines. Using the sample unit information listed in Table 5.5, the direct-RN hours are 2091.85 divided by 14 days in the survey period is 149.48 hours per day and the total direct hours of 3,234.31 divided by 14 is 231.02 hours/day. Dividing 149.48 into 231.02 total direct hours reveals a direct-RN percentage of 64.70%. This is the total of all direct-caregiver hours in the survey period. Total the direct-RN hours in the survey period and divide the total direct-RN hours into the total direct-care hours to calculate the direct-RN percentage (Table 5.7).

TABLE 5.7 Formula to Calculate the Direct-RN Percentage

Total direct-RN hours per 24-hours	149.48
Total direct (variable) hour per 24-hours	÷ 231.02
Direct-RN percentage	64.70%

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

If you use the direct-RN percentage of direct-care hours, divide the direct-RN hours into two equal portions so that 50% of the direct-RN hours will be worked on each day and night shift. Divide the direct-RN hours per shift by 12 to calculate the number of RN staff needed to work each shift. Divide the average daily census or workload UOS by the number of RNs per shift to calculate the RN-to-patient ratio. These formulas may be adapted to the other direct-caregiver skill-mix groups to determine LPN/LVN ratios and nursing assistant ratios (Table 5.8).

TABLE 5.8 Formulas to Calculate the Direct RN-toPatient Ratios and Example

Total direct-RN hours per 24-hours	149.48
Direct-RN hours per 12-hour shift (Divide the per day hours by 2)	74.74
Direct-RN shifts per 12-hour shift	6.22
Average daily census or workload UOS (Divide the 2-week workload UOS by 14 (e.g., 347.90 ÷ 14))	24.85
Direct RN-to-patient ratio per shift	One RN to four patients

UOS, unit of service.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

When building the business case for your annual unit staffing budget it is important to compare your data to other similar units or benchmark studies to see how you compare. For example, the *Labor Management Institute's 30th Annual PSS™ Survey of Hours Report©* (Suby, 2021a) looked at RN-to-patient ratios for 191 medical–surgical units from all healthcare organizations and found the mean average to be one RN to 4.2 patients on the day shift and one RN to 4.7 patients on the night shift. If you find that your actual average is different from other benchmarks, look at the findings for other units to see whether your unit's average acuity and patient specialty should encourage you to change your benchmark comparison (Table 5.9).

TABLE 5.9 LMI Comparison of RN-to-Patient Ratios for Five Acute Care Unit Types

Unit type	Responding units	Mean average RN-to-patient ratio day shift	Mean average RN-to-patient ratio day shift
Medical	127	1 to 4.3	1 to 4.8
Medical–Surgical	191	1 to 4.2	1 to 4.7
Medical–Telemetry	76	1 to 4.1	1 to 4.5
Step-down	135	1 to 3.4	1 to 3.3
Telemetry	119	1 to 4.0	1 to 4.4

Source: Suby, C. (2021a). Labor Management Institute's 30th PSS™ Annual Survey of Hours Report©. Bloomington, MN: Labor Management Institute. Reproduced with permission.

Indirect caregivers support the direct caregivers so that the direct caregivers can stay at the patients' bedside and are excluded when calculating the direct-RN percentage or direct RN-to-patient ratios. Generally, indirect RNs do not take patient assignments. DNP/nurse leaders should be careful to examine comparative benchmarks to be sure that RN hours/UOS and ratios clearly indicate whether they are based on direct care only or all RNs direct and indirect.

The total of the direct worked hours by shift must equal the total budget direct FTEs when multiplied by 365 days and divided by the definition of 1 FTE (2,080 hours). If the planned total direct hours divided by the definition of 1 FTE are below the budget total direct FTEs, the hours by shift must be increased or you will be underscheduled and understaffed. If the planned total direct hours divided by the definition of 1 FTE are above the budgeted total direct FTEs, the hours by shift must be decreased or you will be overscheduled and overstaffed. LMI finds that when the total direct hours and FTEs are unmatched, it often results in a schedule and staffing variance of 2 to 2.5 FTEs over or under the budgeted FTEs.

Employee replacement and back-fill plan: The budgeted nonproductive hours are displayed in FTEs, hours, and as a percentage of the budget. The budget nonproductive FTEs are multiplied by the definition of 1 FTE (2,080 hours) and divided by 365 annualized days in the budget. The plan identifies what amount of FTE allocation will be made to the resource pool to hire FTEs. This plan should be consistent with the mission and nonproductive replacement goals for the resource plan. If EMO time is included in the healthcare organization's nonproductive budget, then these hours should be identified as a budget per day. If there is no FTE allocation for EMO hours, it means that when the hours occur, they will be reported under nonproductive hours even though the employee is working and being paid.

All employees require some type of unit, service line, and healthcare organization-specific education and meeting time annually and most units have turnover in positions that require orientation. Good unit management requires that the DNP/nurse leader has an annual plan for the use of education and meeting time. LMI recommends that DNP/nurse leaders review the average orientation hours over the last 3 years to create a rolling average for their budget. The historical record should reflect the number of hours needed by each new employee (including new employees who transfer into the unit from another unit) with a reference to whether the employee is experienced or inexperienced. Annually, LMI reports the mean average and range of indirect labor and EMO hours by healthcare organization type for eight service lines in the *PSS™ 30th Annual Survey of Hours Report©* (Suby, 2021a).

Management productivity reports will be confusing if some units consider the charge or resource nurse as indirect support, and some are reporting the hours worked as direct care when most of the time during the shift is not spent directly with patients. Charge nurses serve a critical role with decision-making responsibilities affecting patient outcomes; patient, employee, and physician satisfaction; and ultimately organizational success (Waxman, 2021) Expecting charge nurses to carry a full patient ratio in addition to their responsibilities for patient care delivery team oversight; patient flow (e.g., ADT) and work assignments by acuity (not geography); making staffing adjustments to accommodate unplanned absences; and physician, patient, and family needs or concerns is unreasonable. To be successful, the charge nurse should take less than a 50% patient assignment and receive financial training and management support. Remember that today's staff nurses are our future charge nurses and managers, and they need education and coaching on effective staffing, lean practices, and shared KPIs to be a part of the decision-making process and the unit's performance.

The *percentage of indirect total worked hours* is calculated by dividing the total indirect hours into the total worked hours. All units need some percentage of indirect hours to keep direct-care nurses at the bedside. LMI annually reports the percentage of indirect labor hours by service line and finds that it ranges from 11% to 40% (Suby, 2021a).

The total of the indirect worked hours by shift must equal the total budgeted indirect FTEs when multiplied by 365 annualized days and divided by the definition of 1 FTE (2,080 hours). If the planned total indirect hours divided by the definition of 1 FTE is below the budgeted total indirect FTEs, the hours by shift must be increased. If the

planned total indirect hours divided by the definition of 1 FTE are above the budget total for indirect FTEs, the hours by shift must be decreased.

Total worked (or productive) hours include the total of the planned direct and indirect worked hours by shift. The total of the total worked (or productive) hours by shift must equal the total worked (or productive) FTEs when multiplied by 365 annualized days and divided by the definition of 1 FTE (2,080 hours). If the planned total worked (or productive) hours divided by the definition of 1 FTE are below the budget for total worked (or productive) FTEs, the hours by shift must be increased. If the planned total worked (or productive) hours divided by the definition of 1 FTE are above the budget total worked (or productive) FTEs, the hours by shift must be decreased.

The *percentage total of worked hours distribution by shift* is calculated by dividing the total worked hours for each shift into the total worked hours for the 24-hour day.

Total paid (or annual) FTEs include the sum of total worked (or productive) and nonproductive FTEs based on the planned budget by day and shift. The combined total of the total worked (or productive) and nonproductive FTEs per day must equal the total worked (or productive) and nonproductive FTEs when multiplied by 365 days annualized (refer to the budgeted FTEs in the form).

Total worked (or productive) FTEs include the sum of total worked (or productive) hours based on the planned budget by day and shift. The total of the total worked (or productive) FTEs per day must equal the total worked (or productive) FTEs when multiplied by 365 days annualized (refer to the budgeted FTEs in the form).

Total hired FTEs include the sum of hired FTEs in the budget. For best practices, the hired FTEs are updated each month from the **position control** so that DNP/nurse leaders can see whether the actual FTEs are hired above budget in anticipation of turnover, at budget, or below budget. It may be that some FTEs are not authorized to fill if the unit budget volume is below projections or official new programs have not started.

Total direct worked hours/census (HPPD) or UOS include the sum of total direct worked hours based on the planned budget by day and shift divided by the planned workload for each shift. The total of the total direct worked hours per shift must equal the total direct worked hours per day.

SCHEDULE ACCOUNTABILITY

DNP/nurse leaders are responsible for the unit budget and the allocation of resources for the delivery of care expressed through the employee schedule. Marie Manthey (2004) said it best: "Leaders set the ground rules for interpersonal relationships at the unit level. Management allocates energy; leadership creates energy." We cannot afford to schedule our labor resources in ways that are misaligned with our patient needs, ignore the unit's budget, and disregard the importance of healthy interpersonal relationships.

Flexible schedules are innovative ways of dealing with variable workload or employee absence due to lifestyle preferences or family demands for childcare. Flexible schedules are helpful under the following considerations:

- when the workload requires more than an 8-hour shift but less than a 16-hour shift (e.g., 10- or 12-hour shifts)
- when the workload requires less than an 8-hour shift (e.g., 4, 5, or 6 hours)
- when the workload is variable by day of week (e.g., busier on Mondays than the other days of the week)
- when "call-back" hours occur within 2 hours of the end of a defined shift (e.g., "on call" begins in the main operating room at 3 p.m. and the first "call-back" occurs before 5 p.m.)

- when it meets the needs of the employee, unit, service line, or department and does not cause unplanned overtime or disruption in unit coverage

A recent study found that working more than 12 hours in a day has an adverse effect on patient outcomes, as does working more than 40 hours per week (Bae, 2021) The study found a conclusive relationship between excessive nursing hours worked and adverse patient outcomes. These findings become even more significant in specialty units, such as critical care and the ED, where it is difficult to recruit and retain employees and the expense of replacing them with overtime, and premium pay as well as outsourced labor becomes even more expensive. At the same time, employees who work these excessive hours are at higher risk of burnout, disengagement, and increasing adverse outcomes to themselves in the form of on-the-job injuries, workers compensation, short- and long-term disabilities, and LOAs.

Many organizations are offering employees "flexible scheduling" in the form of "split shifts," meaning they might work two 4- or 6-hour shifts with a break between shifts to leave the organization. DNP/nurse leaders must work with human resources (HR) and payroll to address meal and break times to prevent conflicts between hours worked and hours paid. They must also ensure clear and frequent education to both employees and any individuals involved in scheduling, so misinformation and misunderstandings are prevented.

SCHEDULING PRINCIPLES

Good scheduling requires collaboration, data, and process improvement to control or lower costs and maintain or raise quality. Motivating and retaining employees is always a challenge, and DNP/nurse leaders must be aware of the relationship among worked hours, fatigue, and performance and patient outcomes. There are basic principles in employee scheduling that drive the outcome and quality of the schedule. These scheduling principles taught by LMI include the following:

1. Shifts should be developed that deliver resources necessary for the volume of work to ensure the consistent delivery of target hours of care at each prescribed UOS and planned cost.
2. Every unit needs FT and PT employees for "staffing elasticity" to cope with fluctuating and erratic changes in workload volumes and planned and unplanned absences. The per-diem/casual or contingent employees should be a percentage of the PT employees, but not comprise all the PT positions.
3. Weekend requirements determine the total positions needed in position control, total FT staff, and the FT/PT ratios needed (e.g., 70% FT & 30% PT).
4. More FT staff will be required when weekday requirements are greater than weekend requirements.
5. More PT staff will be required when the weekend requirements are greater than the weekday requirements.
6. Unequal weekend coverage means greater scheduling holes on the weekends and unequal shift distribution during the weekdays.
7. The total of the "working" FTEs must be equal to the budgeted total worked FTEs, or the unit hours per UOS will be under- or over-budget.
8. The defined direct and indirect schedule requirements based on the budget must determine the need for and required pattern for weekend rotations other than two of four (or every other weekend) 10- or 12-hour shifts or the mixing of all defined shifts (4-, 6-, 8-, 10-, and 12-hour shifts).

9. Never start 12-hour shifts unless the minimum number of 12-hour shift employees is equal to the minimum weekend requirement for all weekends within the 4-week schedule period and never less than four on the day shift and four on the night shift if the unit is doing all 12-hour shifts. If this rule cannot be honored after 12-hour shifts have started, then discontinue them, as it will create unmatched shifts or "schedule holes" that will drive partial shift shortages or produce unnecessary hours that require OT to fill.
10. Always increase or decrease 12-hour shifts in equal increments of two people for each shift. If employees will not commit to working 12-hour shifts and this rule cannot be honored after 12-hour shifts have started, then discontinue them, as it will create unmatched shifts or "schedule holes" that will drive partial shift shortages or produce unnecessary hours that require OT to fill.

SCHEDULING AND STAFFING MODELS

There are three workforce management (scheduling and staffing methods) options for schedule production and daily staffing functionality:

1. **Centralized Scheduling and Staffing:** All scheduling and daily staffing responsibilities reside in a centralized scheduling and staffing office. The DNP/nurse leader works with a designated scheduler, staffer, and/or timekeeper. The DNP/nurse leader has oversight responsibility and reviews to approve, deny, and/or advise the central staffing office scheduler about employee requests.
2. **Decentralized Scheduling and Staffing:** The DNP/nurse leader is responsible for all aspects of schedule development and daily staffing. The DNP/nurse leader may delegate tasks to a scheduling/staffing committee or to permanent charge or resource nurses, but has ultimate accountability for their decisions. The DNP/nurse leader approves or denies all employee requests for the scheduling/staffing committee or other designee to implement.
3. **Modified Decentralized Scheduling and Staffing:** Line and job functions are operationally clear for DNP/nurse leaders versus centralized schedulers and staffers to plan, review, and authorize the publication of schedules every 4 to 6 weeks. The DNP/nurse leader approves all "planned absences" within the approved nonproductive budget using PT and per-diem/casual or contingent staff at the regular rates of pay. Within the mutually agreed mission and staffing goals, the central staffing office is most often responsible to find replacement coverage for all "unplanned absences" using resource pool employees, staff from other units or outsourced labor (agency or travelers) inclusive of covering extended absences due to vacant positions or LOA/FMLA. Many healthcare organizations include the management of "sitter or 1 to 1 observation hours" as a central staffing office responsibility. Accountability is jointly held between the DNP/nurse leader and the central staffing office based on the approved workforce management option (e.g., scheduling/staffing method).

BUILDING A SCHEDULE: THE 4- TO 6-WEEK BUDGET PLAN

If the annual budget defines the relationship between revenues and expenses for 1 year, the 4- to 6-week schedule is the budget plan for the worked resources and the most frequent workload UOS or volume for a portion of the annual plan. The schedule is the short-range plan based on the budget that defines the deliverable clinical resources based on the 5 rights: right person, right place, right time, right skills, and right cost.

It is important for DNP/nurse leaders to define their shifts of work based on the start time, stop time, and paid hours of the shift. *Shifts of need* fill a specific purpose on the unit related to workload or employee competency or skill. Employees work within the approved budgeted worked hours of care and provide worked hours at the regular rate of pay to meet the defined workload UOS. Most important, they coexist with or complement the other shifts. By comparison, *shifts of convenience* focus on meeting the individual employee's needs versus the patient needs or the needs of the unit or other employees. For example, an ADT shift from 9:00 a.m. to 3:00 p.m. brings an employee on duty after the 7:00 a.m. shift has started, ahead of the most frequent ADT activity, which occurs between 3:00 p.m. and 7:00 p.m., so the ADT nurse misses the peak ADT time. Often shifts of convenience do not correlate to the intended workload UOS, upsetting the core staff who "rearrange assignments" to accommodate for the late arrival and early departure of the ADT nurse. This often correlates to core staff who feel overworked and frustrated when there is no designated ADT nurse to accommodate the workload demand and it often creates OT for other staff who are waiting for staff to come to the unit when shift start and stop times do not match. Excessively flexible shifts are disruptive to the delivery of care and ultimately frustrate staff, as they make it difficult for them to trade shifts.

TRANSLATING FULL-TIME EQUIVALENTS INTO SCHEDULE REQUIREMENTS

The DNP/nurse leader translates the required clinical resources into the schedule requirements defined as shifts (of need), hours, and FTEs by categories and/or experiences. Defining schedule requirements will determine whether you have the budgeted FTEs to accommodate the planned 4-, 6-, 8-, 10-, or 12-hour shifts or reduce the weekend-to-work rotations. It is critically important that the DNP/nurse leader define the unit's shifts of need within the schedule requirements because they serve specific purposes. Shifts of convenience usually accommodate employee-specific needs, such as day-care hours. When "shifts of need" overlap with shifts of convenience, they create shift overages or shortages, which increase cancellations, floating or increased H/UOS if the hours are not floated out of the unit. Also, it increases OT, and outsourced nursing labor (agency/travelers) usage and ultimately hurt patient care if the shortages are not filled.

Defining the shifts and authorizing combinations of shifts must always be an outcome of the schedule requirements and the approved budget and never at the whim of the employee or it will create unmatched shifts causing unnecessary extra hours, OT and practice and policy conflicts. For example, an employee hired for 80 hours/pay period could work the following four patterns:

1. Ten 8-hour shifts in 14 days = five shifts/week or 40 hours/week or 80 hours/ pay period
2. Six 12-hour shifts and one 8-hour shift in 14 days = three shifts or 36 hours in 1 week, four shifts or 44 hours in 1 week and 80 hours/pay period; this pattern will create 4 hours of prescheduled OT each pay period for each employee
3. Four 12-hour shifts combined with four 8-hour shifts in 14 days = two 12-hour shifts and two 8-hour shifts or 40 hours/week or 80 hours/pay period; this pattern will create many schedule holes if the 8- and 12-hour shifts are not matched with other employees working the same shifts and days to cover 24-hours; schedule holes are filled with extra hours and OT and will increase the unit's total OT by 1% to 2%
4. Two 12-hour shifts combined with seven 8-hour shifts in 14 days = two 12-hour shifts and two 8-hour shifts = 40 hours in 1 week, five 8-hour shifts in 1 week = 80 hours/pay period. This pattern is most successful if the 12-hour shifts are planned for the weekends. This pattern will also create schedule holes if the 8- and 12-hour shifts are not matched with other employees working the same shifts and days to cover 24-hours.

SCHEDULE REQUIREMENTS

Schedule requirements define the number of hours available by shift by day of week in shift lengths (4, 6, 8, 10, 12 hours) that can be scheduled and remain within the budget for the direct and/or indirect caregivers. The default calculation for all finance programs is in 8-hour shifts over a 24-hour day, so doing the calculations in 8-hour shifts helps DNP/nurse leaders see whether they will have enough resources to staff to the target numbers of caregivers they think are necessary. If schedule needs cannot be met in 8-hour shift increments, the unit's needs will never be met in 12-hour shift increments unless the FTEs are increased by at least 10%. The total shifts and the shifts for the weekends and weekdays are used to calculate the total positions required for the unit in position control as well as the total FT and PT staff needed.

The total required direct FTEs for all shifts must equal the total budgeted direct FTEs in the unit annual staffing budget. If the calculated direct FTEs in the schedule requirements are below or above the budgeted direct FTEs in the unit staffing budget, there is an error in the defined direct schedule requirements that must be corrected before proceeding. The definitions and formulas used to calculate the schedule requirements include the following, grouped by defined shift.

- **Defined Shift:** Start time, stop time, and paid shift length
- **Employee Category (skill mix):** The category or skill mix of the employees for each shif
- **Day-of-Week Requirement (e.g., Monday through Sunday):** The number of staff required for each shift by day of week; the number of required staff should reflect patterns for high and low workload
- **Total Weekday Shifts:** The sum of all shifts on Monday through Friday
- **Total Weekend Shifts:** The sum of all shifts on Saturday and Sunday
- **Total Shifts:** The sum of all shifts on all 7 days of the week
- **Total Hours:** Multiply the total shifts by the paid shift length for the defined shift
- **Targeted FTEs:** Divide the total worked hours by 40 hours per FTE
- **Totals:** Total the required shifts for each day of the week, weekdays, weekends, total shifts, total hours, and target FTEs; the total required FTEs for each unique employee category or skill-mix group must equal the budget FTEs from the unit staffing budget; if the total FTEs are below the budget FTEs, the schedule requirements must be adjusted up or down until they match
- **Grand Totals**: The total of all required shift totals. The total required FTEs in the grand total FTEs for each unique employee category or skill-mix group must equal the total budget FTEs from the unit staffing budget for total FTEs. If the total FTEs are below the budget FTEs, the schedule requirements must be adjusted up or down until they match.

The best defined schedule requirements also include a summary of the unit staffing budget that reflects budget FTEs (Suby, 2006).

POSITION CONTROL, OR HIRING PLAN

Position control is also called the unit's **hiring plan** (Suby, 2007b). Position control is the foundation to the labor budget and ensures successful employee scheduling. Position Control allows leadership to monitor all filled, actual, and operationally vacant positions. It contains the defined and approved core positions for each skill-mix category of employees from FT to PT at the planned FTE **work agreement**/pay period needed to develop and publish a 4- or 6-week schedule for the budgeted workload UOS. It also

includes the approved supplemental positions identified to meet the budget's nonproductive and EMO at the planned FTE work agreement/pay period. Usually, these positions are hired between 0 and 0.2 FTE and often called *per-diem/casual positions*. Employees hired into the unit without an approved position and FTE work agreement position must also be identified.

Research conducted by LMI shows that OT in excess of 5% is associated with adverse patient outcomes (medical errors and patient falls), so position control reports that can determine how efficiently and effectively employee scheduling and staffing is being done should help promote safe staffing for our patients (Suby, 2008b).

LMI finds that organizations that lack the discipline to maintain the accuracy of their position control each pay period are adversely impacted in three ways:

1. The position control becomes nothing more than an employee **roster** that limits informed decision-making when reductions in force or disaster-related emergencies occur.
2. Schedule leakage occurs in the form of unnecessary extra hours and OT due to over- and underscheduling employees to the budget schedule requirements, excessive use of nonproductive hours, and excessive **floating** of staff to deal with schedule imbalances and practice and policy conflicts.
3. FTE variances occur averaging 2 to 2.5 FTEs above budget with an average annual cost of $96,000 to $212,500/year/cost center using an average annualized cost of $48,000/FTE in noncritical care units and $85,000/FTE in critical care units.

DNP/nurse leaders should aggressively investigate variances between budget and filled and vacant positions to ensure cost-effective budgeting and scheduling best practices.

Position control best practice requires that the DNP/nurse leader work with unit leadership and HR and recruiters to keep the position control/hiring plan updated every pay period so that projections can be accurately made of total budgeted and **filled positions**, and vacant positions compared to positions hired but in orientation or not yet started (e.g., operationally vacant), understanding that HR and finance will also depend on its accuracy. Changes to the planned FTE work agreements and composition of FT and PT positions must be considered against the unit's annual or quarterly budget and HR policies. Employees who desire to change their hired FTE work agreement should request their FTE change in writing, allowing a minimum of 6 months or more for the request to be approved. Many organizations are limiting employees' ability to change their hired FTE work agreement to one time per year because the time and cost to replace positions and provide orientation is so expensive that units cannot recoup their investment when employees don't stay 1 year at minimum.

When defining the total employees needed for position control, the FT/PT calculations should address the EMO replacement if it is budgeted as indirect replacement coverage as well as the nonproductive replacement coverage for planned and unplanned absence (including EMO if classified as nonproductive time) that the unit is responsible for in each schedule.

The PT and per-diem/casual staff should be the first sources used for deficit-demand response, and their hired FTE work agreement should reflect an expectation to work weekends (even if they are not needed to work weekends) as well as the minimum number of shifts necessary for them to maintain their individual skills and unit-based competencies. LMI recommends that the per-diem/casual or contingent staff work no fewer than 8 to 16 **hours/2-week** pay period or 0.1 to 0.2 FTE, maintaining their credentials, skills, and competencies is an expense to the unit.

Defining the total employees and total FT and PT positions is best done for each skill mix individually (RN, LPN/LVN, and NA). If the FTEs scheduled in the core master schedule are below or above the budgeted FTEs in the unit staffing budget, there is an error in the direct or indirect defined schedule requirements that must be corrected before proceeding.

Using our example of the 3M Med–Surg unit, the calculations for the total positions as well as total FT and PT positions will vary based on the shift length and weekend rotation. Exhibit 5.2 reveals that the unit will need a total of 34 positions of which 24 are FT hired at 0.9 FTE and 10 positions are PT hired at 0.45 FTE. By comparison, Exhibit 5.3 reveals the unit will need a total of 36 positions of which 27 are FT hired at 0.9 FTE and nine positions are PT hired at 0.2 FTE. In both cases, these positions are core to the unit to produce the 4- or 6-week schedule for the target ADC or workload UOS; however, the cost of the total positions is greater in Exhibit 5.3 as it requires two more FT positions, which will be approximately $96,000 higher than Exhibit 5.2, assuming an average FTE salary cost of $48,000/FTE. In both cases, the supplemental staffing is comosed of unit-based per-diem/casual or contingent positions equal to the FTEs needed to replace the budgeted nonproductive and EMO time—all hired as 0.1 to 0.2 FTE positions.

POSITION CONTROL AND NURSE STAFFING

Position control comes in all kinds of formats and is best used as the translation of the budget into the defined total positions FT, PT, and per diem/casual or contingent based on the defined scheduling requirements for the unit. The use of core FTEs versus supplemental staffing to replace deficit demands is described in the following text.

The direct, indirect, and total of worked FTEs defined in the unit annual staffing budget at the budget UOS are considered *core* staff and defined in the unit's position control or hiring plan. The number of FTEs needed to replace the core EMO and nonproductive planned and unplanned, paid, and unpaid absences are calculated in the unit's annual staffing budget, and the sources for replacing those staff must be identified. The staff that replace the core staff, work supplemental replacement hours and FTEs. Supplemental staff come from the following sources in order of least to most expensive:

1. Unit-based per-diem or casual staff
2. PT staff willing to pick up extra hours
3. Employees willing to float from other units within and outside of the service line if they are not needed
4. Employees in the float or resource pool
5. Agency RNs
6. Traveler RNs

It is important that the DNP/unit leader define the amount and sources of supplemental staffing in the annual budget from the unit-based per-diem/casual or contingent employees and incorporate them into the position control. It is also important for the nursing department to have a mutually agreed-upon mission and goals for staff replacement by unit and service line for the central staffing or resource office. Once defined and agreed to, DNP/unit leaders and their service line directors must work collaboratively to flex staff to the mutually agreed-upon goals before any staff are given additional time off. Employees become increasingly angry watching staff on another unit go home early using vacation or PTO time while employees on another unit are working short of staff or incurring more OT, bonus, and incentive hours.

EXHIBIT 5.2

Example: Defining Total Positions (FT/PT) for 12-Hour Shifts Working Two of Four Weekends

Organization: Somewhere Medical Center
Unit: 3M-Med/Surg
Skill Mix Direct RN

	Weekday Shifts	Weekend Shifts	Step	Instructions	Result	Rationale
Day	6.6	6	A	Weekdays: 1 day x 20	252	Multiply the weekday daily average total times 20 because there are 20 weekdays in a 28-day scheduling period.
Night	6	6	B	Weekends: 1 day x 8	96	Multiply the weekend daily average times 8 as there are 8 weekend days in a 28-day scheduling period.
Total	12.6	12	C	Total: A + B	348	The sum of weekday and weekend shifts equals the total staffing requirements needed to achieve the staffing pattern.
Notes:			D.1	C x 12	4,176	The total required shifts are multiplied by 12 hours to calculate the total worked hours needed weekdays and weekends for 4 weeks.
Whenever the weekend rotation is based on two of four weekends, the formula is always based on a 28-day scheduling period composed of 20 weekday shifts and eight weekend shifts. Position is synonymous for employee, assiciate, etc. as a FT position would work 20 of 28 days in 4 weeks, a FT position will work a total of 12 shifts based on four weekend shifts and eight weekday shifts. This staffing pattern indicates this unit needs a total of 34 total positions with24 FT positions hired at 0.9 FTEs. The FT-to-PT ratio is 71% FT, 29% PT.			D.2	FTE D.1 ÷ 160	26.1	The total required shifts are multiplied by 12 hours to calculate the total worked hours needed weekdays and weekends for 4 weeks and divided by 160 to calculate the total FTEs because 1 FTE= 40 hours/week or 160 hours in 4 weeks *(Do not divide this by 36 as it is the FTE work agreement and not the definition of an FTE.) TIP: THE FTEs in STEP D.2 MUST MATCH YOUR BUDCET FTEs OR YOU HAVE UNDER- OR OVERSTATED YOUR SCHEDULE REQUIREMENTS AND MUST CORRECT THEM.*

(*continued*)

EXHIBIT 5.2

Example: Defining Total Positions (FT/PT) for 12-Hour Shifts Working Two of Four Weekends (*continued*)

	Weekday Shifts	Weekend Shifts	Step	Instructions	Result	Rationale
The unit will need 10 supplemental nurses hired at 0.45 FTE or three weekday shifts in each pay period for a total of 60 weekday shifts for each scheduling period to replace vacant positions or core employees on vacation, LOA/FMLA or other absence. 24 FT x 0.9 FTE = 21.6 FTEs 10 PT x 0.45 FTE = 4.5 FTEs Total FTEs = 26.1 FTEs						
			E	**Maximum FT positions: B ÷ 4**	24	Calculate the total weekend shifts the FT positions will work by dividing the total number of weekend shifts by 4, since each FT position will be working four of eight weekend shifts every 4 weeks.
			F	**Weekday shift FTE x 8**	192	Calculate the total weekday shifts the FT positions will work by multiplying the maximum number of FT positions by 8, since each position will be working eight weekday shifts every 4 weeks.
			G	**Weekend shift FT: E x 4**	96	Calculate the total weekend shifts the FT positions will work by multiplying the maximum number of FT positions by 4, since each FT position will be working four of eight weekend shifts in 4 weeks.
			H	**Weekend shift PT: B - G**	0	To determine the total number of weekend shifts the PT positions will work, subtract the total weekend shifts the FT positions will work from the total required weekend shifts.
			I	**Weekday shift PT: A** – F	60	To determine how many weekday shifts will be worked by the PT positions, subtract the total number of weekday shifts the FT positions will work from the total required weekday shifts m the 4-week scheduling period.
			J	**Total shift: F ÷ G ÷ H + I**	348	The total number of these shifts equals the sum of all core FT and PT weekday and weekend shifts to be covered in a 4-week scheduling period.
			K	**Weekday shifts PT/per diem I ÷ 6**	10	To determine the total number of weekday shifts the PT positions will work, divide the remaining weekday shifts by 6, since each position will be working 3 weekday shifts each pay period.
			L	**Total positions E + K**	34	The total number of FT and PT positions needed to work the sum of required shifts (Step C) in a 4-week scheduling period.

FT, full time, FTE, full-time equivalent; FMLA, Family Medical Leave Act; LOA, leave of absence; PT, part time.

Source: Suby (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

EXHIBIT 5.3

Example: Defining Total Positions (FT/PT) for 12-Hour Shifts Working One of Three Weekends

Organization: Somewhere Medical Center
Unit: 3M-Med/Surg
Skill Mix Direct RN

	Weekday Shifts	Weekend Shifts	Step	Instructions	Result	Rationale
Day	6.6	6	A	Weekdays: 1 day x 15	189	Multiply the 1-week requirements by 15 to determine the total weekday required shifts needed every 3 weeks. There are 15 weekdays in 3 weeks.
Night	6	6	B	Weekend shifts: 1 day x 6	72	Multiply the weekend requirements by 6 to determine the total weekend required shifts needed every 3 weeks. There are 6 weekend shifts in 3 weeks.
Total	12.6	12	C	Total: A + B	261	The sum of all the weekday and weekend shifts equals the tool staffing requirements needed to achieve the staffing pattern per 3-week schedule.
Notes:			D.1	C x 12	3,132	The total required shifts are multiplied by 12 hours to calculate the total worked hours needed weekdays and weekends for 3 weeks.
Whenever the weekend rotation is based on 1:3 weekends, the formula is always based on a 21-day scheduling period composed of 15 weekdays and 6 weekend days. Position is synonymous for employee, associate, etc. Core FT and PT positions are expected to work the same weekend rotations. Because a FT position would work 20 of 28 days every 4 weeks, the same FT position will work 12 of 21 days in 3 weeks.			D.2	FTE D.1 ÷ 120	26.1	Divide the total required shift hours in Step D.1 by 120 to calculate the total FTEs because 1 FTE = 40 hours/week or 120 hours in 3 weeks based on an annual FTE definition of 2080 hours. (Do Not divide this by 36 as it is FTE work agreement and not the definition of an FTE.) *TIP:THE FTEs IN STEP D.2 MUST MATCH YOUR BUDGET FTEs OR YOU HAVE UNDER- OR OVERSTATED YOUR SCHEDULE REQUIREMENTS AND MUST CORRECT THEM.*

(*continued*)

EXHIBIT 5.3

Example Defining Total Positions (FT/PT) for 12-Hour Shifts Working One of Three Weekends (*continued*)

	Weekday Shifts	Weekend Shifts	Step	Instructions	Result	Rationale
The staffing pattern indicates this unit needs a total of 36 positions hired at 0.9 FTE for a total of 26.1 FTEs Total FT at 0.9 FTE = 27 or 75% for a total of 24.3 FTEs Total PT at 0.2 FTE = 9 or 25% for a total of 1.8 FTEs Nine PT positions will work one in three weekends, which is 24 hours in 3 weeks or 48 hours in 6 weeks; when divided by three pay periods it averages 16 hours pay period, or 0.2 FTE. These part-time positions are part of Core as they are required to maintain equal weekend rotations. They should also be used to replace vacant positions as well as core employees who are on vacation, LOA/FMLA or other absence.			E	**Total positions: B ÷ 2**	36	To determine the total number of positions based on the total required weekend shifts, divide the total weekend shifts by 2, as each core position works one in three weekends or two of six weekend shifts over 3 weeks. Round down to the nearest whole number.
			F	**Maximum FT positions: A ÷ 7**	27	To determine the maximum number of FT positions working seven of their total nine shifts on the weekdays in 3 weeks, divide the weekday requirements in Step A by 7. If you get a fraction, round down to the nearest whole number.
			G	**Maximum PT positions: E - F**	9	To determine the remaining number of positions necessary to achieve the staffing pattern, subtract the total number of FT positions from the total number of calculated positions.
			H	**Weekday shift FT: F x 7**	189	Calculate the total weekday shifts the FT positions will work by multiplying the maximum number of FT positions by 7, as each FT position will work seven of their total nine shifts on the weekdays.
			I	**Weekend shift FT: F x 2**	54	Calculate the total weekend shifts the FT positions will work by multiplying the maximum number of FT positions by 2, as each position will be working two weekend shifts in 3 weeks.
			J	**Weekday shift PT: A - H**	0	To determine how many weekday shifts will be worked by the PT positions, subtract the total number of weekday shifts the FT positions will work from the total required weekday shifts in the 3-week scheduling period.
			K	**Weekend shifts PT: G x 2**	18	To determine the total number of weekend shifts the PT positions will work, multiply the minimum number of PT positions by 2, as each position will be working two weekend shifts.
			L	**Total shift: H + I + J + K**	261	The total number of these shifts equals the sum of all FT and PT weekday and weekend shifts to be covered in a 3-week scheduling period by the calculated total positions in Step E.

FT, full time, FTE, full-time equivalent; FMLA, Family Medical Leave Act; LOA, leave of absence; PT, part time.

Source: Suby (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

An example of a central staffing or resource office **mission statement** is: Design and maintain a fair and equitable workforce system that ensures stability and appropriate distribution of clinical labor resources 24/7 hours/day.

An example of the total unit and/or service line commitment goals for supplemental staffing replacement includes the following:

1. Unplanned absence FTEs equal to 1/day
2. Vacation/PTO or holiday-off FTEs
3. EMO FTEs
4. Unplanned workload fluctuation or acuity greater than 1 up or down of the target VSP

An example of the total central float or resource pool commitment goals for supplemental staffing replacement includes the following:

1. Unplanned absence greater than 5% of total worked hours in the unit(s) or the second or additional call-ins per day
2. LOA/FMLA FTEs
3. Vacant-position FTEs for orientation factoring in any known "over-hired" FTEs
4. Unplanned workload fluctuation or acuity greater than 2 UOS of the target VSP

LMI best practices for cost center position control are based on the following:

1. Cost center is managed by the DNP/nurse leader and used as the unit's hiring plan to guide the approval of employee requests to change from FT to PT to per-diem/casual or contingent status.
2. It is shared with human resources as the unit's hiring plan.
3. It is shared with finance for FTE management.
4. It is shared with the central staffing office as the plan to follow for workload fluctuation greater than the defined range of staffing elasticity in the budget or most frequent workload UOS or volume as well as the unit-based nonproductive replacement time.
5. Positions are based on the budgeted FTEs and define weekday and weekend schedule requirements.
6. Filled and unfilled or vacant FTEs.
7. Position control reports identify:
   a. Filled and open or vacant positions compared to the hired and actual FTE positions
   b. Job category or classes for staff (e.g., RN, LPN/LVN, NA, nurse leaders, clerks, and so forth), or skill-mix caregiver groups (e.g., direct, and indirect)
   c. Job codes used to track budgeted dollars for the FTE positions
   d. Hire dates for the employees in the filled positions may be used to track seniority
   e. Designation for FT or PT or per-diem/casual or contingent status is used as a check for the optimum or budgeted FT/PT rotation plan
   f. Positions by shift as a check against the budgeted care distribution hours in the unit staffing budget
   g. Positions for weekday and weekend distribution to:
      i. Compare budgeted positions to the schedule at posting to visually see that resources have been distributed to the shifts for which they were budgeted.
      ii. Compare the budgeted positions to the schedule after the schedule period is completed to see whether employees worked to their expected shifts, depending on the unit-based guidelines and employee requests.

h. Comparison of actual to budgeted "paid FTEs with variance" will reflect employees working more hours than they were hired for versus employees working fewer hours than they were hired for. This comparison often explains unnecessary OT or the loss of planned experience and competencies when employees trade their shifts away.
i. Comparison of actual "worked" FTEs to the "target," or VSP FTEs with variance
j. Comparison of actual and budgeted workload for productivity reference (e.g., how busy was the unit for the time period being evaluated)

NURSE LEADER HOURS SPENT ON BUDGETING, SCHEDULING, AND STAFFING

LMI finds that when scheduling and staffing is truly autonomous and collaborative, and HR and payroll worked and paid hours policies and practices work in synchrony, DNP/nurse leader hours/schedule should average 4 to 6 or fewer/month. LMI also finds that DNP/nurse leader hours spent doing daily staffing should average 4 to 6 or fewer/month, for an average-size unit of 55 employees.

Annually, LMI collects data on nurse manager span of control for the *PSS™ Annual Survey of Hours Report©*. Table 5.10 indicates the responses healthcare organizations provided regarding the number of hours nurse leaders spent on budgeting, scheduling, and staffing activities (Suby, 2021a).

LMI finds that when scheduling or staffing hours increase above 10 hours per month, schedules are driven by shift combinations unmatched to the budget FTEs and shift hours and FTEs that are overstated in the budget schedule requirements. Other reasons include:

- conflicts in worked and paid-hour policies and practices;
- an absence of position control or hiring plan;
- uncontrolled occurrences of employee's working above or below their hired hours/FTE;
- an imbalance of full-time (FT), part-time (PT), and/or per-diem/casual or contingent staff;
- misuse of both planned and unplanned absence time;
- discipline policies that lack enforcement;
- unclear line and staff functions among the unit leadership, employees, and the central staffing office; and an under-resourced float pool and unclear unit and resource pool goals for the use of supplemental staff for deficit-demand replacement.

All these findings contribute to employee scheduling and payroll leakage that increase the manual hours expended for employee scheduling and staffing, which, in turn, drives up OT, use of bonus and incentive pay, and costs.

TABLE 5.10 LMI's Manager Average Hours/Month/Unit Spent on Budgeting, Scheduling, and Staffing

Survey year	Manager hours/month: scheduling	Manager hours/month: staffing	Manager hours/month: budgeting	Mean average total manager hours/month spent on budgeting, scheduling, and staffing	Percentage of manager hours/month spent on budgeting, scheduling, and staffing
2019 (n = 163)	19.1	21.9	12.7	53.7	33.6
2015 (n = 159)	19.5	22.8	14.9	57.2	35.8

Source: Suby, C. (2021a). Labor Management Institute's 30th PSS™ Annual Survey of Hours Report©. Bloomington, MN: Labor Management Institute. Reproduced with permission.

DNP/nurse leaders are challenged to find solutions to the logistical problems of maintaining continuity of care while also meeting employee work–life balance needs through their schedules. Improving employee scheduling practices will reduce and/or prevent scheduling and payroll leakage while meeting both employee and department needs.

SCHEDULING ORDER

For best scheduling outcomes and to incentivize employees to work, it is important that employees are scheduled with FT employees first, followed by committed PT employees, and unit-based per-diem/casual employees scheduled last. Scheduling the per-diem/casual or contingent employees before the committed FT and PT employees disincentivizes employees from committing to FT or PT work agreements. For best schedule quality, scheduling should be done in the following order:

1. Permanent shifts:
   - **a.** All permanent shift FT and committed PT employees should have their default weekend rotation assigned to be able to predict their weekends on and off.
2. Rotating shifts:
   - **a.** All rotating shift FT and committed PT employees should have their default weekend rotation assigned to predict their weekends on and off. The working weekends should identify which weekend shifts are for the day shift and which weekends are on the evening or night shift.
3. Per-diem/casual or contingent employees:
   - **a.** Assign all per-diem/casual or contingent employees a default weekend to work to preplan weekend coverage when workload volumes increase on the weekends, as well as to plan replacement coverage for unexpected absences and vacation coverage when employees take time off on the weekends. This allows per-diem/casual or contingent employees the ability to make advance plans for their weekends to work and be off consistent with the departmental or healthcare organization policy expectation that all employees will work a minimum of 26 of 52 weekends in the year.
   - **b.** If the per-diem/casual or contingent employees are not needed on their default weekend to work, they should be expected to be assigned to other shifts and/or float to other units to fulfill their work agreements and maintain their competencies.
   - **c.** Per-diem/casual or contingent employees may sign up for additional shifts based on the published "needs list" or identified schedule holes.
   - **d.** Per-diem/casual or contingent employees should not "shop their shifts" to other staff to take nonproductive hours above the budget daily allowance while working their minimum work agreement so they are no longer available to meet the strategic staff replacement plan for the unit.

It is important to remember the 20–80 rule when scheduling. When 20% or more of the employees in a unit have fixed patterns, or more than the equivalent of four requests to work or not to work in 2 or more weeks of the 4-week schedule, the patterns or employee requests will so limit the schedule availability for favorable patterns that the other 80% of the employees will work around the 20% of employees with fixed patterns or excessive requests. DNP/nurse leaders who encounter this pattern of employee requests to work and be off will provide better schedules to all employees and save

themselves and their schedulers and staff hundreds of hours of frustration by developing repeating core patterns or master schedule blocks for all employees in the unit.

MANAGING EMPLOYEE REQUESTS

Employees need flexible schedules that help them achieve balanced lifestyles, predictability, and career experience. Best budget practices include providing DNP/nurse leaders with a budget for the employees to use their accrued vacation and holiday or planned time off (Suby, 2009). For the greatest accuracy, LMI recommends that DNP/nurse leaders calculate the hours that should be planned for all employees to use within the budget year. LMI recommends the following definitions for employee scheduling and staffing:

Schedule Request: Any request to work or to be off for a specific date and shift; staff should request time off, not days and shifts to work

Planned Absences: Any employee request(s) made in advance of the schedule posting, so the DNP/nurse leader and/or unit scheduler can secure appropriate staff coverage

Unplanned Absence: Any employee request(s) made after the schedule is published or posted that is left unfilled or is filled at OT or premium pay

Employee Request Guidelines: At a minimum guidelines should address weekend and off-shift rotations, due dates for employee requests, responsibilities for shift trades and exchanges after schedules are published, and use of per-diem/casual staff prior to schedule publication. Must be consistent with HR and the nursing department.

LMI recommends the DNP/nurse leader ensure the employee request guidelines address the following:

1. All employees must work their hired hours FTE commitment. Schedules must be based on the budget.
2. Determine which two nights define the weekend, work to define the weekend off for night shift and day/night shift rotators. If the weekend off is Friday–Saturday, then Sunday through Thursday are the weekdays.
3. Ensure equitable weekend rotations by defining the employee's weekends to work and be off as a guide for balancing experience and skills. DNP/nurse leaders should address this by defining the available shift(s) and expected weekend rotations or master/core pattern when hiring new staff or accepting staff transferring into the unit from other units.
4. Distribute 3- and 4-day weekends off equitably. Mondays and Fridays are the most popular weekdays to have off, followed by Tuesdays and Thursdays.
5. Budget for nonproductive replacement based on the budget and absenteeism history of the unit. Overapproving benefit time may feel like the kindly thing to do, but it creates unreasonable workloads for the remaining employees and engenders disrespect of leadership for all employees.

DNP/nurse leaders must be operationally clear about who will address employee call-ins for unexpected absences, LOA/FMLA, and vacant positions at the unit level and at the central staffing office, if they exist. DNP/nurse leaders should enter the following information into the schedules for future schedule preparation as soon as it is available:

1. Anticipated dates for LOA/FMLAs to start. This includes the estimated due dates for maternity LOAs to start as well as military reserve or call-to-active-duty dates

2. Known educational sabbaticals, reassignment to administrative cost centers for EMR, other informatics software training, and so on
3. Estimated LOA/FMLA return dates as soon as one knows of a pending absence
4. Planned resignations/termination dates to identify vacant positions as soon as the resignation or unit transfer is turned in

DAILY STAFFING: THE SHORT-TERM 24-HOUR BUDGET

The VSP may also be called the staffing grid, matrix, or the daily staffing plan. It is the short-term budget designed to affect only those direct caregivers who correlate to a ratio of patients or workload UOS (e.g., RN, LPN/LVN, NA) to the volume of patients or UOS for the concurrent and next shifts. The VSP is planned to maintain the consistency of the target HPPD or H/UOS, which is the underlying driver for the RN-to-patient care ratios.

Good VSPs keep the target RN, direct, indirect, and total worked HPPD or H/UOS constant for each number of patients the unit can accommodate to ensure that patients receive the same target HPPD or H/UOS or labor standard and direct RN-to-patient ratio regardless of how many patients are on the unit.

Good VSPs should be created to identify the target staffing response at each workload UOS between the unit capacity and the lowest allowed workload UOS that justifies keeping the unit open. The *range of staffing elasticity* is the range between each full caregiver. When the direct caregivers HPPD or H/UOS is used for each skill mix, the calculations will reflect fractions that allow room for the DNP/nurse leader or charge nurse to apply clinical judgment and to decide whether the acuity of the patient warrants rounding up to add more RNs, for a lower RN-to-patient ratio and/or fewer LPN/LVNs or NAs.

LMI recommends including a section for Notes to communicate unique staffing considerations such as charge nurses taking full, partial, or no patient assignments; target ratios; alternative shifts for indirect caregivers if included such as 8-hour shifts used for managers and clerks (Exhibit 5.4).

In the COVID-19 pandemic of 2020, many organizations hired LPN/LVNs to their core staff to augment the direct caregivers. Remember that RNs are responsible for LPN/LVNs so that although the LPN/LVN ratio may be reasonable, the RN-to-patient ratio will be double that number. For example, if LPN/LVNs are added to the direct caregiver skill-mix group in Exhibit 5.4 the *licensed ratio* will be one licensed caregiver to four patients; however, the LPN/LVN ratio will be 1:4, whereasthe RN-to-patient ratio will be 1:8 since RNs are responsible for LPN/LVNs on their team.

RN-to-patient ratios greater than 1:6, even if augmented by LPN/LVNs, will stress experienced nurses, and the higher that ratios are allowed to rise, the more it will fall into staff dissatisfaction, burnout, and turnover, which contributes to adverse patient outcomes.

OVERTIME, SCHEDULE LEAKAGE, AND PAYROLL VERIFICATION

DNP/nurse leaders commit to and are entrusted to manage the delivery of safe patient care and serve as stewards of the organization's labor resources by providing fair and the equitable scheduling for all employees, enforcement of practices consistent with organizational policies, and payroll accuracy for employees. DNP/nurse leaders should always work with HR to know the answers to the questions affecting their approval of payroll hours and dollars. If there are questions, the DNP/nurse leaders should always contact the payroll supervisor and HR to get the correct information.

All DNP/nurse leaders must care about the overtime occurring on their units because it directly impacts the unit by increasing the cost center's operational costs while reducing the available funds for hiring more staff, obtaining more equipment, or acquiring

EXHIBIT 5.4

Example: Variable Staffing Plan for 3M- Med/Surg

Unit capacity is 28, budget ADC is 24.9, budget direct RN HPPD is 6.01, budget direct NA HPPD is 3.28, budget total direct HPPD is 9.29, and total worked HPPD is 10.25 Target RN-to-patient ratio is 1: 4. Target NA ratio is 1:7.3.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Census Volume	Budget Direct RN HPPD	Target RN Direct Hr./ Day (A x B)	Total Direct RN 12-Hr. Shifts/ 24-Hrs. (C ÷ 12)	RNs/ Shift (D ÷ 2)	RN-to-Pt. Ratio (A ÷ E)	Budget Direct NA HPPD (G)	Target NA Direct Hr./ Day (A x G)	Total Direct NA 12-Hr. Shifts/ 24-Hrs. (H ÷ 12)	NAs/ Shift (I ÷ 2)	NA-to-Pt. Ratio (A ÷ J)	Budget Total Direct HPPD (C + G)	Budget Indirect HPPD (M)	Target Indirect Hr./ Day (A x M)	Total Indirect 8-Hr. Shifts/ 24-Hrs. (N ÷ 8)	Indirect Staff/ Shift (O ÷ 2)	Budget Total Worked HPPD (B + G + M)
28	6.01	168.28	14.02	7.01	4.0	3.28	91.84	7.65	3.83	7.32	9.29	0.96	26.88	3.36	1.68	10.25
27	6.01	162.27	13.52	6.76	4.0	3.28	88.56	7.38	3.69	7.32	9.29	0.96	25.92	3.24	1.62	10.25
26	6.01	156.26	13.02	6.51	4.0	3.28	85.28	7.11	3.55	7.32	9.29	0.96	24.96	3.12	1.56	10.25
25	6.01	150.25	12.52	6.26	4.0	3.28	82	6.83	3.42	7.32	9.29	0.96	24.00	3.00	1.50	10.25
24	6.01	144.24	12.02	6.01	4.0	3.28	78.72	6.56	3.28	7.32	9.29	0.96	23.04	2.88	1.44	10.25
23	6.01	138.23	11.52	5.76	4.0	3.28	75.44	6.29	3.14	7.32	9.29	0.96	22.08	2.76	1.38	10.25
22	6.01	132.22	11.02	5.51	4.0	3.28	72.16	6.01	3.01	7.32	9.29	0.96	21.12	2.64	1.32	10.25
21	6.01	126.21	10.52	5.26	4.0	3.28	68.88	5.74	2.87	7.32	9.29	0.96	20.16	2.52	1.26	10.25
20	6.01	120.20	10.02	5.01	4.0	3.28	65.6	5.47	2.73	7.32	9.29	0.96	19.20	2.40	1.20	10.25
19	6.01	114.19	9.52	4.76	4.0	3.28	62.32	5.19	2.60	7.32	9.29	0.96	18.24	2.28	1.14	10.25
18	6.01	108.18	9.02	4.51	4.0	3.28	59.04	4.92	2.46	7.32	9.29	0.96	17.28	2.16	1.08	10.25
17	6.01	102.17	8.51	4.26	4.0	3.28	55.76	4.65	2.32	7.32	9.29	0.96	16.32	2.04	1.02	10.25

Notes:

Charge nurses included in the direct RNs taking a 50% patient assignment They are to serve as the resource nurse and try to get ADTs started until they can be assigned to another staff RN who has had a patient discharged and/or whose acuity is reasonable. When the census is 17 or less the charge nurse will take no patients as there are only enough indirect hours for the unit manager and NO hours for any clerks in the daily staffing plan. Indirect HPPD provides for 1 manager per day, and 2 clerks/day, each working 8-hour shifts between 7 a.m. and 11:30 p.m.
ADC, average daily census; HPPD, hours per patient day; NA, nursing assistant.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission.

new or expanded programs. Indirectly, overtime increases employee job dissatisfaction, burnout, and turnover. It increases employee fatigue, contributing to "failure to rescue," on-the-job employee injuries, and unplanned absences. Overtime also increases the risk of adverse patient outcomes, medical errors, and patient falls. (Suby, 2007a)

OT is paid to nonexempt or hourly employees in all job categories for all hours worked over 40 hours per week unless there is an alternate rule that pays OT for fewer worked hours per week. For example, some unions have negotiated contracts whereby OT is paid after 30 hours per week, 35 hours per week, or 37.5 hours per week. There are two types of OT: (a) *Regular overtime* is any OT occurrence 30 minutes or greater per event; (b) *end-of-shift (EOS), or incidental overtime,* is any OT occurrence less than 30 minutes per event.

LMI has developed recommended OT usage guidelines based on our research for root sources or drivers for OT and the increase in medication errors and patient falls. LMI finds that OT below 4.9% is reasonable for units with fluctuating workload volumes and normal deficit-demand replacement. LMI finds that medical errors and patient falls increase when OT is above 5% of total worked hours, and the most dangerous OT is 8% or higher (Table 5.11).

TABLE 5.11 LMI's Overtime Usage Guidelines

OT%	LMI OT finding/implication
0–4.9	Reasonable response to fluctuating workload volumes or deficit demands
5–7.9	*Sign of financial bleeding:* Consider schedule imbalances (e.g., too many on the day shift and inadequate coverage on the off shifts) or overauthorizing employee requests causing staffing shortages
8 or above	*Sign of financial hemorrhaging*: Consider excessive vacancies, excessive ADT activity within the unit that creates excessive workload intensity, and drastic workload fluctuations and mismatched 8- and 12-hour shift combinations in addition to the previous suggestions

ADT, admission, discharge, and transfer.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

Schedule leakage occurs when DNP/nurse leaders fail to schedule employees to their work agreement FTEs, utilize EMO or accrued benefit time to make up hours below their work agreement FTEs, or approve vacation absence as an unpaid day off when all accrued benefit hours have been exhausted. Allowing employees to preschedule OT in a workweek occurs when an employee requests to work their shifts to satisfy their hired work agreement in the pay period but not in the work week. For example, an employee hired for 72 hours per pay period, or six 12-hour shifts will work four shifts in 1 week for 48 hours, generating 8-hours of prescheduled OT and two shifts in the second week.

Payroll leakage includes the following:

1. Inappropriate use of incentive or bonus shift pay,
2. Authorized missed meal breaks without documentation or more than one/shift,
3. Excessive missed punches that contribute to paid wages when shifts are not verified, or
4. Multiple premium differentials paid to all RNs qualified for charge nurse duties when it should be limited to one charge nurse per shift.

To prevent schedule or payroll leakage, DNP/nurse leaders should complete a best practice audit for each published schedule and consider it a report card for the quality of the schedule. Assess the schedule audit for the criteria listed previously and look for

trends that contribute to unnecessary extra hours and OT. Trends include excess unscheduled hours, excess missed punches, late/tardy or leaving early, no-call/no-show occurrences, and OT by day of week and/or shift. Use the findings to update unit scheduling guidelines and reconcile conflicts between policies and practices.

MANAGEMENT REPORTS: THE REFLECTION OF THE DNP/NURSE LEADER'S OPERATIONAL DECISION-MAKING

Measuring the right data and having real-time access to that information is essential to controlling labor costs. Management reports are the reflection of the DNP/nurse leader's operational decision-making. Management reports provide the information loop connecting the budget, the schedule, and our daily staffing decisions. Management information from different sources should be interactive. Together it should answer the question and tell the story. The KPIs are the foundation of our financial management (Table 5.12).

TABLE 5.12 LMI Key Performance Indicators

Hours	Direct RN	Total direct	Indirect	Total worked (or productive)	Total paid (or annual)
FTEs	Direct	Direct	Indirect	Total worked	Total paid
Dollars/UOS ($/UOS)	Direct	Direct	Indirect	Total worked	Total paid
Workload volumes	Inpatient census and adjustments for observation hours, ADT, or other workload ED visits and other workload (e.g., border, holding, bypass hours) Obstetric deliveries and other workload (e.g., Lamaze visits)				
Other	Caregiver-to-patient ratios distinguishing RN, licensed (RN+LPN/LVN), and nursing assistant Overtime (%) of total worked hours Turnover/vacancy rates with unit erosion				

ADT, admission, discharge, and transfer; FTE, full-time equivalent; UOS, unit of service.

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Bloomington, MN: Labor Management Institute. Reproduced with permission.

There are many things to consider when looking at productivity, but the main thing is to keep it super simple (KISS). Maintaining productivity does not need to be complicated. If the DNP/nurse leaders know their KPI targets and formulas, they can assess their actual performance to the target KPIs in any time frame (e.g., shift, day, week, pay period, fiscal period. etc.). Reviewing labor and productivity targets daily is the most optimal method to allow for daily trending of volume and labor hours and encourages changes in the volume/work units on a real-time basis to ensure appropriate use of staff 24 hours/day. DNP/nurse leaders should remember that "What gets measured gets done" (author unknown).

The DNP/nurse leader is the most knowledgeable source of information about the business of the unit. Biweekly reporting helps to ensure that interventions are on target. If we do not like the numbers, we must change something operationally. Our choices must consider:

- What is the reason the numbers are doing what they are doing?
- Are we satisfied with the reason?

- Does the reason represent best practice?
- Are we satisfied that this reason cannot be improved?

Potential causes for increased labor standards over target:

1. Additional FTEs above budget from over-staffing or over hiring
2. New programs that require additional worked hours
3. High overtime greater than 4.9% of total worked hours
4. Outsourced (agency/travelers) labor that cannot be cancelled or floated out of the unit
5. Changes in patient acuity or average length of stay (ALOS); often this is due to not having the patient in the appropriate unit type (e.g., a step-down patient in a med–surg unit)
6. Working inefficiently

Potential causes for decreasing labor standards below target:

1. Reduction in FTEs below budget from under-staffing or high vacancies
2. Elimination of programs requiring a reduction in worked hours
3. Unfilled vacant positions
4. Elimination of extra hours, OT, or outsourced (agency/travelers) labor
5. Changes in patient acuity or ALOS
6. Working efficiently

In Gapenski et al.'s study (1993, p. 72), "The Determinants of Hospital Profitability," it was found that "a decrease in labor intensity by 1/100th FTE per adjusted inpatient day would increase the after-tax **operating** margin by approximately 3.5%." This suggests that relatively large gains in profit margins are available from even very small increases in workforce efficiencies.

Healthcare delivery at both primary care and specialty levels is in constant change. Operating margins are declining in many organizations with an average decline of 1.6% in fiscal year 2017, which is down from 3.4% in fiscal year 2015 in not-for-profit organizations (Daly, 2018). In 2020, U.S. healthcare organizations saw their gross operating margins decline 3.1% over the course of the 2020 calendar year, excluding CARES Act cash for the COVID-19 pandemic. The area hardest hit was ED visits, which fell 16%, both year to date and year over year. As of December 1, 2020, gross operating revenue, not including CARES, also fell 4.8% year to date and 1.4% below budget but was flat compared to October 2019 levels. Declining outpatient visits were a major contributor, driving outpatient revenue down 6.6% year to date and 2.6% year over year for the month (Kaufman, Hall & Associates, LLC, 2020). Healthcare organization leaders have been warned to be prepared to see mounting increases as COVID-19 variants increase and revenue-producing departments are slow to recover in the months ahead. When these changes are combined with state-mandated caregiver ratios for inpatient units in many states and shrinking reimbursements, financial budgeting, and accountability for targets for all departments is an imperative.

MANAGEMENT REPORTING AND PEER REVIEW

Peer reporting is a process in which DNP/nurse leaders meet with their service-line directors to report to each other on their unit(s)' labor resource outcomes for the most recent pay period. Peer reporting shares information; it is collaborative, and is focused on problem-solving. In addition, it helps build the skills required for monthly operations review (MOR) meetings with finance and senior leadership. Using peer-review to share your MOR results with your service-line and department peers will build your confidence in answering questions and developing action plans. The action plans are best built in cooperation with the care delivery team and list the steps needed to achieve the desired goals and the expected due dates.

Peer Reporting Requires:

- Meeting 1 hour every other week
- Avoids secrecy
- An open book and open door culture
- Reviews quality outcomes
- Shares financial outcomes that consider the following ("Am I on target, over or under budget? Do I know the reasons why my numbers look the way they do? Am I satisfied with the reasons? Do the reasons represent best practices? Am I satisfied that this reason(s) cannot be improved?")

Many front-line DNP/nurse leaders are being asked to attend and present data on their units' MOR at productivity and financial meetings in place of or in addition to the Chief Nursing Officer (CNO)/Chief Nurse Executive (CNE). No one can know the data better than those with direct experience and knowledge of their unit's needs, so it becomes critically important to be able to evaluate the results of your KPIs and support data to justify the OT or productivity variances, along with action plans to course-correct to get back to budget during the next pay period.

CONCLUSIONS

It is crucial to the DNP/nurse leader's success, the well-being and satisfaction of the staff, the delivery of care to patients, as well as the success of meeting organization financial targets, that DNPs acquire operational, financial, and management skills and competencies along with the skills of balancing the challenges between quality and cost, negotiating with multiple stakeholders, reconciling conflicting agendas, and implementing the processes needed to ensure that individualized compassionate care is provided consistently in the most efficient and effective manner possible.

As healthcare continues to become increasingly more complex, DNP/nurse leaders must possess knowedge about information technology operations, data integrity, and governance skills to meet the business and economic challenges of the healthcare organization that complicate the delivery of care, while maintaining and increasing retention of staff, developing millennial nurses and employee's needs for work–life balance. In addition, DNP/nurse leaders in acute care settings must possess knowledge of business models required to reshape healthcare delivery, along with strategic management skills and competencies to conduct strength, weakness, opportunity, and threat (SWOT) and gap analyses for planning and evaluation of operational objectives and achievements; formulate, assess, and implement organizational goals and objectives that ensure efficiency, defend the business case for nursing, and identifies marketing opportunities.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Calculate the HPPDs for each of the following Telemetry unit Hours Classifications for one pay period of 14 days. The Budget Average Daily UOS is 20 and the pay period total is 280. Required data is included in the shaded boxes.

Critical Thinking Exercise Table of Hours Classifications for HPPD Calculations

Pay Period Hours	HPPDs
Budget Average Daily UOS is 20/day X 14 = 280	
1. Direct RN hours: 1705.2	
2. Direct NA/Tech hours (staff that flex in the VSP): 820.4	
3. Total Direct hours (e.g., RN and NA/Tech hours): 2525.6	
4. Total Indirect hours (e.g., manager, clerks, etc.): 400.4	
5. Total Worked, or Productive hours: 2926.0	
6. Total nonproductive hours: 511.38	
Benefit hours for time paid but not worked: 351.12	
EMO hours: 160.02	
7. Total paid hours: 3437.38	

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission.

2. Calculate the Direct RN to Patient Ratio for the Neuro unit using the following information. Required data is included in the shaded boxes.

Critical Thinking Exercise Table to Calculate RN to Patient Ratios

Total direct RN hrs. per 24-hours	**128**
Total direct RN shifts per 24-hours	
Total direct care RNs in each 12-hour shift	
Average Daily Census or Workload UOS	**20**
Direct RN to Patient Ratio per Shift	1 RN to ____ patients

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission

3. A Critical Care ICU unit with the following labor standards in HPPD and a budgeted average daily census of 20/day will need a minimum of how many FTEs in their total paid FTEs? Required data is included in the shaded boxes.

Critical Thinking Exercise Table of HPPD Classifications for FTE Calculations

Pay Period HPPDs	FTEs
Budget Average Daily UOS is 20/day x 14 = 280 *1 FTE/ Pay Period = 80 hours*	
1. Direct RN HPPD: 14.87	
2. Direct NA/Tech HPPD (staff that flex in the VSP): 2.8	
3. Total Direct HPPD: 17.67	
4. Total Indirect HPPD (e.g., manager, clerks etc.): 2.03	
5. Total Worked, or Productive HPPD: (Direct RN + NA/Tech) 19.70	
6. Total nonproductive HPPD: 2.758	
7. Total paid HPPD: 22.458	

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission.

4. Please complete the calculations in the Direct Care Variable Staffing Plan table to maintain the budget direct, RN and NA HPPD and Target direct caregiver ratios for each level of census between 25 and 30 patients. Round your answers to 2 characters to the right of the decimal point (XX.XX).

Critical Thinking Exercise Direct Care Variable Staffing Plan for ICU

A	B	C	D	E	F	G	H	I	J	K	L
Census Volume (A)	Budget Direct RN HPPD (B)	Target RN Direct Hrs./ Day (A x B)	Total Direct RN 12 Hr. Shifts/ 24 Hrs. (C ÷ 12)	RNs Per Shift (D ÷ 2)	RN to Pt. Ratio (A ÷ E)	Budget Direct NA HPPD (G)	Target NA Direct Hrs. / Day (A x G)	Total Direct NA 12 Hr. Shifts/ 24 Hrs. (H ÷ 12)	NAs Per Shift (I ÷ 2)	NA to Pt. Ratio (A ÷ J)	Budget Total Direct HPPD (B + G)
30											
29											
28											
27											
26											
25											

Source: Suby, C. (2021b). Labor Management Institute's Clinical Staffing and Scheduling Certification. Labor Management Institute Bloomington, MN: Labor Management Institute. Reproduced with permission.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 6

Indicators for DNPs Managing Outpatient Microsystems

Susan J. Penner

This chapter focuses on ambulatory, postacute, and community indicators of interest to DNPs accountable for clinical or financial management. Healthcare is shifting away from acute hospital inpatient services to outpatient settings such as clinics, the home, and community-based locations. This shift is driven by factors such as affordable technologies, patient preferences, cost savings and the reduced risk of hospital-acquired infections and complications. Also known as *site-of-service migration*, this shift to outpatient or home settings accelerated during the COVID pandemic (Balser et al., 2021).

SHIFTING FROM ACUTE TO OUTPATIENT SERVICES AND SETTINGS

From 2014 to 2019, California hospital outpatient visits increased by nearly 3.3 million, and the percentage of California hospital outpatient revenue (gross outpatient revenue ÷ gross patient revenue) increased from 35.1% to 39% (Office of Statewide Health Planning and Development [OSHPD], 2014, 2019). A nationwide survey of community hospitals reports that in 2014, hospital inpatient revenues were $206 billion, or 16% higher than hospital outpatient revenues. By 2018, inpatient revenues were only $55 billion, or 3% higher than hospital outpatient revenues (Healthcare Financial Management Association [HFMA], 2020). In other words, hospital care is increasingly provided as an outpatient service.

The **digital-first (virtual first) model** is changing healthcare services delivery. Using technologies, such as telehealth devices, the phone, or email, digital communication with the physician or other healthcare provider is increasingly the first **point-of-service (POS)**. Healthcare is shifting to the digital-first model for similar reasons. Digital-first approaches are less costly than an initial face-to-face contact, increase access, and are aligned with patient preferences such as saving time and getting care and consultation at home. Reducing personal contact reduces the risk of COVID and other infection exposure. Improved and affordable technology allows patients with chronic conditions, such as cardiac conditions or diabetes, to monitor and report their condition online (Becker's Hospital Review, 2021; Tepper, 2021).

The COVID pandemic accelerated the trend to push care out of the hospital (Balser et al., 2021), but the trend was well under way before the pandemic. In 2018, the Bundled Payments for Care Improvement Advanced (BPCI Advanced) model allowed Medicare to shift more inpatient procedures to outpatient settings (Navathe et al., 2018). Even

inpatient surgeries once thought to be insulated from this trend are now delivered as outpatient care (Peters, 2020). With patients reluctant to go to hospitals, and with advances in telemedicine technologies and financing, the shift from inpatient to outpatient care has not only accelerated, but is expected to continue. It is quite possible that in years to come, acute care hospital care will be largely limited to emergency services, complex surgical services, and intensive care (Maguire, 2021).

One implication of this trend is that nurses and nursing care will move from the hospital bedside to outpatient nursing microsystems. DNPs must prepare for more management as well as clinical roles in ambulatory, postacute, and community settings. Effective management requires an understanding of outpatient indicators that measure performance and financial activity. DNPs need to be prepared to develop and operate programs and services outside the acute care facility. Interpreting budget reports, improving performance, and making a business case require an understanding of outpatient indicators.

Indicators and Fiscal Stewardship for Outpatient Services

Indicators are used by healthcare administrators to measure and evaluate their service capacity, utilization, performance and financial activity (Penner, 2017). Indicators may also be referred to as **metrics** or **key performance indicators** (KPIs), particularly when reported as a dashboard that tracks and benchmarks organizational performance. Administrative indicators may vary based on the POS or location in which services are provided. The case examples demonstrate how outpatient indicators relevant to each setting might be reviewed, tracked, and utilized by a DNP making a business case.

DNPs must ensure that services operate efficiently to minimize cost while ensuring high-quality care (American Association of Colleges of Nursing [AACN], 2021). Nurses face current and future concerns about costs, savings, sustainability and fiscal stewardship in health care macrosystems and microsystems. The COVID pandemic creates clinical and administrative challenges never before faced in our healthcare systems. In addition to a devastating nationwide economic crisis, many hospitals face financial instability related to lower revenues and higher costs throughout the pandemic (U.S. Department of Health and Human Services Office of Inspector General [USHHS-OIG], 2021). A nationwide survey of community hospitals reports that expenses are increasing faster than net revenues, putting the long-term financial survival of these institutions at risk (HFMA, 2020). The federal budget deficit, economic impact of the COVID pandemic and continued divisive political situation in the US may limit or impede federal policies, programs and funding that would supplement healthcare revenues (Becker's Hospital Review, 2021).

The impact of a financial crisis in healthcare is heightened when focusing on ambulatory, post-acute and community nursing microsystems, which have historically been under-financed compared to acute care services. Many outpatient settings experienced serious financial losses related to the COVID pandemic. Patient access has been compromised and health care disparities impact population health and health outcomes, while the costs of care are rising as revenues drop. Nurses will need to address these challenges and find ways to cope with anticipated and unanticipated resource shortages. DNPs must be prepared to manage and lead in this difficult and demanding situation.

Outpatient Settings and Case Examples

Budgets and budget reports are prepared and reviewed for various administrative purposes. Three important functions of budgets are reporting, managing, and planning. DNPs may therefore create and review budgets and budget reports for a number of purposes, such as sharing financial performance with staff, demonstrating the

achievement of productivity benchmarks, or estimating the costs and revenues generated by a proposed program. Each case example in this chapter uses a budget or other financial report as a tool for reporting, managing, or planning financial performance. Indicators used in these budget reports measure capacity, utilization, or performance in health settings. Financial indicators that attach monetary value to capacity, utilization, or performance enable tracking of costs and profitability (Penner, 2017).

Healthcare is delivered in a wide variety of institutions and settings. In addition, there can be an overlap of services delivered in and out of the hospital. For example, acute care is now delivered to selected patients in an innovative enhanced home health **Hospital at Home model** (Brooks, 2021). Hospitals and health systems increasingly engage in population health efforts such as targeting high-risk or underserved communities for outreach (National Academies of Sciences, Engineering, and Medicine [NASEM], 2019). As a result, hospitals may provide services in community-based or other outpatient settings.

Ambulatory and community settings are typically located in an agency or clinic, and 24/7 staffing and scheduling are usually not required. Typically, the patient travels to the setting to visit the nurse and other providers, or in a home-based model the nurse and other providers travel to the patient's residence. Both the clinical care and the administrative reporting (for example, budget reports) reflect a lower level of complexity than that seen in acute hospital inpatient settings.

This chapter employs several case examples based on some of the more typical settings that nurses and DNPs might encounter in practice. This approach provides DNPs with a starting point for learning about the indicators that are the most relevant in outpatient settings. Given the anticipated context of resource scarcity, the case examples include tools to aid in making or justifying difficult resource allocation decisions, such as a decision matrix or a **strengths, weaknesses, opportunities, threats (SWOT) analysis**. The case examples then show DNPs how indicators might be applied to make a business case for resources to improve patient care and access to services.

AMBULATORY SETTING: HEALTHFULL CLINIC

HealthFull Clinic (fictitious name) is an innovative nurse-run clinic managed and staffed by three DNP nurse practitioners. The clinic is a project of HealthFull ACO, providing primary care patient education, monitoring, and support for underserved elderly patients with conditions such as congestive heart failure, diabetes, and Parkinson's disease. The clinic opened for operations in January 2020.

HealthFull ACO donates the space for the clinic and covers the staff wages and salaries as well as other operating costs such as utilities and supplies. Any profits generated by the clinic contribute to covering these costs. The DNP who staffs and manages HealthFull Clinic must adhere to cost, revenue, and productivity budget benchmarks and must manage resources as prudently as possible. HealthFull ACO faced serious revenue shortfalls and cost increases related to the COVID crisis, and therefore requires that managers "do more with less." The clinic's sustainability depends not only on patient outcomes but on demonstrating cost-effectiveness.

Nursing staff productivity is a recent challenge.nursing staff productivity For much of 2020, patient encounters (billed or otherwise reimbursed visits) and referrals substantially declined as a response to the COVID pandemic. Rapidly increasing immunization rates beginning in March 2021 changed this situation. Patients now demonstrate **pent-up demand**, increasing their deferred consumption by requesting clinic appointments in far greater numbers than in 2020. Referring physicians intensify this trend as physicians want patients to be examined face-to-face after months of postponed

appointments. The DNP needs to make sure that HealthFull Clinic can address the rapid increase in utilization.

Staff meetings reveal that a key issue for nurse productivity is capacity, or the clinic's ability to meet patient demand. The current clinical workload is four patient encounters per day for the DNP and each of the two RNs. Administrative tasks are assigned to the nurses, who must manage the purchase of durable medical equipment (DME) for patients, the ordering and management of clinic supplies, and other nonclinical tasks. These tasks are time-consuming, and with the increased importance and complexity of personal protective equipment (PPE), the tasks take up more and more nursing time. A time-study analysis (not reported here) indicates that the nurse workload could be increased to five patient encounters per day if these nonclinical administrative tasks were delegated to a clerical assistant.

There are also problems with **supply chain management** (prudently managing the ordering, purchasing and dispensing of supplies) as ordering supplies is not always consistent or timely. Sometimes nurses overlook the need to replenish supplies, or overorder supplies. There is risk of wasting supplies that are not properly stored, or of delays in obtaining needed DME for patients. Delegating this and other administrative tasks to a single individual would make it more efficient for the DNP to provide oversight and resolve problems more quickly.

In addition, the clinic is losing revenue because the rapidly increasing numbers of patients requesting appointments is more than the nurse practitioners can manage. The clinic cannot schedule all of the patients who request appointments. Nurses busy with administrative tasks might not see patients in a timely manner, leading to wait times in excess of the clinic's 15-minute benchmark (Chu et al., 2019). Some patients choose to leave, and many of these patients do not reschedule their visit, resulting in lost revenue.

Managing patient demand is not just a financial concern. When patients miss their appointments, health outcomes are often compromised, resulting in preventable ED visits and hospitalizations as well as reduced quality of life. HealthFull Clinic was established to provide care for an already underserved and vulnerable population, so improving access is important in fulfilling the clinic's mission.

The DNP makes a business case to the HealthFull ACO administration to hire someone to fill a clerical staff position to manage the ordering of DME, clinic supplies, and other nonclinical administrative tasks as delegated. As a first step in organizing the issues to present in the business case, the DNP prepares a decision matrix (Table 6.1). The most important and urgent issue is the need to allocate as much DNP time as possible to patient encounters, delegating nonclinical administrative tasks, such as ordering supplies, to a clerical staff position. The clerical support will relieve DNPs of these

TABLE 6.1 Decision Matrix for Clerical Staffing, HealthFull Clinic, 2021

	Urgent	Less Urgent
Important	Do: Allocate DNPs to patient encounters to improve access and generate additional revenue.	Decide: Hiring an additional DNP would be more costly than hiring for a clerical position and would improve current DNP productivity.
Less important	Delegate: Hire clerical staff to manage administrative tasks currently assigned to DNPs.	Delete: Relieve DNPs of administrative tasks such as ordering DME and managing the supplies inventory.

Source: Lucidchart Content Team. (2021). How BAs can use a decision matrix to make tough choices. Lucidchart. Retrieved from https://www.lucidchart.com/blog/how-to-make-a-decision-matrix

nonclinical tasks that limit their clinical productivity. An alternative is to hire an additional DNP , but this would be more costly (estimated $44,000 per year for the DNP position compared to $33,000) than adding a clerical position and increasing the productivity of current DNPs.

The DNP uses ambulatory care indicators and information from the monthly operating budget report to prepare a report showing revenue that is lost because of nurse practitioner productivity problems (Table 6.2). Two important ambulatory care indicators are patient referrals and patient encounters, which measure demand and access of services, and are reported in Table 6.2.

The clinic began operations in January 2020, and also experienced the onset of the COVID crisis in 2020, so it is important to review the information in the 2020 (year-to-date) YTD section of Table 6.2. Referrals, appointments requested, scheduled appointments, and actual patient encounters were substantially less than budgeted in 2020 YTD. In January and February 2020, patient volume was low because the clinic had just opened. From March to June 2020 the low patient volume was a response to the risks posed by the COVID pandemic. Lost revenue related to these shortfalls in encounters for 2020 YTD was $77,400, and the net revenue for patients actually seen in encounters was only $62,600, which represents a 56% revenue shortfall. This revenue shortfall threatened the financial sustainability of HealthFull Clinic, particularly as this trend continued throughout the remainder of 2020.

Table 6.2 shows the impact of increased demand for HealthFull Clinic services in the monthly report for June 2021 and the 2021 YTD figures, given the rapidly increasing vaccination rates among vulnerable elderly beginning in March 2021. Physician

TABLE 6.2 Utilization and Revenue Report, HealthFull Clinic, June 2021

	June 2021		2021 YTD		2020 YTD	
Item	Budgeted	Actual	Budgeted	Actual	Budgeted	Actual
Referrals	60	83	360	381	360	165
Appointments requested	240	292	1,440	1,342	1,440	626
Appointments scheduled	240	240	1,440	1,268	1,440	626
Lost appointments	0	52	0	74	0	0
Total Encounters	**240**	**217**	**1,440**	**1,157**	**1,440**	**626**
Lost revenue from capacity limits	$0	$5,200	$0	$7,400	$0	$0
Wait Time (minutes)	**15.0**	**23.4**	**15.0**	**18.7**	**15.0**	**5.2**
Patients leave without rescheduling	0	23	0	111	0	0
Lost revenue from excess wait time	$0	$2,300	$0	$11,100	$0	$0
Total Lost Revenue	**$0**	**$7,500**	**$0**	**$18,500**	**$0**	**$77,400**
Total encounters	240	263	720	1,379	720	626
Estimated Net Revenue	**$24,000**	**$21,700**	**$144,000**	**$115,700**	**$144,000**	**$62,600**
Percent Revenue Shortfall	**0.0%**	**9.6%**	**0.0%**	**19.7%**	**0.0%**	**56.5%**
Average net revenue per encounter	$100	$100	$100	$100	$100	$100

Note: Appointment requests exceeded capacity in April 2021 (257), May 2021 (266), and June 2021 (271).

referrals are overbudget both for June and 2021 YTD, as are requested appointments. In June 2021, scheduled appointments are at capacity. The situation reported for scheduled appointments in 2021 YTD is somewhat more complex. January and February 2021, scheduled appointments were below budget, 124 and 189, respectively (not shown in Table 6.2). In March 2021, patients were beginning to be vaccinated and demand began to increase, with scheduled appointments approaching capacity (235 appointments, not shown in Table 6.2). As reported in the note to Table 6.2, appointment requests in April, May, and June 2021 exceeded capacity, with scheduled appointments limited to the capacity of 240 per month. It is expected that physician referrals and patient demand will continue to be at or over capacity for the remainder of 2021, possibly longer.

Although the revenue losses and shortfalls are not as severe as in 2021, there is ample opportunity for improvement. The appointments that cannot be scheduled because of capacity limits result in lost revenue that could be recovered if nursing productivity increased. In addition, wait time is increasing and exceeding the 15-minute benchmark, with patients leaving without rescheduling, thus resulting in more lost revenue. As mentioned earlier, capacity limits and excessive wait time are not just financial concerns, but also reduce access and impede optimal outcomes for a vulnerable population.

The DNP uses revenue information from Table 6.2 to prepare a **cost-effectiveness analysis (CEA),** reported in Table 6.3. The annual cost of adding 1.0 full-time equivalent (FTE) of RN staffing is estimated at $64,000 in wages and benefits, compared to $33,000 for clerical staffing. The estimated $36,000 in annual benefits reported as revenue from increased capacity is calculated by estimated three additional encounters a day, 20 days a month, 12 months a year, with an estimated $50 net revenue per encounter. The $12,000 in annual benefits reported as revenue from reduced wait time is based on an estimated $2,000 per month loss in revenue from patients who leave without being seen for their appointment and who do not reschedule the missed appointment. Improved RN productivity is estimated to reduce this loss by 50%, thus gaining $12,000 in a year.

Either adding an RN or adding a clerical staff person is estimated to result in the total added revenue of $48,000 a year. If the manager does nothing, there is no cost or change in revenue, and the estimated preventable annual loss due to wait time continues at $12,000 a year. Table 6.3 reinforces that adding a clerical staff person is the most cost-effective approach to improving clinic capacity and RN productivity. Patient care and patient access are improved, thus leading to financial savings from preventable hospitalizations and ED visits. Improving patient care and patient access result in improved clinical outcomes and quality of life. Patient satisfaction with HealthFull ACO is enhanced, as is physician and nurse satisfaction. Clerical staff would also be expected to more consistently oversee supply chain management for clinic supplies, thus likely resulting in added savings that would benefit the clinic operations.

TABLE 6.3 Cost-Effectiveness Analysis for Clerical Support and Increased Nurse Productivity, HealthFull Clinic, FY 2021–2022

Values	Alternatives		
	Add 1.0 RN FTE	Add 1.0 Clerical FTE	Do Nothing
Cost	$64,000	$33,000	$0
Revenue from increased capacity	$36,000	$36,000	$0
Revenue from reduced wait times	$12,000	$12,000	($12,000)
Total Added Revenue	**$48,000**	**$48,000**	**($12,000)**
EC ratio (revenue/cost)	0.75	1.09	n/a

EC, effectiveness-to-cost ratio; FTE, full-time equivalent.

The DNP uses this information to prepare a business case for requesting the clerical position for HealthFull Clinic. In these times of revenue shortfalls and resource shortages, it may be difficult to convince HealthFull ACO administrators to approve this request. However, the DNP will make the best effort possible using the information provided by ambulatory care indicators and budget reports.

POSTACUTE SETTING: REHABCENTER SNF AT HOME

A DNP is vice president in the corporate office of RehabCenter (fictitious name), which operates a small but growing number of skilled nursing facilities (SNFs). Following a similar trend seen in nursing homes and other long-term care (LTC) facilities, SNFs face serious financial losses related to the COVID pandemic. The health threats posed by COVID substantially increased the costs of supplies and labor, while patient occupancy (and revenues) dropped (American Health Care Association/National Center for Assisted Living [AHCA/NCAL], 2021). The risk of liability also increased in postacute settings such as SNFs (AHC Media, 2020).

The DNP prepares a business plan (Fischer & Duncan, 2020; Penner, 2017) proposing an **SNF at Home** (also referred to as *rehabilitation at home*) **model** that shifts postacute rehabilitation from the SNF to the patient's home. Advantages of SNF at Home compared to the traditional SNF model include reduced costs, fewer potential complications such as infection and delirium, and better accommodation of patient preferences. However, SNF at Home requires a greater intensity of services than a home health referral (Augustine et al., 2020), so a business case must be developed to support the request for start-up resources from RehabCenter. The DNP's business plan proposes piloting the SNF at Home project by focusing on patients recovering from uncomplicated hip replacement. If this initiative demonstrates satisfactory outcomes and profitability, the project will be expanded to include other service lines such as cardiac rehabilitation.

Table 6.4 presents a SWOT analysis prepared by the DNP that summarizes the key strengths, weaknesses, opportunities, and threats posed by the proposed SNF at Home project. Strengths include RehabCenter's experience providing rehabilitation services and its ties from working with Happy Home Health in the past. As already mentioned, providing care at home reduces the risks of delirium, infection, and other

TABLE 6.4 RehabCenter SNF at Home SWOT Analysis

Internal	
Strengths ● Experience providing rehabilitation services ● Strong ties with Happy Home Health Care ● Reduces risks of COVID, delirium, and other inpatient complications ● Less costly than traditional SNF	Weaknesses ● New model requiries changes in traditional approach ● Need to coordinate home health care, MD, and other staff
Opportunities ● New and potentially profitable revenue stream ● Will increase coordination with HealthFull ACO, RehabCenter and Happy Home Health Care for future ventures	Threats ● Potential competition from home health providers and competing healthcare systems ● Lack of sufficient service coordination will be costly and lead to poor outcomes
External	
SNF, skilled nursing facility; SWOT, strengths, weaknesses, opportunities, and threats.	

Source: Adapted from: http://rapidbi.com/swotanalysis

complications, thus improving patient outcomes and reducing potential liability. The SNF at Home model is also substantially less costly than traditional SNF services (Home Care 100 Intelligence Group, 2020).

The major weakness is that SNF at Home is a new approach to rehabilitation care for RehabCenter, and will require adopting change and staff coordination. It is important to orient the physicians to manage home visits either in person or via telehealth technologies. It is also important to orient Happy Home Health RNs, physical therapists and occupational therapists to this model that is more intensive than a traditional home health model. The DNP explains in the business plan that these weaknesses will be addressed, and includes a detailed plan for staff training and coordination.

An important opportunity posed by the SNF at Home project is that this is likely to be a profitable venture, as it is less costly than traditional SNF care and is likely to be popular with eligible patients and families (Home Care 100 Intelligence Group, 2020). This project also increases the likelihood of further business ventures among RehabCenter, Happy Home Health, and HealthFull ACO, which refers many of the patients needing rehabilitation to RehabCenter.

An important threat to the RehabCenter SNF at Home proposal is the possibility that competitors, including other local home health agencies and health systems, will adopt this model and gain control of this market before RehabCenter acts. Another serious threat is that if staff training and coordination is not effective, the project may demonstrate poor patient outcomes and/or higher costs of care than anticipated. The DNP will submit the business plan in a few days, so if approved it is likely that RehabCenter will successfully manage threats from competitors. The DNP's detailed plan for training and coordinating staff is an important element in the business plan. The SNF at Home will adhere to best practices and quality initiatives.

In reviewing the SWOT analysis, the DNP concludes that the strengths and opportunities support a business case for creating a SNF at Home program. The weaknesses and threats are issues that can realistically be addressed.

For simplicity, this example focuses solely on Medicare reimbursement as the revenue source. Currently Medicare reimbursement for a 20-day stay for rehabilitation for uncomplicated hip replacement averages $750 per day at RehabCenter SNFs, or $15,000 total reimbursement per case. Low patient volume, increased operational expenses, and a higher risk of liability from the COVID pandemic have resulted in an average cost per day of just over $740. The estimated **profit margin** (profit divided by total revenue) is 1.3%.

The DNP prepares a **service line budget** (also known as a *product line budget*) that reports estimated costs and profitability of the service line of uncomplicated hip replacement rehabilitation for the proposed SNF at Home project. Table 6.5 lists the staffing and nonpersonnel costs per case and for an estimated patient volume of 200 patients for the start-up of the project in 2022. Note that the estimated length of stay (LOS) for the SNF at Home cases is only 14 days compared to the 20-day LOS for traditional SNF cases. This estimate is based on findings from research on the Hospital at Home model, which demonstrates that patients typically have a shorter LOS when care is given at home (Federman et al., 2018).

The SNF at Home cost per day is only $475 per day ($6,650 ÷ 14 days) compared to $740 estimated cost per day for the traditional SNF stay, a cost reduction of nearly 36%. Although anticipated reimbursement is much less for SNF at Home, the profit per case is estimated at $350, a 5% profit margin compared to the 1.3% profit margin for traditional SNF cases. The estimated service line budget supports this project's profitability and helps the DNP make a successful business case.

TABLE 6.5 RehabCenter Estimated SNF at Home Service Line Budget, Total Hip Replacement Without Complications, 2022

Item	Visits per Week	Cost per Case ($)	Annual Cost 200 Cases ($)
Personnel Expenses			
Home health RN	1.0	1,000	200,000
Personal care	2.0	600	120,000
Physician visits	1.0	1,500	300,000
Physical therapy	5.0	1,800	360,000
Occupational therapy	0.5	500	100,000
Nonpersonnel expenses			
Medical supplies	n/a	250	
DME	n/a	1,000	200,000
Total expenses	n/a	**6,650**	**1,330,000**
Medicare reimbursement	n/a	**7,000**	**1,400,000**
P&L	n/a	**350**	**70,000**

DNE, durable medical equipment; P&L, profit and loss.

Note: Assumes 14 days of services, no complications.

COMMUNITY-BASED SETTING: GRANT COUNTY SENIOR CENTER COVID VACCINATION PROGRAM

Although a massive effort succeeded in vaccinating many Americans in 2021, health disparities and other factors continue to leave many persons unvaccinated and at risk for COVID-19. In addition, those persons who are fully vaccinated may need an additional "booster" vaccine in 2022 through 2023. A DNP supervising public health nurses in Grant County (fictitious name) writes a grant proposal to seek funding for a nurse-run vaccination program based in the county's senior centers. Resources for grant writing are available at Candid (2021). A manual to guide health organizations implementing vaccine clinics is a resource for planning and operations, as well as for writing the grant proposal (Garvey et al., 2021).

Table 6.6 presents a **special purpose budget** (Penner, 2017) prepared by the DNP for the grant proposal. The DNP uses financial indicators taken from the Grant County Public Health Department's **operating budget** to prepare this budget for the special purpose of seeking grant funding. The mobile vaccine clinic will operate 1 day a month in each of the three senior centers in Grant County, staffed by three public health nurses (RNs) and one staff person who provides clerical support and supervision of volunteers.

The clinics will operate 6 hours a day (Garvey et al., 2021), but staff are budgeted at 8 hours a day to allow time for travel, set-up and clearing the setting after use. Personnel costs are calculated in Table 6.6 by multiplying the hourly wage ($30 for the RNs, $18 for the clerical staff) by 8 hours worked in a day by the number of staff, 3 days per month and 12 months per year. The 2023 staff costs include an anticipated 3.2% pay raise.

The nonpersonnel items are listed with estimated annual costs. The amount requested in the grant proposal is approximately $100,000 per year for 2022 and for 2023. Note that these amounts are estimates and might differ from estimates made in other health settings for a grant proposal for a vaccination clinic. Table 6.6 provides an example of how personnel and nonpersonnel costs might appear in a budget prepared for community-based healthcare settings such as a public health department program.

TABLE 6.6 Budget for Grant County Senior Center COVID Vaccination Project, 2022–2023

Item	2022 ($)	2023 ($)
Personnel		
RN (3)	25,920	26,749
Clerical/volunteer supervisor	5,184	5,350
Nonpersonnel		
Injection supplies	65,000	65,000
Dry ice	360	360
EpiPens	500	500
Other medical supplies	500	500
Other nonmedical supplies	200	200
Travel/mileage	806	806
Mobile vaccine storage unit	1,500	n/a
Total	**99,970**	**99,466**

Table 6.7 reports capacity, utilization, performance, and financial indicators for the Grant County Senior Center COVID vaccination project, estimated over a year. Capacity is estimated by assuming that each RN can administer, at minimum, 10 vaccinations per hour during the 6-hour shift in the senior center clinic (Garvey et al., 2021).

The program is delivered (provided) 7,000 doses a year. An estimated 6,480 doses are reported as administered to patients, assuming the three RN staff administer 10 vaccines per hour for 6 hours, 3 days a month for 12 months (Centers for Disease Control and Prevention [CDC], 2021). The percentage of doses administered is calculated by dividing the 6,480 administered doses by the 7,000 doses delivered, reported as 93% in Table 6.7. However, it is a key objective to allow as few wasted doses as possible, so there is a plan for staff to make every effort to exceed 10 vaccines per hour in each shift so that actual wasted vaccine doses meet the program benchmark of less than 1%, much lower than the estimated waste of 7% reported in Table 6.7.

In addition to reporting vaccine administration by age group, the program indicators also report by gender, race/ethnicity, comorbidity, and risk group, as required for public health jurisdictions (Vaccine Administration Management System [VAMS],

TABLE 6.7 Indicators for Grant County Senior Center COVID Vaccination Project

Indicator	Annual Estimate or Benchmark
Vaccinations administered/hour	10
Total doses delivered	7,000
Total doses administered	6,480
Percentage of doses administered	93%
Percentage of wasted doses	7%
Administered to ≥18 years	4,536
Administered to ≥65 years	1,939
Unsuccessful vaccinations	5
Cost per dose administered	$15.43

2021b). For simplicity, Table 6.7 only includes age groups as an example of how these indicators are reported. These indicators help identify, measure, and track health disparities (access and utilization) and whether these disparities are satisfactorily addressed.

It is assumed that a few vaccinations will be unsuccessful, estimated in this example as five unsuccessful vaccinations among the 65-and-over age group over a year. This indicator must be reported, with details regarding the unsuccessful administration, by public health jurisdictions (VAMS, 2021a).

The cost per vaccine dose administered is calculated in Table 6.7 by dividing the total annual cost of the program (estimated at $100,000 per year grant request) by the 6,480 doses estimated to be administered per year. This financial indicator does not include an estimated $25 cost per vaccine dose that is funded by the federal government (Ries, 2020). This cost per administered dose is a conservatively high estimate, given the benchmark to make every effort to administer all 7,000 vaccine doses that are delivered each year.

Public health systems are key in coordinating services that improve population health, such as mobile vaccination programs (DeSalvo et al., 2021). The grant proposal prepared and submitted by the Grant County Health Department DNP increases the likelihood of funding that will support vaccination availability at local senior centers.

CONCLUSIONS

The U.S. healthcare system continues to shift from acute inpatient to ambulatory and home-based outpatient services. DNPs need to be prepared for this shift so they can lead and manage scarce resources in outpatient nursing microsystems. Here are some tips for DNPs to review and use as outpatient services indicators:

Learn and understand the indicators and measures used in the clinical setting. DNPs should regularly review budget, performance, and other management reports and become familiar with the capacity, utilization, performance, and financial indicators reported in the nursing microsystem. Remember that an understanding of what the indicator means is not sufficient. It is important to interpret management reports in a meaningful way, so the appropriate management response is planned and implemented.

For example, the Grant County Senior Center COVID Vaccination Project has a monthly benchmark of 585 injections. The DNP reviews the monthly performance report and notices that injections have fallen to only 327 injections. The next step is to investigate the cause for this drop in injections, and to then apply management controls to address the concern (Penner, 2017).

Use appropriate indicators as nurse leaders. DNPs must take a proactive stance in their macrosystems and microsystems, particularly in this challenging time of resource constraints. One important responsibility for DNPs is making a business case whenever possible to improve access and quality care. The DNP at the HealthFull Primary Care Clinic uses budget data to support the financial feasibility of hiring a clerical staff position, thus increasing staff productivity and patient access. The DNP at RehabCenter writes a business plan proposing a new service and revenue stream by implementing a SNF at Home model. The DNP at Grant County Public Health Department submits a grant proposal that funds the Senior Center COVID Vaccination Project, improving population health.

DNPs have tremendous opportunities as **change agents** in this challenging time. An understanding of the purpose, meaning, and application of management indicators in outpatient settings helps provide DNPs with tools and skills to move healthcare forward while enhancing their leadership role.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. HealthFull Nurse-Run Clinic: Table 6.2 analyzes appointments that are lost (cannot be scheduled) because of limits to capacity. However, another problem at HealthFull Clinic is cancelled appointments, often because patients forget or cannot arrange transportation. Currently, the cancellation rate, calculate as the number of cancellations/number of scheduled appointments over the same time period (Ehrenfeld, et al., 2013) is 30 percent. The telephone "check-in" would include appointment reminders and offers to arrange transportation, thus reducing cancellations.
   a. HealthFull Clinic currently serves an estimated 400 clients. The DNP estimates 20 minutes per phone call. How much staff time would the DNP budget for this program per month? Would the DNP consider hiring staff to support this program?
   b. The DNP prepares a SWOT analysis as a step in making the business case for the telephone "check-in" program. Brainstorm at least one strength, weakness, opportunity or threat that might be included in the SWOT analysis.
   c. What data would the DNP use to analyze the financial impact of cancellations?
   d. In 2021, 2,880 clinic visits were scheduled, and this is expected to remain the same for 2022. What calculations would the DNP make to analyze the financial impact of reducing the 2021 30% cancellation rate to 20% in 2022?
2. Rehab Center SNF at Home Cardiac Rehabilitation Project: The proposed 2023 budget for this project is shown in Table 6.5.
   a. Referring to Table 6.5, what are the estimated personnel costs for this business plan? What are the estimated non-personnel and total costs? How do these costs compare to the expenses estimated in Table 6.5 for uncomplicated hip replacement SNF at Home services?
   b. Medicare reimbursement for SNF at Home cardiac rehabilitation services is estimated at $7,600 for 2023. What is the estimated profit (or loss) if this business plan is implemented?
   c. The DNP estimates 85 cases will be served over 2023. What are the annual total costs, Medicare reimbursement and profit (or loss) for 2023? Is this business plan feasible?
3. Grant County Senior Center COVID Vaccination Project
   a. In 2022, it became clear that the demand for vaccinations exceeded the 3 days per week that the program was scheduled. Would extending the schedule from 3 to 5 days per week in 2023 affect program capacity or utilization?
   b. The DNP uses a decision matrix to assist in making the decision to extend the vaccination program schedule. Table 6.1 is the blank decision matrix. Place each of the following items in the appropriate sections of the matrix to support the DNP's best decision.

      i. Increase service availability to 5 days per week in 2023; ii. Consider requesting more funding to add more RNs to the project in 2024; iii. Ask senior center staff to remind people of the days that the vaccination clinic is open; iv. Do nothing until grant reapplication for 2024.
   c. Fill in the blank: The number of vaccinations provided per day per RN is an example of a _____ indicator. The dollar cost per vaccination provided in the project is an example of a _____ indicator.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 7

Strategic Planning and Capital Budgeting

Mikhail Shneyder

As DNP graduates are prepared to practice in a variety of roles, *The Essentials: Core Competencies for Professional Nursing Education* calls for the development of nurses' understanding of "systems-based practice," incorporating expertise in "organizational structure, including relationships among macro-, meso-, and microsystems across healthcare settings" (American Association of Colleges of Nursing [AACN], 2021, p. 49). Nurse leaders educated at advanced levels must "participate in organizational strategic planning" (p. 49), "analyze system-wide processes to optimize outcomes" (p. 49), and "apply innovative and evidence-based strategies focusing on system preparedness and capabilities" (p. 50), among integrating numerous other competencies into their professional practice. While preparing a DNP graduate to design, evaluate, and navigate complex organizational structures and develop systems thinking and the business and financial acumen, this chapter addresses many requisite elements of *The Essentials* and answers a variety of practice questions.

In a world of always-competing priorities, ever-increasing complexity, and persistent uncertainty, how do organizations manage to stay on track, move forward, evolve, and even succeed? What drives nurse executives and managers to make certain decisions, select one project over another, or lead their respective institutions and units? With thousands of employees, seemingly disconnected from each other, why do some large companies manage to function as single cohesive organisms? Who provides the proverbial glue to hold it all together at the core?

In this chapter, we explore the answers to these and other questions that arise when observing organizations, both large and small. The first part of the chapter is dedicated to discussing a sample organizational framework that allows nurse executives and managers to lead and stay on course. Here, we introduce the concepts of strategy, alignment, organizational planning, executing, and monitoring as well as provide sample tools for accomplishing these important leadership functions. The second part looks at capital budgeting, project feasibility, evaluation, and selection and provides a sample model for financial decision-making. Although the concepts and tools contained herein are widely applicable to many industries, we concentrate on nursing services and nursing education.

MISSION FULFILLMENT FRAMEWORK

Mission fulfillment is the extent to which an organization realizes its mission and moves closer to its vision. To be effective, it requires a disciplined, strategic approach. Having its roots in the military, the term *strategy* is generally defined as the process of carefully devising and executing plans to achieve particular goals ("Strategy," n.d., para 2b). Many business schools dedicate entire academic courses to exploring the concept of strategy, and numerous in-depth texts have been devoted to this topic. Here we offer a sample strategic framework for mission fulfilment in organizations. It is meant as a practical and somewhat simplified overview and not as an exhaustive exploration of organizational strategy.

Not unlike a nurse using the nursing process to care for patients, leaders rely on systematic, cyclical, dynamic, broad-based approaches to ensure the continual health and success of their organizations. Although there are numerous variations of approaches and frameworks for strategic mission fulfillment, the principal elements of the cycle remain fairly constant: assessment, planning, implementation, and evaluation. To differentiate our sample framework from the nursing process, we define the four stages in the strategic mission fulfillment as *formulation, operationalizing, execution*, and *monitoring*. All elements of this framework are interconnected. The relationship among them is illustrated in Figure 7.1.

It is important to note that no matter how brilliantly designed the mission fulfillment framework and all of its elements may be, they will not be effective unless every individual within the company understands and engages with the organizational why, what, and how. In the text that follows we describe each of the stages of the mission fulfillment framework, break them down into elements, and provide tools a nurse executive or manager could use in establishing, implementing, and monitoring the organization's strategy, while emphasizing the connection to the why, the what, and the how.

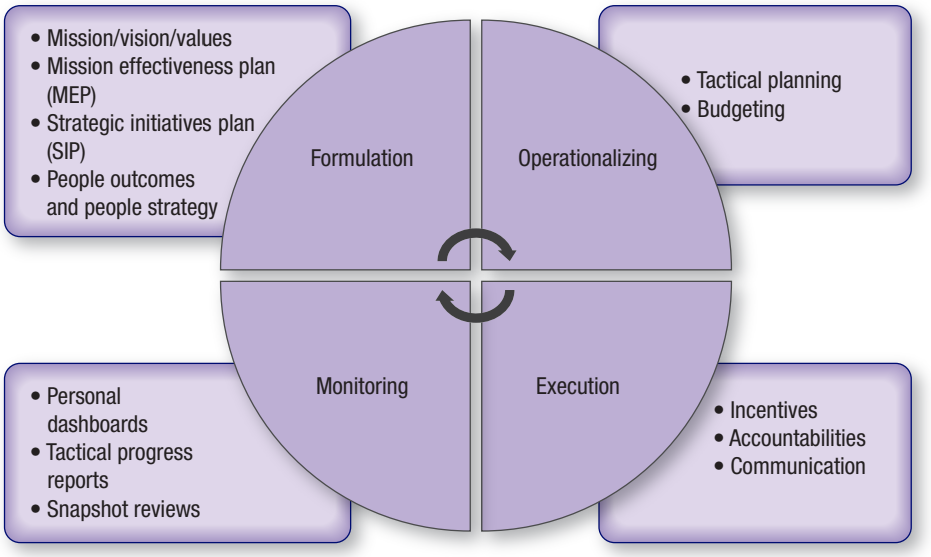

FIGURE 7.1 Mission fulfillment framework.

STRATEGY FORMULATION

The mission fulfillment process in an organization commences and culminates with its **governing board**, frequently referred to as *board of directors, board of managers,* or *board of trustees*, which delegates strategy responsibilities to the executive leadership. The board is then engaged mainly as the final approver, ultimately sanctioning *strategic initiatives, mission effectiveness outcomes*, *tactical plans,* and budgets every year. This approach ensures suitable involvement by the board while permitting for broad engagement across the entire organization. To focus the mission fulfillment process, an organization's leadership often establishes a *strategy committee*, mainly consisting of members of executive management and department heads. Moreover, a **director of strategy** is usually named. In large organizations, this frequently is a full-time position reporting directly to the president or chief executive officer (CEO), whereas smaller firms assign the task to a member of the management team. The director of strategy and the strategy committee lead the mission fulfillment process and determine the timing of each of its components.

The strategy formulation begins annually with executives, managers, staff, and the strategy committee reviewing, engaging in widespread dialogue about, and, if needed, recommending revisions to the organization's *vision, mission,* **values**, *mission effectiveness outcomes, and strategic initiatives*.

Vision

John Naisbitt, a world-renowned business author and speaker, asserted "strategic planning is worthless—unless there is first a strategic vision" (Naisbitt, 1982, p. 94). Strategy is what takes an organization from where it is today, living its mission, to where it wants to be, realizing its *vision*. Therefore, a **vision statement** is a forward-looking pronouncement that describes what a firm aspires to be and achieve. It is its ultimate purpose, its "why." In some organizations, a charismatic leader at the helm specifies the vision statement, whereas others develop organically within the firm and then surface at the top. In either case, executive leadership and governing boards have the responsibility of clearly stating the organization's vision. Motivational in nature, vision statements must inspire all in the organization to engage and accomplish. Here are a few examples:

Cleveland Clinic: "Our vision for Cleveland Clinic is to be the best place for care anywhere and the best place to work in healthcare" (Cleveland Clinic, 2021).

Johns Hopkins Medicine: "Johns Hopkins Medicine pushes the boundaries of discovery, transforms health care, advances medical education and creates hope for humanity. Together, we will deliver the promise of medicine" (The Johns Hopkins University, The Johns Hopkins Hospital, and The Johns Hopkins Health System Corporation, 2021).

Mayo Clinic: "Transforming medicine to connect and cure as the global authority in the care of serious or complex disease" (Mayo Foundation for Medical Education and Research, 1998–2021).

Vanderbilt University School of Nursing: "The Vanderbilt University School of Nursing will continuously reinvent itself in ways that distinguishes the School among its peers, with innovations in academics, faculty practice, research, and informatics and an unparalleled focus on activities that benefit the community and society at large" (Vanderbilt University School of Nursing, 2021).

Nightingale College: "Better health & better humanity for a better world" (Nightingale College, 2021).

Mission

At large, an organization's *mission* encompasses the company's "what," its broad purpose. A firm expresses its mission in a succinct, precise declaration that is known as the *mission statement*, or a present-oriented passage that describes what the organization is focused on and accomplishes day to day. Mission statements should be stable and long-lasting. However, as an organization evolves, so could its mission. Hence, mission statements should be periodically evaluated for their fit with the overall organizational trajectory and adjusted as needed. Furthermore, to guide the daily execution across an organization, mission statements must be actionable and measurable while informing organizational effectiveness and design. Following are a few examples of actual mission statements from healthcare and higher education organizations, with several recently updated to remain relevant and timely.

Cleveland Clinic: "Caring for life, researching for health, educating those who serve" (Cleveland Clinic, 2021).

Mayo Clinic: "Inspiring hope and promoting health through integrated clinical practice, education and research" (Mayo Foundation for Medical Education and Research, 1998–2021).

Johns Hopkins Medicine: "The mission of Johns Hopkins Medicine is to improve the health of the community and the world by setting the standard of excellence in medical education, research and clinical care. Diverse and inclusive, Johns Hopkins Medicine educates medical students, scientists, health care professionals and the public; conducts biomedical research; and provides patient-centered medicine to prevent, diagnose and treat human illness" (The Johns Hopkins University, The Johns Hopkins Hospital, and The Johns Hopkins Health System Corporation, 2021).

Vanderbilt University School of Nursing: "The mission of Vanderbilt University School of Nursing is to lead in education, evidence-based practice, scholarship, and research in order to provide optimal health care to diverse communities through innovation, inclusion, and compassion" (Vanderbilt University School of Nursing, 2021).

Nightingale College: "With the primary focus on higher learning in health care professions, Nightingale College contributes to elevating education, health, and employment systems through facilitation of academic achievement, personal growth, and professional development of its learners, alumni, and collaborators, while serving diverse communities" (Nightingale College, 2021).

Values

Organizational *values* provide a facet within the "how" frameworks that allows all within a firm to evaluate their decisions and actions, take pride in their institution's work, and make commitments. Values serve as criteria for prioritization, problem-solving, conflict resolution, and strategy development. Much like mission and vision statements, values must be supported by the firm's leadership, openly stated, modeled, and followed. In the absence of clearly articulated organizational values, every employee's bias would serve as a compass for decision-making, thus rendering cohesive functioning of the institution impossible. Often, *values statements* include explanations of the individual value components, which can be used as personal forethought and retrospection tools as well as permission-to-play evaluations. Following are examples of values statements.

Cleveland Clinic

"**Quality & Safety:** We ensure the highest standards and excellent outcomes through effective interactions, decision-making, and actions.
Empathy: We imagine what another person is going through, work to alleviate suffering, and create joy whenever possible.
Inclusion: We intentionally create an environment of compassionate belonging where all are valued and respected.
Integrity: We adhere to high moral principles and professional standards by a commitment to honesty, confidentiality, trust, respect, and transparency.
Teamwork: We work together to ensure the best possible care, safety, and well-being of our patients and fellow caregivers.
Innovation: We drive small and large changes to transform healthcare everywhere" (Cleveland Clinic, 2021).

Mayo Clinic

"**Primary Value**: The needs of the patient come first.
Respect: Treat everyone in our diverse community, including patients, their families and colleagues, with dignity.
Integrity: Adhere to the highest standards of professionalism, ethics and personal responsibility, worthy of the trust our patients place in us.
Compassion: Provide the best care, treating patients and family members with sensitivity and empathy.
Healing: Inspire hope and nurture the well-being of the whole person, respecting physical, emotional, and spiritual needs.
Teamwork: Value the contributions of all, blending the skills of individual staff members in unsurpassed collaboration.
Innovation: Infuse and energize the organization, enhancing the lives of those we serve, through the creative ideas and unique talents of each employee.
Excellence: Deliver the best outcomes and highest quality service through the dedicated effort of every team member.
Stewardship: Sustain and reinvest in our mission and extended communities by wisely managing our human, natural and material resources" (Mayo Foundation for Medical Education and Research, 1998–2021).

Johns Hopkins Medicine

"**Excellence and Discovery**: Be the best. Commit to exceptional quality and service by encouraging curiosity, seeking information, and creating innovative solutions.
Leadership and Integrity: Be a role model. Inspire others to achieve their best and have the courage to do the right thing.
Diversity and Inclusion: Be open. Embrace and value different backgrounds, opinions and experiences.
Respect and Collegiality: Be kind. Listen to understand and embrace others' unique skills and knowledge" (The Johns Hopkins University, The Johns Hopkins Hospital, and The Johns Hopkins Health System Corporation, 2021).

Vanderbilt University School of Nursing

"The Vanderbilt University School of Nursing values innovation in preserving and advancing the art and science of nursing in academics, faculty practice, research and informatics. These values are demonstrated through transactions that integrate

technology and embrace cultural and academic diversity" (Vanderbilt University School of Nursing, 2021).

Nightingale College

"All learners, faculty and staff are expected to align with the College's EVOLVITUDE® statement:

- I embody deliberate evolvement, grounded in love, trust, forgiveness, courage, kindness, humility, gratitude, and lightheartedness.
- I strive for self-governing, self-actualizing, and self-transcending.
- I act with integrity, transparency, responsibility, and inclusivity" (Nightingale College, 2021).

Mission, vision, and values are at the core of institutions' cultures, day-to-day lives, planning and execution, decision -making, dialogue, and public persona. However, in order to be impactful, these principles must be relentlessly communicated throughout the organization. This responsibility falls on executives and managers. Through personal modeling, posters, banners, wallet cards, computer screen savers, and numerous other means, these important core components of the organization must be made visible and accessible to all. New employees' assimilation into an institution must commence with an in-depth discussion of the organizational history, mission, vision, and values. Ongoing, company-wide application and evaluation of these pillars must permeate the day-to-day work lives and provide a compelling basis for employees' *alignment,* a concept we discuss later in this chapter. Only then will there be a solid foundation for strategy and organizational success. The director of strategy facilitates the annual company-wide dialogue about the mission, vision, and values and then consolidates the feedback from constituents, whose participation is critical, and presents it to the strategy committee. Soliciting input from throughout the organization can be done in various formats: individual interviews, team meetings, and internal and external advisory committees. Thorough documentation is an essential part of this process. In turn, the strategy committee meets and reviews the input, ultimately deciding whether to recommend any alterations to the governing board. Organizational mission, vision, and values tend to be stable over time; however, significant changes in either the internal or external environment may prompt revisions to the established statements. The final recommendations of the strategy committee, if any, with regard to the mission, vision, and values are presented to the board for review and approval.

Alignment

According to Abraham Maslow's widely accepted theory of human needs, human drive to self-actualize, or "the tendency to become actually in what he is potentially: to become everything that one is capable of becoming," is universal (Maslow, 1943, pp. 382–383). Per Maslow, self-actualizing individuals display several common characteristics, such as perceiving reality efficiently, tolerating uncertainty, accepting themselves and others for what they are, being problem-centered rather than self-centered, and concerned for the welfare of humanity, among others (Maslow, 1970). Considering these attributes, it is not difficult to imagine the positive impacts that employing self-actualizing individuals would have on organizations. Because the clear majority of individuals devote a significant portion of their lives to work in order to support themselves and their families, organizations must ensure that employees have ample opportunities to elevate toward self-actualization while meeting all lower level needs along the way.

"[P]roper management of the work lives of human beings, of the way in which they earn their living, can improve them and improve the world" (Maslow, 1998, p. 1). Therefore, an organization's mission, vision, and values must inform the company's culture and speak to employees' deeply held beliefs about the world while continually satisfying the desire for meaningful contributions and growth. In the absence of such meaning, institutions find it more difficult to attract and retain employees and, therefore, to succeed strategically and financially. Fortunately, nursing services and education are largely perceived as generating public good rather than harm and, hence, their employees find it easier to align themselves with the stated missions, visions, and values than those who work, for example, in the tobacco industry. This, however, does not happen by accident: Systems and processes leading to alignment must be carefully designed, and all employees should understand and be able to verbalize the connection between who they are and what they do on a daily basis and their institution should continually live its mission and move closer to realizing its vision.

An employee's alignment matures along three distinct dimensions: organizational, role, and developmental. **Organizational alignment** refers to the degree employees subscribe to, accept, and model their employer's mission, vision, and values **Role alignment** encompasses the extent to which an employee's job matches their passions, behavioral profile, and the level of expertise they possess to be successful in the job. Finally, *developmental alignment* speaks to an employee's level of satisfying their needs along Maslow's hierarchy. We discuss these concepts more in depth later in this chapter.

Mission Effectiveness and Strategic Initiatives

Having its roots in the popular framework developed in the early 1990s and first published in *The Balanced Scorecard: Translating Strategy into Action* (Kaplan & Norton, 1996), the following approach to the mission fulfillment process provides a sample method for linking the organization's mission and vision to day-to-day operations. As mentioned earlier in this chapter, to serve as a company's guiding force rather than be an ostentatious parade of words, its mission must be actionable and measurable while fully informing organizational design and operations.

Mission Effectiveness Plan

Translating a mission statement into executable tactics begins with identifying strategic mission effectiveness outcomes measures, also known as *key performance indicators (KPI),* together with corresponding desired performance benchmarks, and combining them into an overarching, cohesive *mission effectiveness plan (MEP)* that serves as the mechanism for tracking historical mission fulfillment trends and ongoing KPI monitoring while also informing the annual **tactical planning** described later in this chapter.

Each KPI is derived from and supports a specific portion of the firm's mission and its core business outcomes. For example, Mayo Clinic could extract an index from its client and community surveys to evaluate the organization's effectiveness in "inspiring hope," whereas Nightingale College could assess for presence of multifaceted student demographics within its enrollment to determine the level of success in "serving diverse communities." Generally, in a clinical setting, patient-centered KPIs aimed at quality and cost of care would be at the core of the MEP, whereas a nursing school would concentrate on several student achievement measures, such as learning outcomes, graduation rates, and licensure examination results.

To ensure that actions are taken day to day across an institution toward effective execution of all MEP measures, each KPI must be mapped out by cascading through the appropriate functional departments and operating units, down to individual

contributor roles. Finally, similar to an institution's mission, KPIs can evolve overtime, with new measures being identified and no longer relevant ones retired, while performance benchmarks and roles cascading for the rest are periodically adjusted as higher outcome levels are achieved and/or organizational changes introduced.

Strategic Initiatives Plan

In addition to developing and maintaining its MEP, an institution identifies a set of *strategic initiatives* and encapsulates them in the company's *strategic initiatives plan (SIP)*, the other contributor to the annual tactical planning. Strategic initiatives are broad, high-level statements that set multiyear targets for and describe how a firm progresses from the state of its present mission fulfillment to the state of its desired vision and/or addresses long-term security, viability, scale, and sustainability issues. Normally, an organization elects to pursue a handful of high-level strategic initiatives at any one time. In choosing and prioritizing the items to include in the SIP, leadership considers the potential operational and financial impacts of each; evaluates their alignment with the mission, vision, and values; and sets measurable, well-defined targets for tactical planning and execution. The road to identifying strategic initiatives begins with a comprehensive *environmental evaluation* both within and outside the organization.

Environmental Evaluation

An environmental evaluation is performed annually, at a minimum, at each of the institution's functional departments and operating units by *evaluation teams* composed of managers and staff. The goal of these exercises is to pinpoint where each department, unit, and, cumulatively, the entire firm stand in regard to the stated mission, vision, and existing KPIs and strategic initiatives outcomes and how they should proceed forward. Of course, an even more effective approach to the environmental evaluation processes would be continual institutional assessment.

To inform their research and determinations, evaluation teams mine data from various sources of operational, financial, and market information such as client and employee surveys, company and regulatory agency reports, internal and third-party financial and compliance audits, financial statements and projections, institutional performance measures, research conducted and published by universities and governmental agencies, program review results (in academic establishments), and community surveys and interviews. In many organizations, the distinct functional department of **institutional research** plays a significant role in providing data for the environmental evaluation.

Staff and client feedback may be collected in a variety of ways. Numerous reliable survey tools and companies exist to assist organizations with these tasks. In addition, internal listening sessions may be conducted, in which clients and employees are afforded the opportunity to comment on the strategic direction of the organization. Limited in the number of participants (normally 10 to 20), these invitation-only sessions seek input concerning individuals' vision for the organization, their take on the mission fulfillment, KPIs, and strategic initiatives, and suggestions for the future. In similar fashion, advisory committee meetings are conducted with representatives of local communities and other stakeholders. Also, in organizations with strong communication cultures, top executives lead periodic "town hall" meetings. These gatherings are open to all employees, allowing the leaders to solicit direct input from the internal constituents. Documentation from all forms of listening sessions serves as a basis for the work of evaluation teams.

Evaluation teams examine and synthesize the various data and uncover trends; then, based on the findings, create comprehensive *SWOT analyses*, and make recommendations concerning unit- and organization-level strategic initiatives to the strategy committee.

SWOT Analysis

Referring to an organization's strengths, weaknesses, opportunities, and threats, the acronym *SWOT* was coined in the 1960s (Learned et al., 1965) and is a commonly used tool for analyzing a firm's strategic capabilities and positioning. To minimize bias, SWOTs should be derived not based on individual opinions, but rather on comprehensive data sets from broad-based environmental evaluations. In SWOT, the strengths and weaknesses refer to the trends in the company's internal environment, whereas external forces drive the opportunities and threats. Many free SWOT resources and templates are available to executives and managers. Table 7.1 illustrates a generic SWOT template and sample probing questions.

On completion of SWOT analyses, evaluation teams meet, discuss findings, and formulate recommendations for strategic initiatives, which, ultimately, must align with the current mission, move the institution closer to achieving its stated vision, and be consistent with the organizational values. Subsequently, functional departments and operating units' leaders present the SWOT analyses along with recommendations to the strategy committee, which, in turn, may request that units and departments act on specific conclusions and/or report back with additional information. At the conclusion of this process, the strategy committee makes its final decision to include findings and recommendations in the SIP, which is presented to the board thereafter.

In the strategy formulation stage of the mission fulfilment process, as part of the SIP, it is also necessary to develop *substrategies*, or methods, for achieving the broad strategic initiatives. Each substrategy must retain the measurability and explicit target aspects of the strategic initiative it serves. Customarily, specific metrics, data-gathering methods, and evaluation techniques are described within the substrategies. In addition, accountability for achieving each substrategy could be assigned to a member of the executive team. Table 7.2 represents sample strategic outcomes with the corresponding substrategies.

Strategic initiatives and substrategies tend to be more fluid than the mission, vision, and values: over time, outcomes are accomplished, and strategic priorities may change. As they arise from the mission, vision, and values, strategic initiatives would also adjust, should there be overarching transformations in these core organizational pillars.

TABLE 7.1 Sample SWOT Template and Questions

Strengths	Weaknesses
In what aspects does our unit/organization excel?	In what aspects does our unit/organization fall short?
What makes our unit/organization attractive to customers?	Which areas of our operations may be vulnerable?
What differentiates our unit/organization from the other players in the industry?	Why are we underperforming in certain areas of our operations?
Opportunities	**Threats**
Are there new market developments that could offer our unit/organization opportunities to grow?	Is there a proposed regulation that could significantly affect the way we operate?
Are there any underserved geographical areas?	Has a new direct competitor emerged?
Could our core competencies allow us to create and offer a new service?	Are our offerings still relevant to the customers and markets we serve?

SWOT, strengths, opportunities, threats, weaknesses.

TABLE 7.2 Sample Strategic Initiatives and Substrategies

Strategic initiatives	Substrategies
Be the brand of choice for adult nursing services in our geographical area	• Establish internal quality benchmarks based on the NDNQI data and strive for the 90th-percentile ranking minimum on all indicators. • Enhance promotional materials' quality and seek new distribution channels. • Improve availability of services across the system. • Create strong communications culture with referring physicians.
Invest in long-term growth initiatives	• Pursue strategic acquisitions. • Open two new clinic branches per year. • Further diversify service offerings.
Achieve a 10% year-over-year increase in profit margin	• Decrease the average length of stay. • Increase ED throughput. • Educate staff nurses regarding the cost-of-care factors.

NDNQI, National Database of Nursing Quality Indicators.

People Outcomes and People Strategy

We would be remiss if, within the strategy-formulation stage of the mission fulfillment process, we did not emphasize the utmost importance of incorporating *people outcomes* and *people strategy* into both the MEP and the SIP. As we discussed earlier in this chapter, an organization's strategic and financial success, as well as the fulfillment of its mission, rely heavily on the alignment of its employees and their ability to experience continual professional and personal growth in the context of work. When all is taken into consideration, people are the most important proverbial building blocks of every organization and no number of advanced systems, processes, and technology could ever elevate institutional success without it deliberately focusing on people outcomes and devising people strategy. Yet, most companies pay no or very little attention to *talent optimization* as part of the strategic analyses and planning, and even fewer have specific human resources (HR)-targeted narratives within their mission and vision statements. In service organizations, **human capital** is the most essential and costly asset; hence, it must be one of the main focal points within the mission fulfillment process. As mentioned earlier in this chapter, employees' alignment and, therefore, their company's people outcomes, lie along three distinct dimensions: organizational, role, and developmental, concepts that are discussed next.

Organizational Alignment and Outcomes

Recall that *organizational alignment* refers to the degree employees subscribe to, accept, and model their employer's mission, vision, and values. Because all people inputs eventually combine into company-wide outcomes and are essential in mission fulfillment, institutions should continually evaluate organizational alignment of employees and develop systems and processes to strengthen it. Every employee must be able to articulate their individual connection and contributions to the collective "what," envision their own purpose within the "why," and continually reflect on their reasoning, behavior, and actions or inactions in light of the "how." Therefore, the focus on organizational alignment begins well before a new employee is invited to join the organization. Companies must clearly communicate their organizational pillars and expectations in employment advertising and throughout the candidate-selection process. In addition, culture benchmarking through several psychometric products available on the market could be

incorporated into preemployment organizational alignment screenings. Finally, through employee surveys, companies can gauge the aggregate level of organizational alignment. However, some of the best indicators for positive organizational alignment are low turnover, high levels of productivity, and strong internal employment referral base.

Role Alignment and Outcomes

Organizations cannot succeed strategically without having the right people in the right jobs at the right time, or sound role alignment, throughout the firm. Recall that sound role alignment, however, must commence with mapping mission effectiveness outcomes down to individual roles. Thereafter, role alignment lies in precisely balancing the desired role outcomes with each employee's technical expertise, natural behavioral needs and drives, and their enthusiasm toward performing the duties of the job. Of course, professional knowledge and skills are important for success in fulfilling the responsibilities of any job. However, these attributes alone cannot sustain productivity and effectiveness in the long term; passion for what one does must always permeate day-to-day duties for endured success. Furthermore, the widely accepted theory stipulates that human personality traits are "habitual patterns of behavior, thought, and emotion" (Kassin, 2003, p. 327). Hence, we could reasonably conclude that an individual's innate leaning within broad behavioral dimensions such as dominance, extraversion, patience, and formality would determine how well they perform in a defined role scope. The more **passion skills** an employee utilizes in execution of everyday responsibilities and the closer the execution requirements of their role connect with the personal profile, the better outcomes they will achieve. Therefore, an organization's outcomes in role alignment could be classified into two categories: continual professional development of skills and knowledge and personal job match. The concepts of continual professional development and lifelong learning are widely accepted in the nursing profession, and many organizations invest heavily in this arena. However, only a few firms purposely assess their employees' levels of expertise, as related to specific role responsibilities, and engage the workforce in individually focused professional development. Furthermore, most organizations do not gauge their employees' zeal for impact along with aspirations and consequently do not direct resources toward modifying role responsibilities and organizational structures to fully capitalize on and further build each person's unique set of passion skills. Quite the opposite, many institutions inadvertently create hostile work environments while driving the culture of excellence, through their focus on punitive rather than developmental approaches to performance management. As the result, most employees spend inordinate amounts of time "covering up their weaknesses, managing other people's impressions of them, showing themselves to their best advantage, playing politics, hiding their inadequacies, hiding their uncertainties, hiding their limitations," resulting in tremendous negative economic impact to their companies (Kegan & Lahey, 2016, p. 1). Reflection and dialoguing are important tools in soliciting employees' self-assessment on the topic of role alignment and strengthening the corresponding people outcomes, such as job satisfaction, engagement, and effectiveness. In the context of reflection, employees should contemplate the degree to which their expertise and personal behavioral drives match the specific role competencies and transparently communicate any perceived deficiencies to their managers. In addition, they should self-assess the alignment of their passion skills with current and, if applicable, aspirational roles. Conversely, employers must commit to creating safe environments for employees' continual professional growth and set aside ample resources within strategic planning and budgeting for the workforce development and organizational fluidity.

Developmental Alignment and Outcomes

Building organizational systems that create opportunities and provide tools for every employee to elevate toward their true potential, thus unleashing the full power of the impact each holds within, is a proven strategy for mission fulfilment. One approach to accomplishing this goal is grounded in use of Maslow's hierarchy of needs motivational model (Maslow, 1943, pp. 370–396). In this context, an institution's people development and outcomes could be broadly divided into four categories: *health and wellness* (basic physiological needs), *company environment* (safety and security), *relationships* (love and belonging), and *achievement and recognition* (esteem). Over the last decade, the focus on individuals' personal growth along Maslow's hierarchy and other humanistic psychology theories of adult development led a few pioneering companies across different industries to become **deliberately developmental organizations (DDOs)**. A DDO is organized around the idea that "organizations will best prosper when they are more deeply aligned with people's strongest motive, which is to grow" (Kegan & Lahey, 2016, blurb). Notably, DDOs deliberately focus on and invest in continual personal development of their people at all levels of the organization and consequently experience higher levels of employee engagement and satisfaction, very stable workforces, and significantly better business outcomes across the board, as compared to their peers, including greater profitability, better error detection in operational and strategic design, reduction in cost structures, and political maneuvering (Kegan & Lahey, 2016, pp. 1–2). Published in 2016, *An Everyone Culture: Becoming a Deliberately Developmental Organization* takes a closer look at the theories behind and practical applications of the DDO movement in three U.S companies: Next Jump—an e-commerce tech company; the Decurion Corporation—a parent to several operating subsidiaries, including Pacific Theatres, Robertson Properties Group (RPG), ArcLight Cinemas, and Hollybrook Senior Living; and Bridgewater—the world's best performing hedge fund (Kegan & Lahey, 2016).

Talent optimization and **people outcomes** should be explicitly incorporated into an organization's strategies and receive the management's attention on par with other institutional priorities. In other words, a company should look at its "culture as itself a business strategy" and the "relationship between realizing human potential and organizational potential . . . [a]s dialectic, not a trade-off" (Kegan & Lahey, 2016, p. 6).

After all of the elements of the strategy-formulation stage of the mission fulfillment process, including mission, vision, values, MEP, and SIP, have been thoroughly considered and developed, the final combined product is presented to the board for approval. After the board resolves to accept the MEP and SIP, the revised summary documents are disseminated throughout the organization and the operationalizing and execution stages of the mission fulfillment process begin.

STRATEGY OPERATIONALIZING

After the strategy-formulation stage is complete, each functional department and operating unit as well as the organization at large must *operationalize*, or translate, its MEP and SIP into concrete, executable tasks and project the costs associated with these undertakings. Hence, the operationalizing stage of the mission fulfillment process consists of two distinct components: *tactical planning* and *budgeting*.

Tactical Planning

Tactics are the planned activities undertaken to accomplish the stated substrategies. On receiving approval from the board for the company's annual MEP and SIP, the director of strategy initiates the tactical planning process by distributing the tactical planning

TABLE 7.3 Tactical Map Template

Strategic Initiative #1					
Substrategy 1.1	Tactic	Owner	Cost and timing	Complete by	Quarterly status update
Substrategy 1.2	Tactic	Owner	Cost and timing	Complete by	Quarterly status update
Substrategy 1.3	Tactic	Owner	Cost and timing	Complete by	Quarterly status update

packet, including tactical map template, instructions for completion, and timelines, to all unit and department heads. In turn, these leaders facilitate the process within their respective operating and functional areas, involving staff in developing the plans.

Linking day-to-day work functions to the strategic initiative and mission effectiveness plans, **tactical maps** present the tactics to be performed by units, departments, teams, and individual employees within an organization. In addition to including tasks targeted to achieving relevant company-level strategic initiatives and substrategies, operating units and functional departments incorporate actionable items from the respective environmental evaluations, SWOT analyses, and people outcomes into their tactical plans for the upcoming fiscal year. Each tactic must be associated with a substrategy, carry a target completion deadline, and be assigned an "owner." Furthermore, if a tactic requires any financial expenditure, the map must indicate its amount and timing for budgeting purposes. Tactical maps' alignment with the overall organizational strategy is of paramount importance. An example of a tactical map template is presented in Table 7.3.

After tactical maps are complete, operating and functional leaders present them to the strategy committee and company executives during interactive planning and budgeting review meetings, where decisions about approval, denial, deferral, or revision of tactics are made. The maps are then finalized and recommended to the board for approval. Once approved, execution of the tactical plans begins on the first day of the fiscal year.

Budgeting

Organizations normally undertake *budgeting*, or a financial planning process, over several months during the second half of each fiscal year. New budgets become effective on the first day of a new fiscal year. The budgeting stage of the mission fulfillment process runs in conjunction with the tactical planning. As tactics are approved, the budgetary concerns associated with them become approved as well. Tactical plans carry embedded expenses that belong to either *operating* or *capital* budgets. Although every organization establishes its own classification for budget entries, usually items with the total cash outlay of $1,000 or more are considered *capital expenditures*, commonly abbreviated as *CapEx*. Budgeting for operations is explored in depth in Chapters 5 and 6 of this textbook, whereas CapEx budgeting is discussed later, in the second part of this chapter.

STRATEGY EXECUTION AND MONITORING

However beautiful the strategy, you should occasionally look at the results.

—Winston Churchill

After all of the methodical planning, lack of sound strategy execution and monitoring may become the pitfall, preventing a company from realizing its mission and achieving the vision. Strategy cannot be a separately compartmentalized function of an organization or simply "another thing to do"; instead, it must be interwoven deep into the fabric of the organization, permeate the day-to-day employee activities, and be "the way of life" in the company. In order to compel employees to perform at the highest possible levels and fulfill the tactics set forth, organizations must first establish strategy-aligned *incentives, accountabilities*, and *communication* programs as well as "close-the-loop" systems.

Incentives and Accountabilities

As organizational systems drive employees' focus and behaviors, leadership must ensure that the incentives and accountabilities structures implemented in the organization are geared toward accomplishing strategic outcomes. One of the common methods of enticing employees to achieve and exceed set goals is to tie individual, unit, department, and firm-wide operational, financial, and strategic results to a portion of employees' total compensation. This is accomplished through fiscal year-end cash bonuses, commonly referred to as *gains*, or profit *sharing*. Many companies hire **consultants** to assist them in creating these often quite elaborate programs. Most successful incentive plans cover every employee in an organization. Let us explore a sample **incentive compensation** framework.

Gains Sharing

Prior to the start of every fiscal year, the board, in collaboration with the executive leadership, creates a plan outlining the terms for and setting the aggregate dollar amount limits of year-end bonuses to be paid throughout the organization, while retaining the right to modify, adjust up or down, suspend, or even cancel the gain sharing in the event of unforeseen extraordinary events, internal or external. The aggregate limits normally increase as the organization's financial performance is improved, until the maximum aggregate payout is reached. The board then sets the maximum bonus amounts for each of the levels of employees, expressed as a percentage of the annual salary. The maximum percentage levels tend to increase toward the top echelons of leadership in the company. For example, staff nurses may have an opportunity to earn a bonus in the amount of 5% of their salary, whereas a chief nursing officer (CNO) could receive up to 25% of theirs. In flat organizations, however, position levels may not serve as the basis for bonus payouts, giving way to employment tenure, for example, as an alternative consideration.

After the maximum percentage targets have been set, every employee's actual bonus amount is driven by several factors and is based on specific weighting assigned to each. The decision matrix in Table 7.4 illustrates sample criteria for bonus payouts and proportion weights of each of the line items. Reaching the stated outcomes and goals, fulfilling the assigned tactics, and meeting the budgetary projections at every level of the organization are common determinants of individual incentive compensation.

Certain organizations take the "all-or-nothing" approach for each of the matrix squares, whereas others give some leeway for partial achievements. For example, the board and the leadership might decide that reaching 90% of the budgeted *earnings before interest, taxes, depreciation*, and *amortization (EBITDA)*, or the difference between a firm's operating revenues and expenses, will trigger a reduced-level bonus payout, and then progressively increase to 100% for the criterion. According to Table 7.4, one half of every

TABLE 7.4 Employee Bonus Criteria Decision Matrix

Results level	Strategic (1/3)	Operational (1/3)	Financial (1/3)
Company (1/2)	Outcomes	Critical quality and operating targets	EBITDA
Department/unit (1/4)	Tactics and outcomes	Critical quality and operating targets	EBITDA
Individual (1/4)	Tactics[a]	Individual goals[a]	Individual contribution

[a]When an employee does not bear any direct responsibility over revenue or expenses, strategic and operational results are weighted equally at 50%.
EBITDA, earnings before interest, taxes, depreciation, and amortization.

employee's bonus will depend on how well the company performed during the year. Hence, if the firm fully succeeded in every criterion, the staff nurse mentioned earlier will add a minimum of 2.5% to their **earnings** for the year.

Conversely, in the "all-or-nothing" scenario, where the company did not meet all of its strategic outcomes but achieved the target EBITDA and **critical quality and operating targets**, the nurse would only earn 1.67% (= 5% × ½ × ($^1/_3$ + $^1/_3$), rounded up) of their annual salary for the company's performance during the fiscal year. Similar logic is applied to other criteria in the matrix to arrive at the total payout percentage for every staff member.

In order to motivate employees to not only meet the stated goals, outcomes, and projections, but to exceed them as well, the leadership often establishes additional discretionary bonus pools for overachievement and sets "stretch" triggers for payout. For example, if the company outperforms on its financial targets, employees have a chance of doubling their bonuses, as illustrated in Table 7.5. Similarly, bonus reductions could be set for underachieving.

TABLE 7.5 Stretch EBITDA Targets With Corresponding Bonus Upsides

Percentage of EBITDA achieved	Percentage of bonus earned	Percentage of EBITDA achieved	Percentage ageof bonus earned	Percentage of EBITDA achieved	Percentage of bonus earned	Percent ageof EBITDA achieved	Percentage of bonus earned
101	102	114	128	127	154	139	178
102	104	115	130	128	156	140	180
103	106	116	132	129	158	141	182
104	108	117	134	130	160	142	184
105	110	118	136	131	162	143	186
106	112	119	138	132	164	144	188
107	114	120	140	133	166	145	190
108	116	121	142	134	168	146	192
109	118	122	144	135	170	147	194
110	120	123	146	136	172	148	196
111	122	124	148	137	174	149	198
112	124	125	150	138	176	150	200
113	126	126	152				

EBITDA, earnings before interest, taxes, depreciation, and amortization.

Finally, to help avoid gross underperformance in key strategic outcomes or operational and quality measures, the gains-sharing plan must contain caveats that would reduce total bonuses at certain levels of deficiencies. For example, if the student attrition rate in a nursing school exceeds the target by more than 20%, everyone in the organization loses 10% of their respective bonus amounts. In addition, all individual bonus amounts will be prorated down equally if the aggregate payout amount exceeds the established limit at the achieved level of EBITDA.

Although gains-sharing plans are excellent tools for attracting, retaining, and rewarding employees, promoting unit cohesion and teamwork as well as improving the firm's performance and achieving the strategic outcomes, organizations must exercise care in ensuring that ample control systems are put in place to prevent any potential cheating or gaming by members of the staff (Prendergast, 1999). On the other hand, successes, however small, should be publicly celebrated.

It is worth noting that incentive compensation does not always need to be monetary to be effective in motivating employees throughout the year, as long as it is perceived to carry meaningful value for each affected individual (Baker et al., 1988). Hence, organization-wide achievement recognition programs could be implemented in parallel with the **gains sharing**. In fact, such mechanisms satisfy employees' innate esteem needs and contribute to their elevation to self-actualization, thus improving the overall economic state of an institution. From "values spotlights" to annual enterprise-wide award ceremonies, recognition of employees' organizational, role, and developmental alignment paves the way for a more effective mission fulfillment.

Performance Management

To further drive strategy execution, parallel to the incentives, the leadership establishes accountability, or *performance management*, programs. Counter to the widely utilized **performance management** mechanisms and recognizing that individual growth is human beings' highest innate motivation, DDOs move away from *annual* **performance appraisals** and **performance improvement plans** toward continual built-in *self-reflection*, ongoing *dialoguing and feedback*, and individualized *development plans*. We discuss all three approaches in some detail.

Successful execution of any organizational strategy relies heavily on the comprehensive understanding of, company-wide subscription to, and modeling of its elements: mission, vision, values, and strategic outcomes. In order to be of consequence for employees, the alignment with these principles must be a significant part of the annual **performance appraisal** process. Employees' work results and behaviors must be evaluated according to the observable and measurable components of the strategic pillars. For example, if service excellence is one of the clinic's core values, staff nurses might have patient satisfaction survey results incorporated into their appraisals to evaluate the degree to which they act according to this value. Conversely, when the responsibility for tactics is assigned to individual "owners" during the operationalizing stage of the mission fulfillment process and the accountability for the substrategies is placed on the respective executives, these employees' annual appraisals must reflect how well the set goals were accomplished.

So as to not find employees blindsided during the annual performance appraisal process, organizations must institute the culture of *periodic feedback*, in which managers are required to check in with their staff from time to time during the year and provide feedback, both positive and constructive, whereas individual employees are invited to solicit and welcome such feedback. Similar to the annual appraisal criteria, periodic feedback sessions must carry the elements of organizational strategy and KPIs. For managers, one such measure could be providing timely **periodic feedback** to employees. In DDOs, however, this approach takes the center stage in performance

management. Not only leaders are required to continually connect and dialogue with their direct reports in respect to organizational, role, and **developmental alignment,** but also employees, through weekly, dedicated time allowances, are invited to self-reflect and share their findings on these topics with the leadership. From these reflections and discussions, individualized development or "elevation" plans are derived. These plans could include pathways for closer alignment, or steps to continual personal, educational, and professional development.

Using the traditional approach, to be most effective, a constructive **performance improvement plan** should be a collaborative effort between the manager and the staff member whose work results or behaviors are not on track with the strategic foundation or role outcomes. Uncovering the root causes of objectively assessed underperformance and creating concrete, timed tactics for course correction are at the heart of this process. Often, employees' alignment with the assigned job duties or tactics are evaluated, so these could be reassigned in a timely manner, if needed, to keep the organization on track for achieving its mission effectiveness outcomes and/or strategic initiatives. It is worth noticing that performance improvement plans should not be punitive, but rather targeted for finding creative solutions to problems. However, in some cases, when these efforts do not produce the expected results, further corrective actions may be undertaken.

Effective performance and organizational behavior management require leaders to have a specifically unique set of skills. Unfortunately, the overwhelming majority of people in leadership roles do not have the requisite expertise to be effective in this realm. Realizing this fact, organizations devote significant economic resources to periodic leadership development trainings centered on employee motivation and behavior modification. Realistically, the effectiveness of these efforts is marginal, at best. A few pioneering organizations undertake an alternative approach to the problem, grounded in the notion that rather than responding to being manipulated into higher performance by elaborately designed systems of "carrots and sticks," human beings make choices intrinsically driven to address their deficiency needs and motivated by their growth needs, as described in Maslow's model. Rather than relying on constant management retraining, these companies invest in separation of the technical and behavioral management, while focusing on enterprise-wide efforts for promoting and instituting *self-governance* organizational models. Because individuals who elevate to leadership positions usually possess incredible technical expertise, including the ability to effectively modify functional systems and processes for utmost mission fulfillment impact, these employees' utilization within organizations must capitalize on their passion skills, without diffusing time and energy to ineffective undertakings, like attempting to affect organizational and developmental alignment attributes of their reports. Consequently, these functions may be split away from the technical management and allocated to individuals whose expertise lies in counseling and coaching. These coaches serve as neutral champions of personal elevation and development for everyone in an organization, ultimately bringing each employee closer to effectively owning their motivations, emotions, behaviors, and actions, while effectively mediating management conflicts, leadership challenges, and communication shortcomings. Arising from the need to evolve existing approaches to management and leadership, emerging self-governance models offer a potential revolutionary breakthrough development for engaging people in organizations.

Communication

Without the culture of relentless communication, organizational strategy execution would be dead on arrival. Like the mission, vision, and values, mission effectiveness outcomes, strategic initiatives, substrategies, and tactics must be clearly visible and

discussed often throughout the organization. Techniques and tactics, similar to those discussed earlier in this chapter, in conjunction with communications surrounding the organizational pillars, may be used to create awareness of and promote dialogue about the company's strategy and its execution. Strong communication cultures encourage employees' involvement in the lives of their organizations, hence increasing collective pride, promoting better alignment and performance, and helping achieve mission effectiveness outcomes and strategic initiatives. Furthermore, recognizing that human beings are inherently poor communicators, companies must devote resources to trust building and interpersonal communications development.

Monitoring and Close-the-Loop Tools

At every level of an organization, visibility drives results and that which is closely monitored gets done. When department heads are asked to report weekly on their outcomes and progress in front of the peers and the executives, they are compelled to lead their employees to better performance and achievement of goals. No mission fulfillment process would be complete without sound organizational systems that promote outcomes visibility and strategy execution. We discuss a few common approaches that organizations use to monitor performance.

Personal Dashboards

Personal dashboards are widely used tools for intradepartmental communication and alignment monitoring. They allow employees to focus their weekly activities and provide a quick visual snapshot of the status of tactics, projects, KPI, and development goals. There are many different variations of dashboard templates. However, many have a few elements in common: list of accomplishments, color-coded status indicators for achieving **milestones** within tactics and projects, known issues with mitigation plans, and personal and professional developmental opportunities. A sample personal dashboard template is presented in Table 7.6. Operational and functional department leaders submit their dashboards weekly to the respective supervising executives and, if needed, schedule follow-up meetings. Depending on the level of personal involvement with strategic initiatives, major projects, or KPIs, other employees could also be required to use weekly dashboards. In DDOs, however, these tools are commonplace throughout.

Snapshot Reviews

A periodic, weekly, or biweekly **snapshot review** is an effective approach for keeping the KPI as well as strategic initiatives continually visible throughout the institution and for driving performance to reach goals. To facilitate the discussion, a performance snapshot report is produced for every functional department, operating unit, region, and division. The snapshot reports present selected performance measures and color-code the results, according to the criteria determined by the executive team. Commonly, red indicates the need for improvement, whereas green points out unique strengths; the absence of color signifies neutral performance. When in-person snapshot review meetings are not feasible, companies utilize teleconferencing capabilities for managers to discuss the areas of performance weaknesses and strengths. Strong performers share best demonstrated practices and performance know-how with the rest of the team, whereas underachievers report on the root causes and mitigating plans. Depending on the organization's to-date performance and shifting areas of focus, the indicators presented on snapshot reports could change over time.

TABLE 7.6 Sample Personal Dashboard Template

Weekly achievements			
1.			
2.			
Tactics and Projects			
Tactic or project name	Milestones	Due date	Status
	1.		Green
	2.		Yellow
	3.		Red
	4.		Gray
KPI			
Critical performance area	KPI		Status
	1.		Green
	2.		Yellow
	3.		Red
	4.		White
Issues and Risks			
Issue	Root cause		Mitigation plan
1.			
2.			
Developmental Goals			
Health and wellness			
1.			
2.			
Environment			
1.			
2			
Relationships			
1.			
2.			
Achievements			
1.			
2.			
Expertise development			
1.			
2.			
Legend			
Red	Major milestone missed or KPI significantly off target. Tactic or project completion may be in jeopardy. Complete issues section.		
Yellow	Timely completion of tactic or project is in jeopardy, or KPI is slightly off target. Complete issues section.		
Green	Milestone is completely on track or KPI significantly better than the target.		
Gray	Milestone is complete.		
White	KPI is on target.		

Tactical Reviews and Progress Reports

The reporting on the execution of tactical plans happens at the end of every fiscal quarter, when departmental and functional leaders as well as the executives share the status of their planned tactical activities and account for progress toward achieving the set **substrategies**. Every "owner" of tactics completes the quarterly status update of their respective tactical map, offering explanations for any variances to plan. At that time, course correction could be set and additional resources allocated, if deemed necessary.

At the end of the fiscal year, the strategy director reviews and aggregates all of the final tactical progress reports, generating an organization-wide tactical results digest, which is, in turn, presented to the **strategy committee** at its annual meeting. The strategy committee then carries over any necessary tactics into the next year's tactical maps. The digest is also offered for review to the board.

As mentioned earlier, the mission fulfillment process is cyclical and dynamic. Although it normally follows an annual cycle, reassessments of organizational pillars or environmental factors and adjustments to strategic initiatives and mission effectiveness plans could happen any time there are significant changes in external and/or internal environments. The mission fulfillment process requires unrelenting commitment, dedicated resources, and sound systems throughout the organization. Only when these factors converge can there be success.

CAPITAL BUDGETS, PROJECTS SELECTION, AND FINANCIAL MODELING

In the spirit of sub-competency 7.2j of the AACN's *Essentials,* which calls on DNP graduates to "formulate, document, and disseminate the return on investment for improvement initiatives collaboratively with an interdisciplinary team" (p. 50), the second part of this chapter discusses theoretical underpinnings as well as practical tools for evaluating and selecting capital projects in organizations (AACN, 2021).

Every year, organizations must use discretion in determining how to allocate limited financial resources between competing capital acquisition and project priorities. Generally, annual CapEx budgets consist of both new and maintenance components, which could be equally important, because many CapEx items arise from the tactical plans and support the institution's overall organizational strategy. In this part of the chapter, we explore a sample framework for capital budgeting and projects selection while introducing several financial concepts.

Suppose an ED director performed a meticulous financial analysis of the proposed department expansion project and determined that there will be a significant return on the invested capital within 3 years of the expansion. Should the executives approve the project? Although it is an important decision factor, projected financial returns should not be used as the sole selection criterion for capital projects. Other critical questions must be answered before capital investments, large or small, are made. Introduced later in this chapter, our **3-F framework** for capital projects selection includes three equally essential components: *finances, fit*, and *feasibility*.

TIME VALUE OF MONEY AND INVESTMENT DECISIONS

What is worth more: $1 today or $1 tomorrow? Is there a difference in the value? There are multiple ways of evaluating the financial feasibility of capital projects and other investments. In this chapter, we concentrate on two of them: **net present value, or NPV**, and **internal rate of return,** or **IRR**. In a world without inflation, inherent risk, and other economic pressures, the value of money tomorrow, or 10 years from now, would be absolutely the same as today. In reality, that is not the case. Therefore, your present buying ability with a predetermined sum of money is higher than it would be in the future with the identical amount. In other words, money loses its value over time.

Net Present Value

To understand the concepts of **present value (PV)** and **future value (FV)**, consider the following: the author of this chapter asks you for a loan, promising to repay $1,000 in 1 year. How much would you be willing to lend, assuming you decided to invest your money in some way? The answer would depend on two factors: how risky you think lending to the author would be, or the odds of getting your money back, and your **opportunity cost of capital**, or best return investment alternative of the same *risk*. Suppose the author is riskless and there is 100% guarantee of the promised payment at the end of the borrowing period. Also, assume that your best alternative is to invest in a certificate of deposit (CD) with an online bank at a 1% return per annum. Because bank deposits are Federal Deposit Insurance Corporation (FDIC)-insured, this investment would not carry any risk either. A simple equation solves for the maximum amount ($*x*) you would be willing to lend on these terms in order to be paid $1,000 in 1 year:

$$x \times (101\%) = \$1{,}000$$
$$x = \$1{,}000 \div 1.01 = \$990.10$$

Therefore, $990.10 is the PV of your future cash inflow and represents the amount you should be willing to lend to the author. For any one-period uncompounded investment, or a single cash outflow today with a single cash inflow in the future, PV could be expressed as: PV = FV ÷ (1 + *r*), where *r* denotes the **discount rate** for the lending period and depends on the inherent *undiversifiable*, or *systemic, risk* of the investment. Adjusting for the timing and risk, PV interrelates present *cash flows* with future cash flows. *NPV* of any investment or project is simply the sum of its *discounted cash flows*. In this lending example, your investment represents a negative cash flow (*outflow*), whereas the payback is a positive cash flow (*inflow*).

Therefore, your NPV of lending to the author is:

$$NPV = -\$990.10 + (\$1{,}000 \div 1.01) = 0$$

Obviously, one would want the NPV to be larger than zero, hence offering to lend a smaller amount.

Risk-Adjusted NPV

Of course, if you were not 100% certain that the author would not default on repaying the loan, you would have to adjust the discount rate to account for this risk. Say the probability of default was 20%, then, your expected return, on average, would be 80% of $1,000, or $800, at the end of the lending period. Assuming that your best investment alternative of the same risk is the stock market, which returns 15% on average, the PV and NPV of this investment would be:

$$PV = \$800 \div (1 + 0.15) = \$695.65$$
$$NPV = -\$695.65 + (\$1{,}000 \times 80\%)/(1 + 0.15) = 0$$

It is worth noting that the NPV of capital market transactions is usually zero. Hence, organizations can create the most value by undertaking projects with the highest positive NPV.

NPV of Projects

Generally, capital projects consist of multiple cash flows: initial and subsequent investment outflows, revenues generated or costs avoided as a result of a project, and expenses associated with operating a new venture created by the project. For example, a

community-based accountable care organization (ACO) that is evaluating the feasibility of adding a "patient concierge" service staffed by family nurse practitioners (FNP) to solve diagnostic and care coordination issues will consider the costs associated with bringing such a program to life as well as projected revenues, cost-avoidance savings, and expenses that the service will generate in the foreseeable future.

The PV formula in the loan example would be identical for a project with a single cash flow, denoted as C, at the end of year, or period, one. Conversely:

$$PV = C_1 \div (1 + r)$$

or, considering discount rate compounding over time, for a cash flow at some point in time, or period *t*:

$$PV = C_t \div (1 + r)^t$$

Combining the PVs of the multiple cash flows for the concierge service project, the ACO would use the following formula to determine the NPV and evaluate the feasibility of this undertaking:

$$NPV = C_0 + C_1 \div (1 + r) + C_2 \div (1+ r)^2 + C_3 \div (1 + r)^3 + \ldots + C_t \div (1+ r)^t$$

Naturally, if the NPV of a project is negative, it does not make financial sense to proceed with the undertaking. However, as discussed later in this chapter, there may be other compelling reasons for an organization to invest in negative NPV projects. Moreover, as is often the case with maintenance CapEx items that carry seemingly negative NPV, investments might improve customer satisfaction or other operational and/or strategic aspects whose financial impacts are difficult to quantify but could be positive in the long term.

NPV Considerations

NPV is a common method used to evaluate financial feasibility of projects and investments. It is straightforward, contingent only on the forecasted cash flows and the suitable discount rate, and easily computed in Excel. Because it is measured in current dollars, NPV allows managers to select more valuable projects when considering a few investment alternatives, irrespective of the timing of returns. However, to arrive at accurate conclusions, managers should remember a few ground rules for NPV utilization.

First, all **sunk costs,** or the dollars already spent on the project, should be disregarded. Only the NPV of future cash flows should be considered. Leaders in organizations often tend to include all previous spending in their consideration of whether to continue with certain projects. This, however, may lead to the erroneous rejection of investments with positive NPVs of future cash flows. Second, whenever possible, cash flow projections and discount rates should be used on the after-tax basis. Third, all organization-wide financial effects of projects should be estimated and taken into account. For example, investing in a new piece of the latest diagnostic equipment might not only bring new direct revenue to the imaging department, but also increase the overall number of client cases for the institution. Fourth, only *incremental*, or additional, cash-based projections should be considered. Do not account for any existing revenues, expenses, or noncash transactions such as **depreciation** and **amortization**. Fifth, existing *overhead* costs should not be allocated to the new projects. For instance, an apportioned amount of the salary of the aforementioned ACO's chief nurse should not be considered in the new concierge service decision. Finally, *opportunity cost* of the project must be evaluated. In other words, the question of what the company would be giving up by investing its resources in a given project must be answered.

IRR of Projects

IRR is a popular alternative or supplemental measure to NPV for evaluating projects and investments. Producing a correct outcome most of the time, IRR calculation provides an intuitive gauge for the level of return that a project or investment will yield. The IRR is calculated by setting the NPV in the previously presented formula to zero, and then solving for the discount rate. In other words, IRR is the discount rate (r) at which the NPV of a project or investment equals zero.

$$0 = C_0 + C_1 \div (1 + r) + C_2 \div (1 + r)^2 + C_3 \div (1 + r)^3 + \ldots + C_t \div (1 + r)^t, \text{ where IRR} = r$$

Note that no real mathematical solution exists for such an equation; therefore, a manager would rely on the assistance of an Excel spreadsheet to approximate the answer for r. A project should be accepted if its IRR is greater than the organization's set *hurdle*, or minimum acceptable rate of return. Often, the company's **weighted average cost of capital (WACC)** is used as the hurdle rate. WACC is the rate representing the combined risk-adjusted opportunity cost for both the company's debt and equity holders. Simply stated, WACC is the organization's cost of accessing cash for investment. Therefore, undertaking a project makes economic sense only if its IRR is greater than the firm's WACC.

IRR Considerations

On occasion, the IRR calculation could produce a result that would lead to an erroneous project acceptance, rejection, or selection decision. Generally, any alternative approach for financial feasibility evaluation that produces a conclusion different from the NPV result is incorrect! Because IRR only approximates the percentage yield of an investment, it cannot be used to compare projects of different magnitude. Naturally, a very large investment with a smaller IRR would create a greater economic value than a relatively small investment with a larger yield. Moreover, because of shifting economic reality, interest rates, risk, and other factors, **hurdle rates** vary over time; hence, it is virtually impossible to accurately pinpoint the actual cost of capital at some point in the future. Comparing projects of different duration, consequently, is not feasible by utilizing the IRR method. Finally, a high-order equation that approximates the IRR could produce as many results as there are switches from negative to positive cash flows and vice versa.

In summary, IRR is a widely used alternative method for evaluating projects and investments. It produces an accurate decision when considering only a single project with one initial cash outflow followed by a number of cash inflows, when the hurdle rate is the same for all time periods.

3-F: FINANCIAL MODELING FOR CAPITAL BUDGETING DECISIONS

In this day and age, the vast proliferation of computers and financial software streamlines capital budgeting decisions and makes managers' and executives' jobs much easier. There are many varieties of computerized **financial models**: Some are available off-the-shelf, some commercial products could be customized to fit the needs of a specific organization, and many others are created inhouse, usng spreadsheet applications such as Excel.

Sample Financial Model

For illustration purposes, here we present the elements of a sample financial model that could be used in making the decision regarding a potential investment opportunity. The model consists of three distinct components: 5-year **pro-forma income statement**, estimated CapEx and operational **cash burn** budget, and project valuation analysis. Both the CapEx and the operational projections require managers to make many

assumptions regarding the respective individual model components. These assumptions are not mere guesses; they are based on research, consider past trends, and offer good-faith estimates for the future.

Pro-Forma Income Statements

In order to determine the future cash flows associated with any investment, be it new service, technology, or equipment, we must consider 5 years' worth of *pro-forma income statements*, which forecast revenues, expenses, and profits and/or losses associated with the investment. Recall that in order to correctly estimate the NPV of a project, managers should only use incremental revenues and expenses and not allocate any current amounts to the new project. Case in point: The hypothetical, tax-paying ACO mentioned earlier may have enough existing physical facilities to house the new concierge service; it currently pays rent for this underutilized space. Therefore, the pro-forma statements will exclude rent as well as building and utilities expenses for the purpose of determining the profitability of the proposed new service. Furthermore, only cash-based incremental revenues and expenses will be considered. Hence, accruals, depreciation and amortization, and any other noncash items should be explicitly excluded. Table 7.7 illustrates sample pro-forma forecast categories that may need to be considered.

To complete the pro-forma income statements, the leaders of our ACO must consider, among many other elements, the potential cost savings realized from eliminating unnecessary diagnostic procedures and, relying on internal and/or external evidence, make the necessary assumptions as to their magnitude. On the cash outlay side, due contemplation must be given to the staffing costs of the new service, initially and over time, which may include performance incentives and ongoing professional development expenditures.

Projected CapEx and Cash Burn Budget

This component of the financial model carries the budgetary projections for developing and rolling out the proposed project, along with the anticipated timing of expenditures. The CapEx portion of the projection may represent the cost estimates, for example, of the construction and additional equipment. In order to correctly project the CapEx cash outlays, specific quotes could be obtained from architectural firms, general contractors, and consultants, utilizing the necessary project assumptions. The operating cash burn section of the analysis represents the operating expenses that are incurred before the project's opening and, therefore, ahead of any realized revenue. The ACO may use the expenses portion of the sample template presented in Table 7.8 to calculate the total cash burn. Combining the CapEx and cash burn projections, they would derive the total expenditures needed to develop and roll out the concierge service prior to offering any services to their clients.

Project Valuation Analysis

After the amounts of the initial cash outlay and the subsequent earnings have been determined, the ACO would complete the financial feasibility model by calculating the NPV and the IRR of its proposed investment into the new concierge service. Table 7.9 illustrates the valuation component of our sample model.

In our project valuation model, the after-tax, cash-based profit or loss is carried over from the pro-forma income statements. Please note that the project's possible operating loss in year 0 will result in proportional tax savings to the ACO at large, due to the incremental reduction in organization-wide earnings. Therefore, the base year's operating loss may be offset by the corresponding tax savings. To estimate the *maintenance CapEx* required for items such as equipment replacements, the ACO may use its historical data to estimate the typical proportion of the maintenance CapEx to the overall capital expen-

TABLE 7.7 Sample Pro-Forma Annual Income Statement Template

		Q1	Q2	Q3	Q4	Total
Revenue	Revenue from Operations					
	Discounts/Revenue Offsets (expressed as a negative value)					
	Incremental Savings/Cost Avoidance					
	Other Revenue and Fees					
	Miscellaneous Income					
	Total Revenue					
Staffing and Compensation	Salaries and Wages					
	Overtime					
	Benefits					
	Taxes					
	Recruiting and Onboarding					
	Professional Development					
	Total Staffing and Compensation					
Operating Expenses	Facilities					
	Insurance					
	Office Supplies					
	Software & Licenses					
	Travel					
	Marketing					
	Depreciation & Amortization					
	Total Operating Expenses					
	Net Operating Income (Total Revenue minus Total Staffing and Compensation minus Total Operating Expenses)					
Interest	Interest Income (expressed as a negative value)					
	Interest Expense					
	Total Interest					
	Net Income Before Tax (Net Operating Income minus Total Interest)					
	Income Tax					
	Operating Earnings (EBITDA) (Net Operating Income plus Depreciation and Amortization)					
	Cash-Based Earnings (Net Income Before Tax minus Income Tax plus Depreciation and Amortization)					

EBITDA, earnings before interest, taxes, depreciation, and amortization.

TABLE 7.8 Sample Project Valuation Analysis Template

	Base Year	Year 1	Year 2	Year 3	Year 4	Terminal value
After-tax, cash-based earnings/(losses)						_
Initial CapEx (expressed as a negative value)						_
Maintenance CapEx (expressed as a negative value)						_
Free cash flows (FCF) (earnings plus CapEx)						
NPV @ 15% WACC						
NPV @ 30% WACC						
IRR						

IRR, internal rate of return; NPV, net present value; WACC, weighted average cost of capital.

ditures and incorporate it into the valuation, beginning with Year 1 in the model. Free cash flows for the NPV calculation are then determined by combining the after-tax, cash-based income with the CapEx items.

Of course, it would be impractical, if not impossible, to try to determine cash flows in perpetuity for the purposes of deriving the NPV of any project. Therefore, the ACO may use a shortcut known as **terminal value**. Many companies calculate the terminal value of the project by estimating the overall enterprise value, as if it would be sold after reaching maturity and has a promise of stable financial returns, by applying an industry-comparable earnings multiplier to the valuation model's last year's after-tax, cash-based earnings. Not to overstate the terminal value of the concierge service, the ACO should choose to use a conservative earnings multiplier, for example, 5x—hence estimating the last cash flow of the project.

After applying the NPV and IRR formulas discussed earlier in this chapter, the ACO would determine whether to undertake the concierge service project. Of course, other, nonfinancial considerations should be weighed in before the ACO's administration sanctions the project.

3-F: ORGANIZATIONAL AND STRATEGIC FIT

Every potential capital project and investment should be evaluated for fit with the strategic initiatives and organizational mission, vision, and values. Even when carrying the promise of great financial return, a project should be accepted only if it advances the mission of the company, or moves it closer to its vision, and is consistent with the core organizational competencies and values. Following this principle allows firms to focus energy and scarce resources on expenditures that synergistically promote overall organizational success and mission fulfillment.

3-F: FEASIBILITY OF CAPITAL PROJECTS AND INVESTMENTS

Being feasible is a necessary component of any **capital expenditure**. At least, financial and HR toll, as well as market viability of a project or investment, should be considered before sanctioning the expenditure. In our new concierge service example, the ACO must have free access to cash required for CapEx outlays plus the necessary **working capital** to ensure that the project is successful. Companies also must ensure that the market can

bear an additional service or product. The ACO must also not miscalculate its ability to attract the appropriate numbers of qualified FNPs and secure the necessary government contracts, as well as consider the impact that the new service development and operations will have on the existing personnel and the strategic initiatives already underway.

As indicated earlier, every CapEx undertakings diminish other possibilities, so the administration must look into a proverbial crystal ball to determine the best course of action. Conversely, bringing the new concierge service to life could have such synergies with the current organization as strengthening the ACO's brand and promoting growth of its other programs and services.

CAPITAL BUDGETING PROCESS

Putting it all together in conjunction with the strategy **operationalizing**, we suggest the following capital budgeting process. Whether capital expenditure recommendations are embedded within the proposed strategic initiatives, substrategies, or **tactics,** or arise from the **environmental evaluations** and lie outside of the formal organizational strategy, they are considered at the annual interactive tactical planning and budgeting meetings. To be fully ready to present CapEx recommendations, managers and executives should prepare by utilizing the 3-F framework, which anticipates the likely considerations for capital budgeting decisions.

Traditionally, CFOs lead the process by providing capital budget templates and guidance to the operational and functional leaders, who, in turn, offer recommendations and justifications for CapEx items. The CFO then compiles the departmental input for the review and refinement by the executive team and the strategy committee, who issue the final annual CapEx recommendations, based on which the CFO prepares the CapEx budget for the board's approval, tying expenditures to the mission effectiveness and strategic initiatives plans and tactical maps. On board approval, the CapEx budget is distributed throughout the organization for execution. The budget document also serves as the basis for setting some of the financial KPIs.

CONCLUSIONS

Although the full responsibility for the mission fulfillment process, budgeting, or projects selection may not fall squarely on a nurse leader's shoulders, they must be able to masterfully navigate the complex organizational systems or even design and implement them in the absence or failure of existing solutions. Utilizing the tools presented herein, DNP graduates could successfully embody the competencies laid forth in the AACN's *Essentials*, ultimately strengthening the U.S. healthcare system by contributing to and leading larger organizations or even building and improving private practices.

Through the science and tools of organizational leadership, like SWOT analyses and environmental evaluations, a nurse leader could "use diverse sources of evidence to inform practice" and "lead the translation of evidence into practice" (AACN, 2021, p. 41), consistent with *Domain 4* of *The Essentials*. *Domain 2* calls for the nurse leader to "demonstrate advanced communication skills and techniques" (p. 31) such as the tactical maps and personal dashboards presented in this chapter, whereas *Domain* 7 invites them to "recommend system-wide strategies that improve cost-effectiveness" and "formulate, document, and disseminate the return on investment for improvement initiatives" (p. 50) through capital budgeting and utilization of finance principles, such as NPV and IRR. Principles of financial modeling contained here would allow the graduate to further develop *Domain 8's* information technology proficiency requirement to "use standardized data to evaluate decision-making" (p. 52). As envisioned in *Domain 5*,

nurse leaders' participation in their respective strategy committees would allow for the influence to "inform change and policy recommendations" (p. 44) and address Domain 7's involvement in "organizational strategic planning" (p. 49). It would also "foster positive team dynamics to strengthen desired outcomes" (p. 47), based on *Domain 6's* recommendations. Full understanding of the incentives and accountabilities systems would permit the graduate to "influence intentional change" (p. 61), as stated the *Domain 10*. Finally, through shaping the selection and utilization of the KPIs in an organization, a graduate could "design system improvement strategies based on performance data and metrics" (p. 50), another sub-competency within *Domain 7*.

Expert nursing practice leadership is a critical component in striving to improve the healthcare system in our country. Our hope is that DNP graduates would use the information and tools presented in this chapter to their full extent and become extremely successful in leading for change.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Evaluate your organization's mission, vision, and values statements and determine how well they match the current state of affairs. How well do they describe what your organization is, does, and aspires to be? How is the organization doing in aligning with its stated pillars? How well is the organization aware of its individual contributors' organizational alignment to these strategic pillars?
2. Based on your organization's stated mission devise several mission effectiveness outcomes (KPIs), and cascade these through your organization down to the individual contributors' roles.
3. Develop three people outcomes as well as related substrategies and tactics to improve your organization's focus on alignment. Complete the tactical map template. Prepare an argument in support of your outcomes, substrategies, and tactics to be presented to the strategy committee.
4. Using the data in Tables 7.4 and 7.5, calculate the total year-end bonus amount for a nurse manager who earns $100,000 annually, has a 10% bonus target, meets the individual financial contributions, and completes their assigned tactics, but fails to meet some of the individual and unit operational goals, and works in a hospital that has met all of its strategic, operational, and financial goals, achieved 115% of the projected EBITDA, and uses the "all-or-nothing" approach to the incentive compensation criteria. Assume that the maximum aggregate bonus amount is set high enough for all to receive the entire individually calculated bonus amounts.
5. Prepare a full 3-F framework for a project of your choosing. Base your assumptions on research and trends, and use Excel for financial modeling. Prepare a presentation for the board of trustees or group of investors. Good luck and have fun!

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing **textbook@springerpub.com.**

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CHAPTER 8

Financial Analysis and the DNP: Understanding Business Performance in Healthcare

Timothy Bock, KT Waxman, Carlton Abner, and Juli Maxworthy

In today's rapidly evolving healthcare market, hospitals face increasingly difficult financial pressures. According to the Congressional Budget Office (CBO), absent improvements in efficiency, the percentage of hospitals operating with negative margins will increase from 27% in 2011 to 60% by 2025 (Hayford et al., 2016). As hospitals necessarily focus on creating value and deriving operational efficiencies, a critical skill set of the successful nurse leader will be the ability to accurately interpret and analyze financial statements.

Financial statements provide a snapshot into the business health of an organization. These documents and reports are prepared by teams of financial experts and distributed to internal leaders based on span of control and levels of operational oversight. As a nursing manager, director, or executive, the successful execution of your responsibilities requires that you regularly review these statements. As an essential steward of the organization's financial **assets**, you are entrusted with the task of ensuring the financial viability of your department(s). A principal component of monitoring your business performance is the review and analysis of your financial statements and the subsequent decision making that stems from your informed understanding of these documents. Although the basics of financial statements are generally the same throughout the industry, each organization will have a different format based on the individual perspective and background of their CFO.

While sitting at the table with senior financial executives, you need an understanding of how to view key decisions from their point of view. Your ability to interpret and analyze financial statements will lay the foundation for your ability to engage a group of providers, senior financial executives, or your own team. DNP leaders must use this knowledge of financial statements to speak to both the business and clinical needs of the organization in a way that is tailored to their audience. Your success with procuring things, such as needed equipment, additional staff, or capital investments, will hinge on your understanding of these financial statements and how to use them to your advantage while engaging with a given audience. For the purposes of this chapter, we guide you through the basics of three major financial reports to provide you with a clear understanding of common financial terminology, the business interpretation of these numbers, and how these statements are derived from organizational performance.

HEALTHCARE ACCOUNTING

Each organization, whether for-profit or not-for-profit, uses generally accepted accounting principles (GAAP) for financial reporting. The U.S. government does not directly set accounting standards, in the belief that the private sector has better knowledge and resources. U.S. GAAP is not written as law, although the U.S. Securities and Exchange Commission (SEC) requires that these standards are followed in financial reporting by publicly traded companies. Currently, the SEC has delegated authority for establishing standards of financial reporting to the Financial Accounting Standards Board (FASB). The FASB is a private organization that serves to enhance and improve financial accounting standards for private sector business. For local and state governments, GAAP is determined by the Governmental Accounting Standards Board (GASB), which operates under a set of assumptions, principles, and constraints different from those of standard private sector GAAP. Financial reporting in federal government entities is regulated by the Federal Accounting Standards Advisory Board (FASAB). GAAP is an evolving set of standards, principles, and practices that serve to guide how financial statements are constructed and organized. Thus, although GAAP provides a common set of accepted processes for an organization's accounting efforts, there remains room for expert interpretation and industry-specific emphasis. Although the principles remain the same, the financial statements that follow from these principles are subject to notable variation.

The basic equation of accounting is Assets = Liabilities + Owner's Equity. *Assets* are the total resources owned by the organization and expressed in dollar terms. *Liabilities* and **owner equity** represent the total capital investment borrowed (liabilities) and owned (equity) used to acquire the organization's assets. Note that for not-for-profit entities such as many healthcare organizations, owner's equity is more correctly referred to as *net assets*, referring to those assets remaining after accounting for the total liabilities of the organization (Jones et al., 2019). Regardless of an organization's status as for-profit or not-for-profit, healthcare is a business. For all leaders within healthcare it is critically important to understand the business performance of their operations. Understanding the various financial reporting tools available, the DNP leader can utilize the data and information these documents provide to build a working knowledge of the financial status of their organization. Leveraging this knowledge of business performance, DNP leaders are uniquely poised to develop strategies that enhance the ability of clinical operations to serve the underlying mission of the organization.

FINANCIAL STATEMENTS

For a business enterprise, financial statements are relevant financial information presented in a structured manner and in a format that is easy to understand. They typically include three basic financial statements:

1. **Statement of Financial Position**: Also referred to as a *balance sheet*, it reports a company's assets, liabilities, and equity at any given point in time.
2. **Statement of Comprehensive Income**: Also referred to as *profit and loss statement (P&L)*, it is a report of an institution's income, expenses, and profits over a period of time.
3. **Statement of Cash Flows**: Reports a company's cash-flow activities, particularly operating, investing, and financing activities.

Financial statements are tools that provide consistency between businesses, no matter what services they provide. These statements are compiled by financial managers working under the direction of the CFO. The purpose of financial statements is to convey information about the organization's financial condition and the results of its business operations (Jones et al., 2019). Along with the included notes and ratio analyses found within these documents, financial statements provide the nurse leader an overview of the organization's financial well-being. As a DNP and leader within your organization, your ability to use the information presented by these statements is essential to your role. Like the translational concept inherent to DNP preparation, nurse leaders understand the need to translate information from financial statements into successful business management decisions.

Statement of Financial Position: Balance Sheet

The balance sheet provides a snapshot of the organization's financial position at a given point in time through an accounting of the entity's total assets, liabilities, and net equity. Of the three basic financial statements, the balance sheet is the one statement that applies to a single point in time of the fiscal year. The importance of this document is that it directly affects the organization's credit rating, which impacts the ability to leverage external sources of capital to build facilities, expand services, or grow new market share (Waxman, 2008). The document is a numerological picture of what the organization owes and what it owns. This financial position statement indicates an assessment of total assets for the organization and the financing measures employed to acquire those assets. Given that the balance sheet is a statement in time, the document itself would change daily as liabilities and net assets are used to generate additional assets because of daily business operations. Furthermore, industry sectors and participants may experience seasonal fluctuations reflecting core business realities. One would expect changes in the balance sheet for hospital organizations subject to seasonal demand changes associated with flu outbreaks or the winter patient influx experienced by many Sunbelt providers.

Balance sheets often compare the current year to the previous year (or another reasonable time frame, perhaps quarterly). The snapshot provided by the balance sheet is a decent starting point; however, comparing these statements over time provides a more comprehensive view of the organization's business activities. A common strategy for financial managers is to present the current balance sheet in conjunction with year-to-date and prior-year statements. It is critical to understand the balance sheet and read it carefully. The astute observer will look for signs of strengths and weaknesses and get a clear grasp of whether the unit's or organization's financial performance is improving or declining (Jones et al., 2019). In this manner, organizational leaders can discern a more accurate understanding of the financial health of business operations and assess the impact of strategic management decisions. Table 8.1 is a sample balance sheet for Hospital System Y. Assets are listed at the top and liabilities at the bottom. Depending on your organization, the assets could be on the left and the liabilities on the right, but for the purposes of this example we will use the former.

Assets are resources that are possessed by the organization that have an economic benefit (Penner, 2004). Most assets are tangible in that they can be measured, such as cash, goods, or services; however, some meaningful assets are considered intangible as they are difficult to quantify, such as reputation. Reputation, although problematic to measure, can have a profound effect on the bottom line of an organization. Assets are generally broken down further into two categories to distinguish **current assets** from long-term assets (Reiter & Song, 2021).

TABLE 8.1 Sample Balance Sheet

	3/31/21 ($)	3/31/20 ($)	Change ($)	1-Year growth (%)
Current Assets				
Cash and investments (savings/ checking)	80,000	56,800	23,200	↑ 40
Accounts receivable (money owed to hospital)	472,000	370,120	101,880	↓ 26
Inventory (on the shelf)	16,400	15,200	1,200	↑ 8
Gross Assets	568,400	442,120	126,280	↑ 29
Less:				
Bad debt	(57,200)	(77,250)	20,050	↑ 26
Charitable allowance	(14,100)	(13,680)	(420)	↑ 3
Contractual allowance	(269,300)	(233,750)	(35,550)	↑ 15
Subtotal	(340,600)	(324,680)	(15,920)	↑ 5
Total Current Assets	227,800	117,440	110,360	↑ 94
Fixed Assets				
Land	29,000	27,500	1,500	↑ 5
Buildings (plant)	805,000	805,000	0	No Change
Equipment	610,000	624,000	(14,000)	↓ 2
Construction in progress	37,000	28,000	9,000	↑ 32
Total Fixed Assets	1,481,000	1,484,500	(3,500)	↓ 0.2
Less accumulated depreciation	(880,800)	(810,200)	(70,600)	↓ 9
Net Fixed Assets	600,200	674,300	(74,100)	↓ 11
Total Assets	828,000	791,740	36,260	↑ 5
Current Liabilities				
Accounts payable salaries, supplies, pharm	36,560	27,600	(8,960)	↑ 32
Accrued compensation and benefits	10,900	8,280	(2,620)	↑ 32
Accrued liabilities (interest, physician contracts)	2,520	2,960	440	↓ 15
Current portion of long-term debt	8,350	9,000	650	↓ 7
Subtotal	58,330	47,840	(10,490)	↓ 22
Long-Term Liabilities				
Bonds payable	38,000	37,000	(1,000)	↑ 3
Mortgage payable	2,100	1,900	(200)	↑ 11
Subtotal	40,100	38,900	(1,200)	↑ 3
Total Current Liabilities	98,430	86,740	(11,690)	↑ 13
Net Worth (Assets–Liabilities)	729,570	705,000	24,570	↑ 3
Total Liabilities and Net Worth	828,000	791,740	36,260	↑ 5

Current Assets

Current assets are those resources that are either cash, can be converted to cash, or used up within 1 year of the publication of a particular balance sheet. Cash is the most liquid of all assets and is always listed first. The concept of *cash* includes cash on hand and items known as *cash equivalents* such as savings, checking accounts, and some short-term certificates of deposits (Jones et al., 2019). Other financial instruments, including certificate of deposit (CD), investment assets, and marketable securities that could be liquidated to cash within the year, are also recorded as current assets. It is important for organizations to have cash on hand to fund the daily operations of the business, including timely payment to vendors, payroll, and to serve as a mitigating strategy for operational contingencies. *Days cash on hand* is an important financial ratio for the organization as it serves as an indicator of operational cash flow and is critically important to bond rating. We discuss aspects of ratio analysis later in this chapter.

Cash and cash equivalents are usually followed by **accounts receivable (AR)**, or patient revenue. *AR* refers to the money that is owed to the organization from the patient or insurer. The money owed to the organization as a result of core business activities—in this case, patient care operations—is reported on the balance sheet as a current asset. However, to generate the revenue associated with the provision of care requires a consumption of resources. The hospital must maintain an inventory of various patient care supplies and resources to service daily care operations. Those inventories that will be consumed because of clinical operations in the provision of care, such as stocked procedural implants, pharmaceuticals, and daily activity supplies, are all considered current assets and are reported accordingly on the balance sheet. These items are located within the facility and can be thought of as "on-the-shelf" inventory.

The sum of reported cash, AR, and inventories reflects an organization's current gross assets. However, in order to determine net assets, the following must be deducted: bad debt, charitable allowances, and contractual allowances associated with governmental and other payers. *Bad debt* represents payment for care that, although expected to be paid, is in fact not paid. Although organizations can use various measures for collecting these payments, at some point these charges are written off as a loss and thus subtracted from the organization's gross assets. The GAAP process for managing such nonpayments is to include a provision for bad debt on the balance sheet. This provision for bad debt is a prediction of the amount of money owed to the organization by patients and payers (Patient Revenue line in Table 8.1) that will never be collected. The number on this line for bad debt is an estimate derived through an annual assessment of the organization's actual bad debt from the prior year. *Charitable allowances* include care provided to those who have limited resources and are not expected to pay. The accounting for charitable care is managed in a parallel fashion to bad debt and likewise recorded on the balance sheet. Charity care is distinctly different from bad debt based on expectation of payment. Provisions for charity care are based on the known inability to pay on the part of the patient, whereas bad debt is expected to be paid by those with an ability to pay, but do not. Charitable care is free or donated care, whereas bad debt is the result of an unpaid bill. It is important to distinguish bad debt from charity because the latter can be used to demonstrate a financial benefit to the community, whereas the former cannot—a key consideration for not-for-profit providers. In hospitals that have less-han-optimal payer mixes, there is typically a larger percentage of unfunded and underfunded care provided to the community. Depending on ability to pay, that care may become bad debt or provided as uncompensated charity care. The larger the proportion of bad debt and charity care, the more financial value that must be subtracted from the organization's balance sheet.

Last, the *contractual allowance* line in Table 8.1 is most significant. This number reflects the discount to charges accorded to third-party payers by the hospital. These contractual rates are negotiated agreements between the hospital and payer and represent an agreed-on percentage reduction in the gross charges incurred by an episode of care. Depending on the relationship and contract with the provider, this can be a significant adjustment. Government payers exact more of a contractual allowance than do commercial payers. The combination of revenue write off associated with bad debt, charitable care, and government payors versus the relatively high rate of reimbursement among private insurance that underpins cost shifting within healthcare. Although appreciated on a national and political level, this cost shifting can be discretely visualized within your organization's own balance sheet. Particularly as it pertains to the contractual allowance, a higher proportion of private payers (fewer government payments) results in a lower contractual allowance and higher retention of gross assets as net assets.

Fixed Assets

Fixed assets (also called *property and equipment*) are an asset class that cannot be converted to cash within a year (Jones et al., 2019). Examples are land, building, and equipment owned by the organization. If there is any construction occurring on the campus, the value of that construction would also be considered a fixed asset. Fixed assets are listed on the balance sheet using the historical purchase price minus the accumulated depreciation for the assets. Fixed assets are used to generate revenues over time and we need to account for their usefulness accordingly. Furthermore, if we ascribed the purchase price of fixed assets to a single year without expensing the cost over time, we would have a disproportionately negative impact on profitability for the year of acquisition (Reiter & Song, 2021). To account for the long-term utility of a fixed asset, the initial cost of an asset is spread over time as an expense, which is termed *depreciation*. This spread of cost over time reflects the decrease in fair market value of the asset due to wear and use and the expected time in use of the asset (often referred to as an asset's *useful life*). For organizations participating with the Centers for Medicare & Medicaid Services (CMS), useful life of a tangible asset must be referenced to a CMS-approved guideline. The American Hospital Association publishes a CMS-approved book, *Estimated Useful Lives of Depreciable Hospital Assets*. This recurrent publication is an excellent source for the expected useful life of fixed assets specific to healthcare. The rate of depreciation is determined by the organization, but GAAP principles are adhered to for any such calculations. Typical of this calculation is the application of the *straight-line* method whereby the acquisition price of the asset minus any anticipated salvage value is divided equally over the estimated useful life of the asset. The resulting depreciation charge will be a constant flat rate over the useful life of the asset; thus, the value of the asset will decline evenly over time.

Liabilities

Liabilities are shown on the balance sheet as current and long-term liabilities. **Current liabilities** are those obligations that must be paid off within the year, whereas **long-term liabilities** are those that will be paid off over a time period longer than a year (Jones et al., 2019). The biggest liability for any healthcare organization is salaries and this is reflected under **accounts payable**. This number accounts for salaries owed to employees. Other accounts payable liabilities include money owed, but not yet paid to suppliers and pharmaceutical companies. *Accrued compensation* includes nonsalary liabilities such as vacation time, sick time, and benefits. *Accrued liabilities* are short-term obligations that will need to be paid by the organization and include interest, certain physician contract requirements, and Social Security payments. If the organization has

any long-term debts that are to be paid off within the year, these would also be found in this section. Long-term liabilities include bonds and mortgage payables, should the organization have an outstanding bond or mortgage. Once the liabilities are totaled, the **net worth** (or owner's equity) is the difference between the total assets and total liabilities. The goal, of course, is for total liabilities to be less than total assets.

Statement of Comprehensive Income: Income Statement

The income statement is also referred to as the *P&L statement* or operating statement (Table 8.2). This important document summarizes organizational and departmental revenue and expenses, or credits and debits. The purpose of the income statement is to show managers and investors whether the company made or lost money during the

TABLE 8.2 Income Statement (Profit and Loss)

($ in 000s)	3/20	3/19	Change	1-Year growth (%)
Gross Patient Revenues				
Routine services	$150,000	$142,500	$7,500	↑ 5
Inpatient ancillary	$62,500	$49,350	$13,150	↑ 27
Outpatient ancillary	$118,000	$96,500	$21,500	↑ 22
Other revenue	$2,500	$2,150	$350	↑ 16
Total Gross Revenue	$333,000	$290,500	$42,500	↑ 15
Deductions from Revenue				
Bad debt	$18,000	$21,500	$3,500	↓ 16
Government allowance DRG	$71,000	$60,800	($10,200)	↑ 17
Insurance contracts managed care	$35,400	$38,400	$3,000	↓ 8
Charitable allowances	$13,600	$12,500	($1,100)	↑ 9
Total Deductions	$138,000	$133,200	($4,800)	↑ 4
Operating Revenue	$195,000	$157,300	$45,700	↑ 24%
Operating Expenses				
Salaries	$90,250	$79,200	($11,050)	↑ 14
Benefits	$34,000	$31,800	(2,800)	↑ 7
Supplies	$27,200	$13,600	($13,600)	↑ 100
Medical fees	$4,300	$3,200	($1,100)	↑ 34
Purchased services	$8,400	$5,520	($2,880)	↑ 52
Maintenance	$7,500	$6,200	($1,300)	↑ 21
Professional liability	$1,400	$1,350	($50)	↑ 4
Other	$700	$350	($350)	↑ 100
Depreciation	$7,400	$6,200	($1,200)	↑ 19
Financing costs	$6,400	$6,100	($300)	↑ 5
Total Operating Expenses	$187,550	$153,520	$34,030	↑ 22
Net Income from Operations (pre-tax)	$7,450	$3,780	$3,670	↑ 97
% of Net Revenue (Margin) (Net Income/Net Revenue)	3.82%	2.40%	1.42%	

DRG, diagnosis-related group.

reporting period. It is usually a monthly document produced by each department as well as the entire organization. In larger organizations, this report can be compiled by individual division or service line. As a nurse leader, you will frequently encounter ideas and opportunities to improve patient care. Whatever the proposed program or project, understanding operating statements will enable you to assess the impact of proposed changes on the financial health of the organization. Possessing a clear knowledge of how costs and revenues are reported within the income statement will allow you to realistically evaluate the relative financial merits of healthcare initiatives. Assessing the expected income contribution of projects over time is key to evaluating business operations and directly influences strategic investment decisions of the organization. Your skill in demonstrating to senior financial leaders that your proposed project or program will generate income or create savings that improve the organization's ability to fund existing obligations is critical to gaining necessary approval to move your work forward. A key step in gaining that level of confidence is through developing a clear and articulate understanding of your organization's income statements.

Using GAAP principles, the revenue from patient care operations is listed first. Recall that gross revenue is what is charged to the patient or insurer rather than pure cash. Gross revenue is quite different from paid reimbursement, the cash payments collected for services. As mentioned previously, patient charges are adjusted based on contracts with insurers (contractual allowance) and are listed under "Deductions from Revenue" within the income statement.

Gross patient revenue can be broken down into several categories: routine services, inpatient ancillary, outpatient ancillary, and other revenue. Routine services include charges associated with standard patient care needs such as room charges, food, and medication. Inpatient ancillary revenue includes charges incurred during an inpatient stay for individual treatments, procedures, and tests performed by departments such as respiratory therapy, radiology, laboratory, physical therapy, and so forth. These departments are commonly referred to as *ancillary departments*. Outpatient ancillary revenue includes charges associated with individual treatments, tests, and procedures associated with care not provided during an inpatient admission. Lastly, there may be other revenue that comes into the organization by way of a gift shop or cafeteria.

Once the total charges are added up, we must account for bad debt, contractual allowances for both governmental and other payers, and charity care. This will result in net revenue from patient care, sometimes referred to as *operating revenue*. This is the amount of cash generated through the organization's clinical operations during the accounting cycle. This cash will be used to pay salaries, buy supplies, purchase services, and maintain the physical plant. For purposes of the income statement, we need to account for these operational expenses before we can derive the organization's **net income**.

Operating Expenses

Operating expenses are listed on the bottom of the income statement in this case, but other formats may report expenses on the right side of the statement with revenues recorded on the left. The first line item under this section is salaries, because it is the largest expense departmentally and organizationally. Followed by benefits, this is usually between 20% and 40% depending on the region in which the facility resides. Supplies, medical fees, maintenance, and **professional liability** expenses follow. All purchased services are also found under *operating expenses* and can be a large number depending on what services the organization outsources. For example, if housekeeping or nutritional services are an outsourced service, the fees would be found here. If the organization uses traveling nurses, they would be found here as well. Any depreciation

and financing costs would fall under *expenses* and, once totaled, the difference between revenue and expenses would be the net income. This is pretax; thus, for-profit organizations would need to pay taxes on this amount, which would need to be deducted from this number.

One important indicator of financial performance is the organization's net revenue percentage, also known as the *margin*. This number can be found by dividing the net income by the net revenue. One hopes this number is greater than zero. To maintain or improve margins, one can appreciate from the income statement why organizations develop discrete strategies to either increase revenue or reduce costs. As a DNP and organizational leader, you are well served to understand proposed budget changes and their subsequent impact on specific lines of the income statement.

Statement of Cash Flows: Cash Flow Statement

A *cash flow statement*, also known as **statement of cash flows** or *funds flow statement*, is a financial statement that shows an organization's cash inflows and outflows (Table 8.3). This document provides details as to the sources of cash and how the organization uses this cash, information not available through either the balance sheet or the income statement. The statement of cash flows is broken down into three constituent parts: operating, investing, and financing activities. Essentially, the cash flow statement is concerned with the flow of cash in and out of the business and explains year-over-year changes in the organization's cash position. The statement captures both the current operating results and the accompanying changes in the balance sheet. It is an analytical tool and useful in determining the short-term viability of a company as well as reporting on the profitability of core business operations. In healthcare facilities, cash flow statements contain information that is reviewed with the board of directors, especially if facing financial challenges or if it is a for-profit entity. The statements of cash flows will also indicate whether core business activities are self-sustaining, or whether the organization must pull in cash from other resources to cover operations.

TABLE 8.3 Cash Flow Statement

($ in 000s)	January 1, 2019 to December 31, 2019 ($)
Net income	131,000
Depreciation and amortization	70,000
Decrease (increase) in inventories	(20,000)
Decrease (increase) in accounts receivable	20,000
Increase (decrease) in accounts payable	30,000
Cash Flows from Operations	231,000
Capital expenditures	(40,000)
Cash Flows from Investing	(40,000)
Increase in bank loans	0
Increase in long-term debt	2,000
Increase in paid-in capital	0
Cash Flows from Financing	2,000
Net increase (decrease) in cash and equivalents	193,000
Cash at beginning of year	80,000
Cash at end of year	273,000

Note that for the cash flow statement, the organization's depreciation is added back into the analysis. Recall that in the income statement we subtract depreciation from gross revenues as part of the accounting mechanism to derive net revenue. The cash flow statement is an analysis of cash flows into and out of the organization and is not a report on net income. A simplification is that the cash flow for the organization is the result of net operating income plus noncash expenses (Reiter & Song, 2021). Thus, for purposes of analysis we add back our charge for depreciation as well as adjust for considerations of inventories, receivables, and accounts payable to fully understand the flow of cash into and out of our organization.

Financial Ratios and Ratio Analysis

Looking at each individual number or line item from the financial statements (see Table 8.3) provides valuable insight. However, when key numbers within the financial statements are compared with others, we are given insight into the finances of the organization that we would not have had when looking at individual numbers alone. This evaluation of business performance using accounting data is referred to as *ratio analysis*. Ratios should be compared over a given time frame and are more valuable when also compared to state, regional, and/or national benchmarks for the same ratio. The most common types of ratios include:

- liquidity ratios, which provide insight into an organization's ability to meet its obligation over the next year;
- solvency ratios, which provide insight into an organization's ability to meet its obligation in the long term
- Ccommon-size ratios, which provide an indication of the relative size of the organization;
- profitability ratios, which provide insight into an organization's ability to produce profits and cash flow;
- efficiency ratios, which provide insight into how efficiently an organization is using its resources.

Table 8.4 provides a closer look at common financial ratios used in healthcare organizations and how to calculate them.

DEPARTMENTAL/UNIT TOPICS

Departmental Operating Report

The **departmental operating report,** also known as the *cost center report,* contains relevant information about a particular department or operating unit. Usually available on a monthly basis, this report may contain information from multiple departments within the same division or report on a single operating unit. The difference between the departmental report and the income statement is that the departmental reports thoroughly break down revenue and expenses to the individual cost center to help managers keep a close eye on the money going in and out of their units (Waxman, 2008). This report does not contain information regarding contractual allowances, which is addressed at the hospital level. As a result, gross revenue may be monitored at the unit level for purposes of assessing charge capture opportunities and possible patient trends, but not net revenue—thus, the departmental operating report emphasis on expense control and variance reporting.

Many departments, due to changes in volume, have variances that occur when the budget is compared to actual operating expenses. When this occurs, most institutions

TABLE 8.4 Additional Financial Ratios

Current Ratio	
What it is	The current ratio is an indicator of whether a hospital has enough resources to pay its debts over the next 12 months. It compares current assets to current liabilities.
How it is used	The current ratio helps investors and creditors understand the liquidity of an organization and how well that organization is managing its liabilities. A higher current ratio is more favourable than a lower current ratio because it shows that the organization can easily manage its current debt.
How it is calculated	$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$
Quick Ratio (Acid Test)	
What it is	Measures the dollars of current assets (not including inventories) per dollar of current liabilities.
How it is used	The quick ratio is a more stringent measure of liquidity than the current ratio because it removes the least liquid of assets, inventories, from the calculation.
How it is calculated	$\text{Quick ratio (Acid test)} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$
Debt Ratio	
What it is	The debt-to-equity ratio is another analysis of liquidity that compares an organization's total debt to total equity.
How it is used	The debt ratio defines debt as all interest-bearing and noninterest-bearing liabilities, making it the most inclusive of the capitalization ratios. The debt ratio shows the percentage of financing that comes from creditors and investors. The higher the debt ratio, the greater the amount of debt financing.
How it is calculated	$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} \times 100$
Total Margin (%)	
What it is	Net income divided by total revenue.
How it is used	Calculates an organization's ability to control expenses by measuring the total profitability as a percentage of total revenues. The higher the total margin, the better it is. Note that total margin includes both operating and nonoperating revenue, so an organization could be operating at a loss but, if nonoperating revenue were large enough, still have a positive total margin.
How it is calculated	$\text{Total margin} = \frac{\text{Net income}}{\text{Total revenues}} \times 100$
Return on Assets (%)	
What it is	This ratio is a profitability ratio that measures total profitability as a percentage of total assets. It provides guidance on how efficiently an organization uses it to generate income.

(continued)

TABLE 8.4 Additional Financial Ratios *(continued)*

How it is used	Often referred to as the *return on total assets*, the higher the ratio the more favorable the organization is to investors as it shows more effective management of assets to produce greater amounts of net income. A positive ratio usually indicates an upward profit trend as well.
How it is calculated	$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} \times 100$
Days Cash on Hand	
What it is	Days cash on hand measures the number of days that an organization could continue to pay its daily cash obligations without new cash resources.
How it is used	Higher values imply higher liquidity and are viewed favorably by creditors. However, organizations should avoid holding excess amounts of cash and short-term investments because they typically provide a lower return than long-term investments.
How it is calculated	$\text{Days Cash on Hand} = \frac{\text{Cash + short - term investments}}{(\text{Total expenses} - \text{Depreciation}) / 365}$
Days in Accounts Receivable	
What it is	Days in accounts receivable) is a measure of the average time it takes an organization to collect what it is owed (receivables).
How it is used	Provides insight into how effective an organization is at managing its receivables. The shorter the average collection period, the lower the dollar amount of receivables, which leads to a lower carrying cost.
How it is calculated	$\text{Days in AR} = \frac{\text{Net patient accounts receivable}}{(\text{Net patient service revenue} / 365)}$
Average Age of Plant	
What it is	Average age of plant is the average age (in years) of an organization's fixed assets.
How it is used	Provides an indication of how "distressed" an organization's fixed assets are. A low average age usually indicates that an organization will not require large capital expenditures in the near future. Empirical studies show an association among financial status, bond ratings, and net operating revenue projections with an organization's average age of plant and equipment.
How it is calculated	$\text{Average Age of Plant} = \frac{\text{Accumulated depreciation}}{\text{Depreciation expense}}$
Average Daily Census	
What it is	The average daily census is the average number of inpatients treated during a given period of time.
How it is used	Provides a measure of inpatient volume on the basis of number of patients. Because a higher number spreads fixed costs over a greater number of patients, a higher average daily census is considered beneficial as it tends to indicate higher profitability.
How it is calculated	$\text{Average daily census} = \frac{\text{Total number of inpatient services for a given period}}{\text{Total number of days in the same period}}$

(continued)

TABLE 8.4 Additional Financial Ratios *(continued)*

Inpatient Bed Occupancy Rate	
What it is	The occupancy rate is the actual number of inpatient beds occupied by patients over a given time. It is expressed as a percentage of the total number of **available beds**.
How it is used	This ratio is used to gauge the appropriate balance between the demand for inpatient care and the number of beds available to provide inpatient care. The occupancy rate is a calculation used to show the actual utilization of an inpatient health facility for a given time period.
How it is calculated	$\text{Occupancy rate} = \frac{\text{Total number of inpatient beds occupied}}{\text{Total number of inpatient beds available}} \times 100$

require the manager of the area to provide explanations of these variances and a plan to mitigate them. Many organizations request explanations of variances for both positive and negative outcomes of certain amounts (variances between line items). As an individual with oversight (and responsibility), it is essential to understand each line item of your budget. The "buckets" of items that can occupy each line item can be surprising, and if you are new to your position and your predecessor is not available, you may become mired in the available details. Most organizations have guidelines of what should be placed in each line item of a budget, but there is variability among institutions. A thorough review of these operating or cost center reports will certainly be part of your onboarding to a new role or organization where you have such budgetary authority. If this has not been provided, seek this assistance immediately as you will be held accountable to the operating performance of your department/s. It is strongly recommended that you set regular meetings with your organization's finance program manager to thoroughly understand your operating reports and develop the acumen for proactively detecting trends and issues that you and your teams need to address.

With the digitization of clinical health records, many organizations use data generated from electronic health records (EHRs) to produce clinical and financial information as part of an integrated and enterprise-wide approach to data management. The integration of clinical and financial data provides the ability to capture charges associated with care delivery within the normal flow of patient care and clinical documentation. The benefit of this digitized and enterprise-wide approach is that it often comes with dashboards that provide an at-a-glance view of financial performance. If your organization uses such an approach, you will want to become familiar with how the data are generated and develop a clear understanding of what actions you can take in response to identified trends and issues.

VARIANCE

Variances occur in many ways for many reasons in healthcare. As far as budgeting is concerned, the **variance** is the difference between what has been projected for the budget and the actual performance. For the individual who has oversight of the budget, variance analysis is often a monthly exercise, which provides the rationale for why there is a positive or a negative variance in a particular cost center. There are many variables that can affect a variance, and as the individual with oversight, it is critical to know how to articulate and explain these causes.

EXHIBIT 8.1

Payroll Variance This Month ($40,000)

	Budget	Actual	Variance
Patient days	450	500	50 patient days over what was budgeted
Payroll dollars	$209,854	$249,854	($40,000) over what was budgeted
Cost/patient ay	$466.34	$499.71	($33.37/patient day) more than budgeted

Analysis of variance:
Volume: What portion of the variance can be explained by the volume increase of 50 patient days?
50 days × $466.34 per patient day (as budgeted) = $23,317
With the $40,000 variance in payroll, only $23,317 is attributed to volume increase. How will you explain the remaining $16,683? Acuity, transfers, overtime?

The terms *positive* and *negative* are usd when describing a variance. When volume and overtime are both higher than expected, there would be both a positive and negative variance, with the positive referring to the increase in the volume and the negative referring to the overtime. These two variables are often closely linked, and it is the role of the nurse leader to review and adjust staffing if the variability becomes the norm. As a DNP and nurse leader, it is important to be able to explain variances fully and develop appropriate action plans to manage these variances. For example, if the volume (patient days) increases in a particular nursing unit, it would be safe to assume that the salaries would increase as well. The example in Exhibit 8.1 shows us that, even though the volume increased, salaries increased more than usual.

Typically, variance reporting involves explanation of variance from target budgets. A target budget is a budget that flexes with volume and adjusts budget variables directly affected by volume. This is a particularly useful accounting tool in health care, where patient volumes fluctuate for any number of reasons from budgeted volumes. As mentioned, if patient volumes are more than budgeted, the organization can reliably predict that salaries will also be above budget. In the case of a flexing variable such as labor cost, the increase in cost expected should be predictably reliable based on the volume observed. In simple terms, a 5% increase in monthly patient volume may be expected to increase labor costs by 5%; thus, the target labor budget for the month would be 105% of what was initially budgeted by the organization. However, if actual labor budget (labor dollars spent during the month) exceeds this new target, then the manager may be required to explain why the labor costs were higher than expected, after considering the additional volume. Variance reporting at the cost center level is almost exclusively an analysis of productivity (labor, volume, overtime) that compares actual month end results to targeted (volume-adjusted) budgets.

KEY INDICATORS FOR PERFORMANCE

Contractual Allowances

You have learned in previous chapters how providers are reimbursed and why simply increasing patient charges does not necessarily generate additional net revenue, as we are typically paid on a diagnosis-related group (DRG) basis or flat rate or percentage of charges. An example of an actual Medicare DRG reimbursement for a hospital can be found in Exhibit 8.2.

EXHIBIT 8.2

Sample Medicare DRG Reimbursement

Net Revenue and Profit Calculation/Medicare Acute Admission

	Base calculation	DRG 127 heart failure and shock $30,758.65	
Gross Charge	**(Total Charges Incurred and Billed to Medicare)**		
Reimbursement calculation:	Federal standard labor	$3,022.18	
	Wage index	x 0.9793	
	Wage adj. std amt	$2,959.62	
	Nonlabor fed std amt	1,852.31	
	Adjusted base rate	$4,811.03	
	Oper. dispropr. share	$1,654.34	
	Operating IME	548.44	
	Federal capital rate	427.03	
	Large urban factor	x 1.03	
	Geograph. adj. factor	x 0.9858	
	Adj. capital rate	$ 433.60	
	Capital disprop. share	50.82	
	Capital IME	61.74	
	Total base payment	$7,989.91	$7,899.91
	DRG weight (intensity)	1.0	1.049
Total Reimbursement	**DRG Payment**	**$7,989.91**	**$8,381.41 (amount hospital was paid)**
Contractual adjustment—(gross charges less reimbursement)			**$22,377.24 (amount hospital wrote off)**

Wage index is a value associated with the Office of Management and Budget's CBSA-based geographical designations, by which the base rate may be adjusted.
amt, amount; CBSA, core-based statistical areas; DRG, diagnosis-related group; fed, federal; IME, independent medical examination; std, standard.

Depreciation

Depreciation is the loss in value the organization anticipates for its buildings and equipment. As assets age, they become less valuable. From an accounting perspective, buildings and equipment generally wear out over time and their value is reduced; they are said to depreciate in value. To account for the diminished value of the organization's assets, we need to capture depreciation on both the **balance sheet** and income statement. The depreciation expense is the amount of the original cost of a fixed asset allocated as an expense each year. The current value of the depreciated equipment is found on the balance sheet as an asset. Depreciation is usually not done at the unit level; it is calculated at the hospital level. So unless you are working in the finance department, you most likely won't be involved in calculating it. Where you will be involved is in the

planning process for replacing capital assets assigned to your department. Imaging equipment, patient care beds, and telemetry systems are just a few of the many types of assets assigned to your unit that are expected to stay in service for many years. Prematurely replacing capital equipment before it has fully depreciated can result in a significant write down of asset values. Such an action, depending on the size of the write down, can have a profound impact on the income statement and balance sheet. As a manager, you need to be aware of those **capital assets** listed that are attributed to your department and work with finance teams to strategically plan an appropriate replacement timeline.

Earnings Before Interest, Taxes, Depreciation, and Amortization

Earnings before interest, taxes, depreciation, and amortization represent how much money a company earns if it did not have to pay interest, tax, or take depreciation and amortization charges. EBITDA is intended to be an indicator of a company's financial performance without consideration of debt, tax, or asset base. EBITDA calculations enable a comparison of profitability across companies and industries despite variations in individual financing and accounting practices. It is also a useful measure for a company's creditors, as it shows the income available for interest payments. This is becoming a much more common way to determine earnings.

Paid Claims Ratio

Paid claims ratio (PCR) is the hospital's billed charges versus what it actually collects. This metric is similar to asking what we collect on the dollar. To calculate the PCR, we look at the gross charges and divide that number by the actual revenue collected. Here is an example:

Gross charges: $800,409,012

Collectable revenue (due to contractual allowances): $208,027,145

The percentage of revenue versus gross charges can be calculated by dividing the collectable revenue by the gross charges:

$208,027,145/800,409,012 = 26%. This means that the PCR is 26%, and that for every dollar billed, the hospital collects 26 cents.

Year to Date

Year to date (YTD) refers to the period usually beginning the first day of the yearand continuing to the present day. The year usually starts on January 1 (calendar year) but depending on purpose can also start on July 1 (fiscal year). YTD is used in many contexts, mainly to record an activity's ongoing progress from a set date and prior to its completion (Dunham-Taylor & Pinczuk, 2010).

CONSTRUCTING PERFORMANCE MODELS

Pro Forma Balance Sheet

The term **pro forma** is Latin for "as a matter of form" or "for the sake of form" and is applied to the process of modeling financial performance or outcomes based on a series of business assumptions. Pro forma documents demonstrate predicted performance of a project or business operation over time, focusing on key financial statements such as the balance sheet and cash flows associated with the investment. The documents do not

follow a prescribed accounting format akin to GAAP, but are instead developed at the entity level in alignment with established organizational standards. These tools are used to assist executive leaders in the decision-making process on how best to deploy the organization's financial resources. The role of the executive DNP requires the knowledge to both interpret and construct pro forma financial statements. Possessing such skills enables you to advocate more effectively for funding of your projects as well ensures good stewardship of your organization's financial resources.

Depending on the standards of your organization, a pro forma assessment may be required for a variety of different projects or business investments. Projects with a capital investment at a certain dollar threshold may require pro forma statements that outline the project's future business operations, typically a time horizon of 3 to 5 years. Estimating hypothetical business performance beyond 5 years is generally considered unreliable, whereas estimating less than 3 years is insufficient in determining the full impact of the project (Jones et al., 2019). These more robust pro forma documents will include an outline of business assumptions that underly the analysis. It is critical to include the assumptions and a description of rationale so the reader can understand the basis for projected performance. These assumptions include considerations such as market growth, market capture, wage growth, full-time equivalent (FTE) efficiency, workload volume, inflation, regulatory mandates, and so on. The list of possible assumptions is nearly endless; thus, it is essential to collaborate with your financial team to ensure you properly identify and address operational variables with a material effect on your project. In truth, the financial team will likely take the lead in constructing the actual pro forma documents, looking to you to add your expertise to validate and explain the operating assumptions.

A simplified example of a balance sheet pro forma is presented in Exhibit 8.3. In this hypothetical example we explore a summary review of the balance statement for a proposed expansion of the site's ED. Following completion of the expansion in the years preceding "Year 1," we can see the predicted financial performance of the additional ED space. You will notice this pro forma balance sheet looks like the balance sheet discussed previously and presented in Table 8.2. Note that the pro forma here is not a report on actual performance during an evaluation period and is instead a forward-looking document used to evaluate the return on the investment required to expand the ED. Using this tool enables decision makers to assess the profitability of a proposed project through an analysis of assumed revenues and expenses.

The pro forma balance sheet provided in Exhibit 8.3 demonstrates that the project will generate additional revenue for the organization compared to existing operations. In this example, the pro forma considers the incremental growth associated with the ED expansion. There is additional volume to be realized for both inpatient and outpatient visits. The pro forma predicts the increased volume will create a financial return for the organization that exceeds the operational expense required to generate this revenue. This is reported on the **contribution margin** line of the pro forma balance sheet. Notable is the lack of margin in Year 1 of the project. The outsized expense recorded in Supplies for Year 1 accounts for this deficit. In evaluating the pro forma one needs to explore the Year 1 Supplies expense to understand why the negative margin is anticipated. There are several potential reasons for this "startup" cost (capital equipment) and it is essential for the author to clearly explain and for reviewers to understand the rationale. It is also important to notice that in Year 5 of the pro forma balance sheet the organization is expecting zero growth of inpatient admissions despite the ED expansion. Inpatient volumes are an essential component of hospital financial operations and any cap to this volume would be an adverse situation for the organization. Particularly here where the prediction is that outpatient volume is expected to continue to grow in

EXHIBIT 8.3

ED Expansion Pro Forma Balance Sheet

	Year 1	Year 2	Year 3	Year 4	Year 5
Inpatient ED visits	138	280	395	512	512
Outpatient ED visits	2,486	3,832	4,714	5,610	6,518
Total ED visits	2,624	4,112	5,109	6,122	7,030
Gross revenue	13,396,109	23,235,060	30,552,132	37,758,985	40,093,541
Revenue deduction	9,220,332	16,203,580	21,520,837	26,670,224	28,320,068
Net patient revenue	4,173,777	7,031,480	9,031,295	11,088,761	11,773,473
	31.5%	30.3%	29.6%	29.4%	29.3%
Direct Expenses					
Salaries and benefits	1,519,102	2,764,699	3,974,730	4,971,729	5,286,882
Professional fees	28,118	51,081	68,591	88,416	90,924
Supplies	2,243,468	683,286	984,345	1,406,429	1,457,834
Purchased services	200,800	350,703	454,638	563,481	609,355
Depreciation	1,193,226	1,193,226	1,193,226	1,193,226	1,193,226
Other expense	19,141	33,521	46,121	57,513	62,083
Total Direct Expenses	5,203,855	5,076,516	6,721,651	8,280,794	8,700,304
Contribution Margin	(1,030,078)	1,954,964	2,309,644	2,807,967	3,073,169

Year 5. It is safe to assume some proportion of patient volume needing admission in Year 5 cannot be accommodated by the hospital's inpatient capacity. Thus, without further intervention the organization will be compelled to transfer lucrative inpatient admissions to other facilities, possibly competing entities. Demonstrated by this pro forma balance sheet, the organization is faced with excess demand on its inpatient services that will materialize as capped capacity in Year 5 of this project. The author and reviewers will need to delve deeply into this element of the pro forma to fully understand the anticipated barriers to inpatient growth, the financial ramifications of this limit, and what mitigation or resolution efforts are required to address this expected outcome. Despite the executive DNPs best efforts and wishes, a patient flow discussion and project appear to be forming on the near horizon for this organization.

Of course, what is missing from this pro forma balance sheet is the overall capital investment required to build the ED. Or in other words, the Year 0 costs and investments required to build the ED. Taken by itself, the expanded ED will provide profitable business operations for the organization. By now you realize this is an incomplete assessment of the investment. The one consideration of cost for the project on this balance sheet is the inclusion of depreciation on the pro forma, though certainly this is insufficient for the scope of this initiative. Development of an appropriate pro forma cash flow statement is required to assess the investment potential of this expansion. The pro forma cash flow statement would include consideration of the upfront investment required to build the ED, any costs to operations due to disrupting the existing space, as well as an assessment of the time value of money funding the project. For an exploration

of cash flow statements as applied to a capital investment, please see Chapter 6 of this text. The **pro forma cash flow statement** is created similarly, though the outcome is a hypothetical projection of anticipated performance and includes a list of explained assumptions. Typical of a business pro forma is the inclusion of both the balance sheet and cash flow statement that incorporate the same set of operational and market assumptions. Again, the construction of such a document is a collaborative exercise among financial, operational, and executive team members.

Pro forma documents may be required for a variety of reasons. In addition to the ED expansion proposal, organizations may necessitate pro forma assessment of investments in capital equipment replacement or acquisition, expansion of operational FTE structure, or development of new clinical programs (outpatient education, palliative care, disease specific specialty coordinators, etc.). The pro forma documents that accompany these investment requests serve to identify business assumptions and translate them into an operational prediction. Articulating these assumptions, the requestor seeks to build the hypothetical case for investment in their proposal. This exercise enables the organization's decision makers to assess the quality of the proposed program across a variety of key performance metrics deemed by the organization as critical to success—alignment with strategic priorities, service to mission, threshold financial performance, and so on Regardless of the initiative, a clear understanding of your organization's requirements and standards regarding pro forma assessments is critical to your success within executive leadership.

CONCLUSIONS

It is critical that nurse leaders, especially DNPs, are knowledgeable about the elements of financial statements and their implications for practice. As healthcare business becomes more complex, with evolving delivery models, continuously changing payment structures, and increasing financial pressures, strong financial acumen is essential for the DNP. It is insufficient to possess a definition-based understanding of these documents. The successful DNP executive will advance their practice to a deeper comprehension of how these documents explain business performance and offer insight into future performance.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. The invasive radiology department has just purchased a piece of equipment that enables it to perform many procedures faster. One of the results of this improvement is that the department is able to schedule 20% more cases on an average weekday. During the preplanning of this improvement, the director of short stay was not included and was told her staffing needs might increase by 10%. After the first month of the use of the new equipment, the short stay unit had the following variances.
   a. Which of the variances are positive?
   b. Which of the variances are negative?
   c. What does the director need to report to senior leadership as to what has happened and why, and what she is doing to make appropriate adjustments?

	Budget	Actual	Variance
Volume (patients)	1,000	1,200	200
Overtime hours (staffing)	50	75	25
Supplies	5,000	5,100	100

2. Using the information in the table, complete the blank columns by calculating the variance (both positive and negative) for each month's patient days and nursing hours. Enter your answers in the blank columns.

	Month	Actual Patient Days	Budgeted Patient Days	Variance	Actual Nursing Hours	Budgeted Nursing Hours	Variance
1	January	1,116	1,116		10,965	10,044	
2	February	1,030	1,008		10,209	9,074	
3	March	974	896		8,060	8,064	
4	April	876	960		8,560	8,640	
5	May	930	868		7,739	7,812	

3. Your hospital replaced its entire inpatient bed fleet 10 years ago (120 months) and the nursing departments are stating they need to be replaced again. The beds were originally purchased for $15,000 each and the replacement beds from the same vendor are now $20,000 each. At the time of the original purchase, the beds were assigned a useful life of 15 years.
   a. What is the net book value (NBV—or remaining depreciation) for the organization's 200 beds?
   b. How would the NBV influence your decision-making to support or not support this request?
   c. As a nurse leader responsible for stewardship of financial resources, ensuring quality patient outcomes, and maintaining an engaged nursing workforce, how would you proceed in balancing these three requisite responsibilities of your role?
4. Review the income statement provided in Table 8.2 and address the following questions:
   a. From your analysis, you understand that the net margin for the organization has shown strong growth over the past year. What factor/s is/are driving this improved performance?
   b. What concerns do you have regarding current financial performance of this organization? As an executive leader within this organization, what priority issues should this organization address?
   c. Is your impression of the reported financial performance generally favorable or unfavorable? Why?
5. Using the data in Table 8.1 and the definitions given in Table 8.4, calculate the current ratio, quick ratio, and the debt ratio.
   a. What information do these ratios provide?

   b. If you were concerned about the result, what could be done to adjust these ratios?
   c. In what ways could these ratios be negatively impacted?
   d. When assessing the results of these ratios, what advice would you have for this organization if it was considering securing financing for a major capital expense?

6. Using the data in Table 8.1 and the definitions in Table 8.4, calculate the days cash on hand.
   a. What information does this financial ratio provide?
   b. If you were concerned about the result, what could be done to positively impact this ratio?
   c. In what ways could this ratio be negatively impacted?

7. Using the information in the following table, calculate the average daily census and the bed utilization rate over the last 3 months for this 395-bed hospital.

Month	July	August	September
Days of service	11,480	10,150	9,765

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 9

Ensuring Quality Care While Controlling Costs

Juli Maxworthy

How do we ensure that we provide the highest quality of care? The National Academy of Medicine, orNAM (formally known as the *Institute of Medicine [IOM*]), which has done extensive research and produced the game-changing healthcare work *To Err Is Human: Building a Safer Health Care System* in 1999, defines *quality in healthcare* as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (IOM, 1999, p. 211). *To Err Is Human* (IOM, 1999) and subsequently, *Crossing the Quality Chasm* (IOM, 2001) were reports that rocked the healthcare industry to its core. How could we be allowing 44,000 to 98,000 people to die in hospitals across the United States due to preventable errors every year? It seemed an impossible statistic. Insurance companies as well as the Centers for Medicare & Medicaid Services (CMS) up until the past couple of decades had paid hospitals no matter what the patient outcomes. Payments were made for treatment for peventable healthcare outcomes, such as pressure ulcers and falls, by these payers, and it was assumed that that this was just part of doing business in healthcare.

Crossing the Quality Chasm (IOM, 2001), which was published 20 years ago, provided healthcare with tangible solutions for what appeared to most to literally be a chasm that existed in healthcare related to ensuring that quality care is provided. The report identified many sources of underuse, misuse, and overuse of our current healthcare system, which contributes to the overall healthcare costs by increasing direct, indirect, and opportunity costs (IOM, 2001). The authors of the report identified six important aims for the U.S. healthcare system. The IOM report (2001) suggests that care should be:

- safe (avoiding injury to patients),
- effective (providing care based on scientific knowledge while minimizing the overuse, underuse, or misuse of care),
- patient centered (being respectful, responsive, and considerate of patient preferences, needs, and values),
- timely (minimizing delays and wait times),
- efficient (avoiding waste), and
- equitable (providing care that does not vary based on race, gender, geography, or socioeconomic status).

These straightforward tenets seem reasonable, but, in light of the current state of healthcare in the United States, also seem unattainable. These same elements are woven

into several of the Essentials of the American Association of Colleges of Nursing (AACN) Core Competencies for Professional Nursing Education. There is a tremendous need for healthcare leaders to understand the connection between quality outcomes and the savings that can affect the bottom line. There are a multitude of organizations that are insisting and assisting healthcare institutions gain and maintain quality outcomes for the benefit of society. This chapter provides insight and examples of how healthcare is trying to determine what a positive outcome looks like to both the consumer and the institution. It explores the delicate relationship in healthcare between quality and costs and how understanding this relationship can be a critical piece in making a business case for funding initiatives, which can improve the outcomes of our patients. It also discusses the relationships among healthcare financing, costs, and quality outcomes and the value of building a business case for quality that can ensure that money is spent on the right initiatives. By understanding the essential elements of quality and learning how to improve outcomes and incorporating them into an effective business plan, the DNP will have the tools to make the necessary changes to healthcare.

The *AACN Core Competencies for Professional Nursing Education* (2021) include several domains that are important to the DNP as they pertain to quality:

- **Domain 5:** Quality and Safety Descriptor: Employment of established and emerging principles of safety and improvement science. Quality and safety, as core values of nursing practice, enhance quality and minimize risk of harm to patients and providers through both system effectiveness and individual performance.
- **Domain 6**: Interprofessional Partnerships Descriptor: Intentional collaboration across professions and with care team members, patients, families, communities, and other stakeholders to optimize care, enhance the healthcare experience, and strengthen outcomes.
- **Domain 7**: Systems-Based Practice Descriptor: Responding to and leading within complex systems of healthcare. Nurses effectively and proactively coordinate resources to provide safe, quality, equitable care to diverse populations.
- **Domain 8**: Information and Healthcare Technologies Descriptor: Information and communication technologies and informatics processes are used to provide care, gather data, form information to drive decision-making, and support professionals as they expand knowledge and wisdom for practice. Informatics processes and technologies are used to manage and improve the delivery of safe, high-quality, and efficient healthcare services in accordance with best practice and professional and regulatory standards.
- **Domain 9:** Professionalism Descriptor: Formation and cultivation of a sustainable professional nursing identity, accountability, perspective, collaborative disposition, and comportment that reflects nursing's characteristics and values.
- **Domain 10**: Personal, Professional, and Leadership Development Descriptor: Participation in activities and self-reflection that foster personal health, resilience, and well-being, lifelong learning, and support the acquisition of nursing expertise and assertion of leadership (AACN, 2021).

QUALITY-IMPROVEMENT STRATEGIES/TECHNIQUES

Structure/Process/Outcome

There are multiple proven strategies that can be applied to assist with performance-improvement activities. To begin this section, the AACN Domain 5—Quality and

Patient Safety—includes a published document that provides some integrative learning strategies that align quality with the competencies (https://www.aacnnursing.org/Portals/42/Downloads/Essentials/DOMAIN-5-QUALITY-SAFETY-DRAFT.pdf). Several unfolding case studies are provided that reinforce important quality and patient-safety strategies. All these resources are a helpful introduction to quality and patient safety and can be incorporated into the classroom or boardroom.

It is important to discuss one of the founders of modern quality, Avedis Donabedian. Donabedian defined quality as a function of structures, processes, and outcomes of care (Donabedian, 1966). He described structural aspects of quality as resources used in the provision of care (e.g., physicians, nurses, and other health care providers), process aspects of quality as the activities involved in providing care (e.g., the model of care delivery used and organizational policies and procedures), and outcomes as the consequences of care (e.g., condition-specific results of care and patient satisfaction; Donabedian, 1982). He also identified seven pillars considered to be attributes of quality (Donabedian, 1990):

- **efficacy**: the ability of care to improve health
- **effectiveness:** the degree to which attainable health improvements are realized
- **efficiency**: the ability to obtain the greatest health improvement at the lowest cost
- **optimality**: the most advantageous balancing of costs and benefits
- **acceptability:** conformity to patient preferences regarding accessibility, the patient–practitioner relationship, the amenities, the effects of care, and the cost of care
- **legitimacy**: conformity to social preferences concerning all of the preceding pillars
- **equity:** fairness in the distribution of care and its effects on health

The similarities between Donadebian's work and that of the Institute for Healthcare Improvement (IHI) regarding the recommendations of the IOM report *Crossing the Quality Chasm* should be noted. In the late 1990s, the Nursing Role Effectiveness Model (Irvine et al., 1998), derived from Donabedian's structure–process–outcomes framework, was conceptualized as an approach for measuring and improving quality in nursing. In keeping with Donabedian's approach, this model recognizes that structural and process components affect patient outcomes. Pringle and Doran (2003) identified the following as examples of variables that comprise these three components:

- **Structure:**
  - **Patients:** age, gender, education, socioeconomic status, type and severity of illness, comorbidities
  - **Nurses**: education, experience, position, tenure
  - **Organization:** staffing, **staffing mix**, workload, and work environment
- **Process:**
  - Nurses' independent role, including patient education and the implementation of nursing interventions
  - Medical care-related activities, including medically directed or prescribed care, and the expanded scope of advanced nursing clinical practice
  - Interdependent role: communication, coordination of care, discharge planning, and case/care management
- **Nurse-sensitive outcomes:**
  - Functional health outcomes, such as functional status, and self-care ability
  - Clinical outcomes, such as symptom control and pain management

- Knowledge of disease, treatment, and management; prevention of complications and patient safety
- Patient satisfaction with care
- Cost

Plan–Do–Check–Act or Plan–Do–Study–Act

Plan–do–check–act (PDCA) or **plan–do–study–act (PDSA)** involves a successive cycle that starts off small to test potential effects on processes, but then, as the proof of concept is determined, it gradually leads to larger and more targeted change. PDSA/PDCA was made popular by Dr. W. Edwards Deming, who was considered by many to be the father of modern quality control; however, Deming always referred to it as the *Shewhart cycle*. Later in Deming's career, he modified PDCA to PDSA, as shown in Figure 9.1 because he felt that "check" emphasized inspection over analysis (*study).*
The elements of the repetitive process are:

- **Plan:** Establish the objectives and processes necessary to deliver results in accordance with the expected output (the target or goals). By making the expected output the focus, it differs from other techniques in that the completeness and accuracy of the specification is also part of the improvement.
- **Do:** Implement the new processes, often on a small scale, if possible, to test possible effects. It is important to collect data for charting and analysis for the following step.
- **Study:** Measure the new processes and compare the results (collected in *Do* in the figure) against the expected results (targets or goals from the *Plan*) to ascertain any differences. Charting data can make it much easier to see trends in order to convert the collected data into information. Information is what you need for the next step, *Act*.

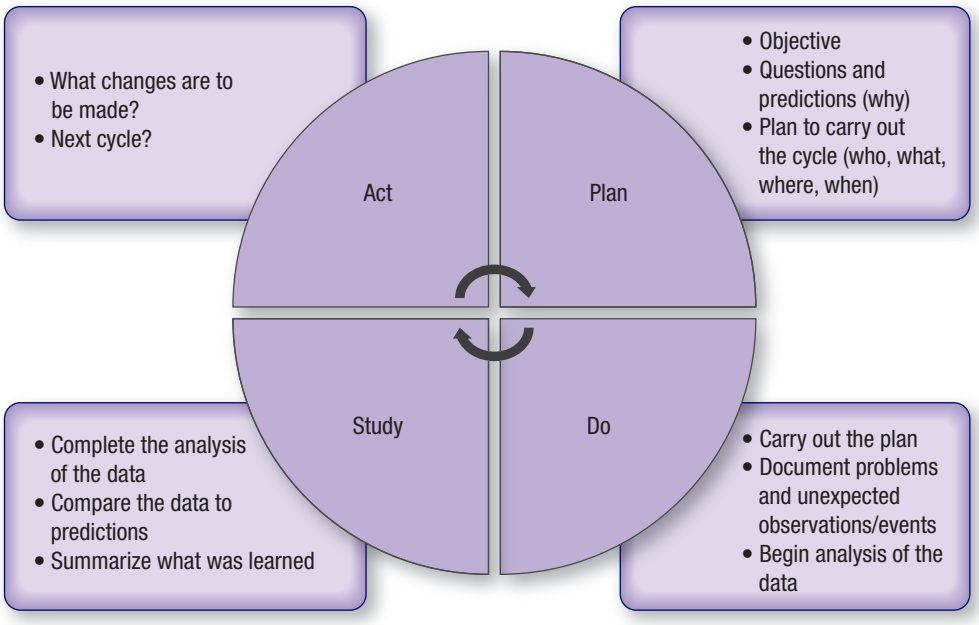

FIGURE 9.1 Plan–do–check/study–act example.

- **Act:** After analyzing the results, it is important to determine their cause. The determination of causes usually leads to more work to be done. Through this process, it can be determined where to apply changes that will make improvements. When a pass through these four steps does not result in the need to improve, refine the scope to which the cycle of improvement is applied until there is a plan that involves improvement.

A fundamental activity of the method is iteration—once a hypothesis is confirmed (or negated), executing the cycle again extends the knowledge further. Repeating the cycle can bring the project closer to the goal, usually a perfect combination of operation and output. A PDSA is a well-known and used process-improvement strategy. A part of ensuring success is to perform small tests of change. Repeating the mantra, "one nurse/doctor/pharmacist/tech, one patient, one day," is a way to ensure that efforts are successful, and change can happen in "real time." It is important to perform these cycles in an organized fashion to be able to ensure proper tracking of findings. Many are often ready to "laminate" their work before it has been thoroughly tested, and this can lead to frustration and a lot of wasted time and effort. In financial terms, the use of this particular strategy can yield additional insights into the processes that are occurring and what the financial implications may be for the institution.

What's In It for Me?

Another key strategy in securing success in a quality-improvement initiative is to ensure that those involved with the improvement are part of the solution. Providing the "why" to a new initiative is critical for success. For nurses, it is important to provide the critical rationale for why a change needs to occur. In many situations, nurses are the ones who must institute changes and often they are expected not to ask why but to just "do it" because it is expected. By explaining the big picture and how the initiative fits, and what is in it for them and what the desired outcome is for the organization, can create buy-in. Performing small tests of change and having those involved regroup regularly and discuss how to improve the processes can prove fruitful and help avoid additional steps. Those involved individuals can become the biggest champions of the proposed changes because they understand why the change needs to happen and that they are part of the solution.

Practice Management

Practice management is the continuum of processes, often unique for each practice, that impact the provision of patient care. These processes include staffing, scheduling, billing, and quality-improvement practices. The goal of quality management in this area is not only to improve the outcomes of individuals in the department, but also improve the systems or processes in the practice. For example, the nurse practitioner (NP) needs to understand how their role impacts the outcomes of the practice, both from a quality and financial perspective. In recent years, these two elements, quality and finance, have become more intertwined, as payers are insisting that proof of positive outcomes will be the ones that will be paid. For the nurse executive who works in concert with practitioners and allied health partners to provide optimal care, it is essential to work together so that the institution will receive optimal reimbursement and perhaps even a bonus for proven excellent care. In many states, practitioners and allied health professionals are employees of the facility or system, which in many ways can make it easier for the hospital to manage and remedy those who do not adhere to guidelines. In states in which laws currently exist that prohibit practitioners from being employees of the institution, influence is needed to ensure practitioners provide exceptional care and quality outcomes.

PRINCIPLES OF ECONOMICS AND FINANCE TO REDESIGN EFFECTIVE AND REALISTIC CARE DELIVERY STRATEGIES

Pay-for-Performance

Pay-for-performance has existed for many years and it is a process by which systems link compensation to measures of work quality or goals. By 2005, 75% of all U.S. companies connected at least part of an employee's pay to measures of performance, and in healthcare, more than 100 private and federal pilot programs were underway. Current methods of healthcare payment may reward less-safe care, as some insurance companies will not pay for new practices that reduce errors, whereas physicians and hospitals can bill for additional services that are needed when patients are injured by mistakes (Leape & Berwick, 2005). However, early studies showed little gain in quality for the return in their investment (Rosenthal et al., 2005), as well as evidence suggesting unintended consequences, such as the avoidance of high-risk patients, when payment was linked to outcome improvements (Rosenthal & Frank, 2006).

The 2006 IOM report *Preventing Medication Errors* recommended "incentives … so that profitability of hospitals, clinics, pharmacies, insurance companies, and manufacturers (are) aligned with patient safety goals… (to) strengthen the business case for quality and safety" (IOM, 2006a, p. 349). A second IOM report, *Rewarding Provider Performance: Aligning Incentives in Medicare* (2006b), stated, "The existing systems do not reflect the relative value of health care services in important aspects of quality, such as clinical quality, patient-centeredness, and efficiency … nor recognize or reward care coordination… (in) prevention and the treatment of chronic conditions" (p. 1). The report recommends pay-for-performance programs as an "immediate opportunity" to align incentives for performance improvement (IOM, 2006b). However, significant limitations exist in current clinical information systems in use by hospitals and healthcare providers, which are often not designed to collect valid data for quality assessment.

In 2001, Ken Kizer, MD, the former CEO of the National Quality Forum (NQF), was credited for coining the term *never event* in reference to medical errors that should never occur to a patient. In 2002, NQF defined 27 types of events under six categories: surgical, product or device, patient protection, care management, environmental, and criminal. The list was revised and expanded in 2006 and again in 2011 to identify adverse events that are unambiguous (clearly identifiable and measurable), serious (resulting in death or significant disability), and usually preventable. Many of these "never events" are no longer being paid for by CMS when they occur. Many other payers are following their lead and are not paying for care that is associated with this type of event. These areas are good places to start when one is trying to decide what issue to address in a business plan.

Value-Based Programs

A statement a decade ago from the *CMS Report to Congress: Plan to Implement a Medicare Hospital Value-Based Purchasing Program* (CMS, 2007) stated value-based purchasing (VBP) "which links payment to performance, is a key policy mechanism that CMS is proposing to transform Medicare from a passive payer of claims to an active purchaser of care" (p. 2).

No one can argue the importance of quality, especially in healthcare, but the critical financial question is, what is the cost of added quality? If a hospital can take actions that will improve its quality score and realize an additional $1 million in payment, should it do so if it costs $2 million to realize those improvements? Some argue that quality improvements will reduce costs. However, quality enhancements often require additional resources once production efficiency has been reached. Simple economics then dictate that improvements in quality are not possible if they are not compensated at

levels commensurate with required cost increases. This economic reality runs counter to the public's perspective, which demands quality improvements regardless of cost. Ultimately, however, hospitals need to ensure that high-quality services are provided, and that long-term financial viability is not sacrificed.

Since the implementation of the Affordable Care Act (ACA), CMS has developed multiple programs as a mechanism to pay for quality care. These value-based programs, which reward (via incentive payments) providers, were instituted as part of the CMS's overarching quality strategy to reform the processes by which healthcare is delivered and paid. The value-based programs have three aims (CMS, 2017):

- better care for individuals
- better health for populations
- lower cost

CMS values these programs because they see them to be a way to pay providers who provide high-quality care and do not base their payments on volume, which they had been doing in the past. CMS started with four original value-based programs with the goal of linking provider performance of quality measures to provider payment. Those initial programs included:

- Hospital Value-Based Purchasing (HVBP) Program,
- Hospital Readmission Reduction (HRR) Program,
- Value Modifier (VM) Program (also called the Physician Value-Based Modifier or PVBM),
- Hospital-Acquired Conditions (HAC) Program.

CMS also initiated several other value-based programs that were not hospital based. Those programs include:

- End-Stage Renal Disease (ESRD) Quality Initiative Program,
- Skilled Nursing Facility Value-Based Program (SNFVBP),
- Home Health Value-Based Program (HHVBP).

As a framework for their journey, CMS has developed a quality strategy for their improvement activities. Their vision for improving health delivery can be said in three words: better, smarter, and healthier (CMS, 2017). They are focusing on:

- Using incentives to improve care
- Tying payment to value through new payment models
  - Changing how care is given through:
  - Better teamwork
  - Better coordination across health care settings
  - More attention to population health
- Putting the power of health care information to work

The strategy is coordinated with the six priorities from the Agency for Healthcare Research and Quality's (AHRQ) National Quality Strategy (NQS, described later in this chapter). CMS's quality strategy goals are to:

- Make care safer by reducing harm caused while care is delivered.
  - Improve support for a culture of safety.
  - Reduce inappropriate and unnecessary care.
  - Prevent or minimize harm in all settings.

- Help patients and their families be involved as partners in their care.
- Promote effective communication and coordination of care.
- Promote effective prevention and treatment of chronic disease.
- Work with communities to help people live healthily.
- Make care affordable.

CMS has four foundational principles to help them meet their goals:

- Eliminate racial and ethnic disparities.
- Strengthen infrastructure and data systems.
- Enable local innovations.
- Foster learning organizations.

CMS has strategically placed its new initiatives to roll out over the next several years. In 2015, the Medicare Access and CHIP Reauthorization Act (MACRA) was approved by Congress. MACRA has greatly impacted the way Medicare payments are made as the healthcare industry continues to shift from fee-for-service to value-based care. Under the fee-for-service approach, providers are paid for their services; therefore, the more services they provided, the more they would be paid. MACRA shifts the focus from volume to value. In this new model, providers are paid on how well they meet certain quality measures and create value for their patients. MACRA repealed the sustainable growth rate (SGR) formula and replaced it with a new value-based reimbursement system called the *Quality Payment Program (QPP)*. In addition, it streamlined providers' reporting and gives them two paths to choose from for determining how the value and quality of their care will be measured. The first path is the Merit-Based Incentive Payment System (MIPS) and the other is the advanced Alternative Payment Models (APMs). Figure 9.2 provides a quick overview of the program and its elements (CMS, 2021a, 2021b). Figure 9.3 provides the rollout plan that was proposed for the implementation of these programs (through 2019), which as of 2021 hasn't been updated. Over time, the percentage of a provider's payment will be weighted more heavily on their outcomes on quality measures than for saving on costs, improvement activities, and promoting interoperability for providers to meet and be financially rewarded for obtaining the expectations of the federal government.

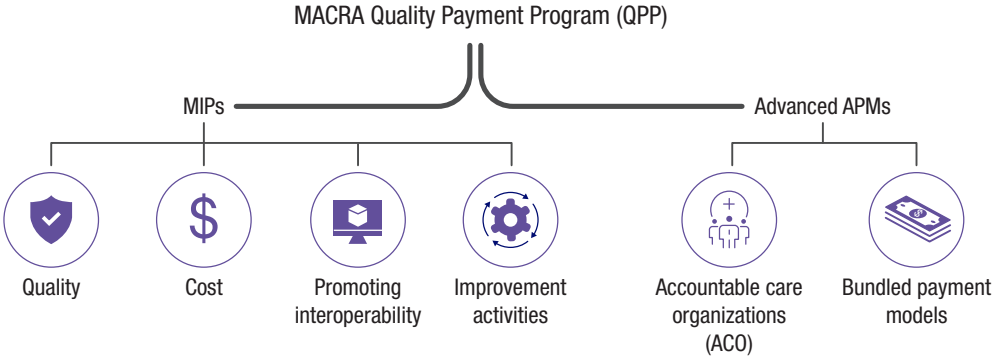

FIGURE 9.2 Overview of the MACRA Quality Payment Program .
Source: Centers for Medicare &d Medicaid Services, U.S. Department of Health and Human Services. (2021a). *Meaningful measures 2.0: Moving from measure reduction to modernization*. https://www.cms.gov/meaningful-measures-20-moving-measure-reduction-modernization; Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services. (2021b). *Quality payment program*. https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program

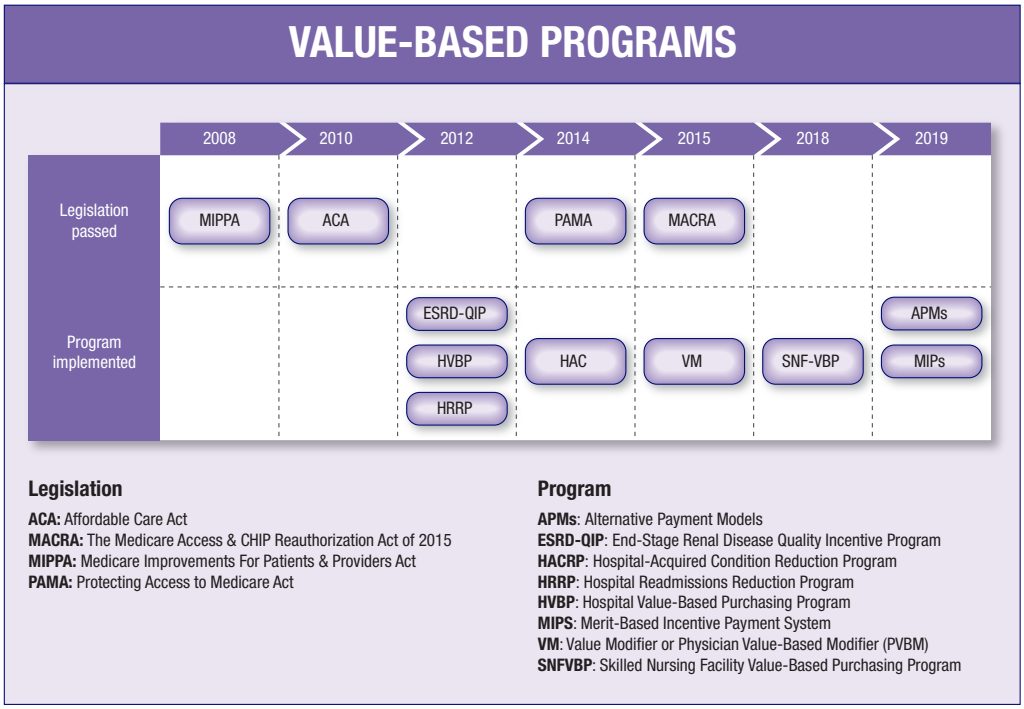

FIGURE 9.3 Implementation schedule for value-based programs, through 2019.
Source: Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services. (2021a). *Meaningful measures 2.0: Moving from measure reduction to modernization*. https://www.cms.gov/meaningful-measures-20-moving-measure-reduction-modernization; Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services. (2021b). *Quality payment program*. https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program

The term CMS uses for Medicare Part B providers subject to participation in MIPS is *MIPSeligible clinicians*. During the first performance year, this group includes physicians (MDs/DOs and DMDs/DDSs), physician assistants, NPs, clinical nurse specialists (CNSs), and certified registered nurse anesthetists (CRNAs). In future years, the program may expand the eligibility to include other providers, such as physical or occupational therapists, speech–language pathologists, audiologists, nurse midwives, clinical social workers, clinical psychologists, and dieticians and nutritional professionals.

According to CMS, an APM is a payment approach that gives added incentive payments to provide high-quality and cost-efficient care. APMs can apply to a specific clinical condition, a care episode, or a population. Advanced APMs are a subset of APMs and will let practices earn more for taking on some risk related to their patients' outcomes (CMS, 2017). In the case of reporting through the QPP as an advanced APM, providers can earn a 5% incentive payment in 2019 for advanced APM participation in 2017 if they receive 25% of their Medicare Part B payments through an advanced APM or see 20% of their Medicare patients through an advanced APM. With all the changes happening within CMS, Figure 9.4 might be helpful. It shows all the CMS-approved programs and their associated activities.

With the recent changes to the administration in Washington, there have been concerns that there will be potentially massive overhauls to the CMS. All indications show

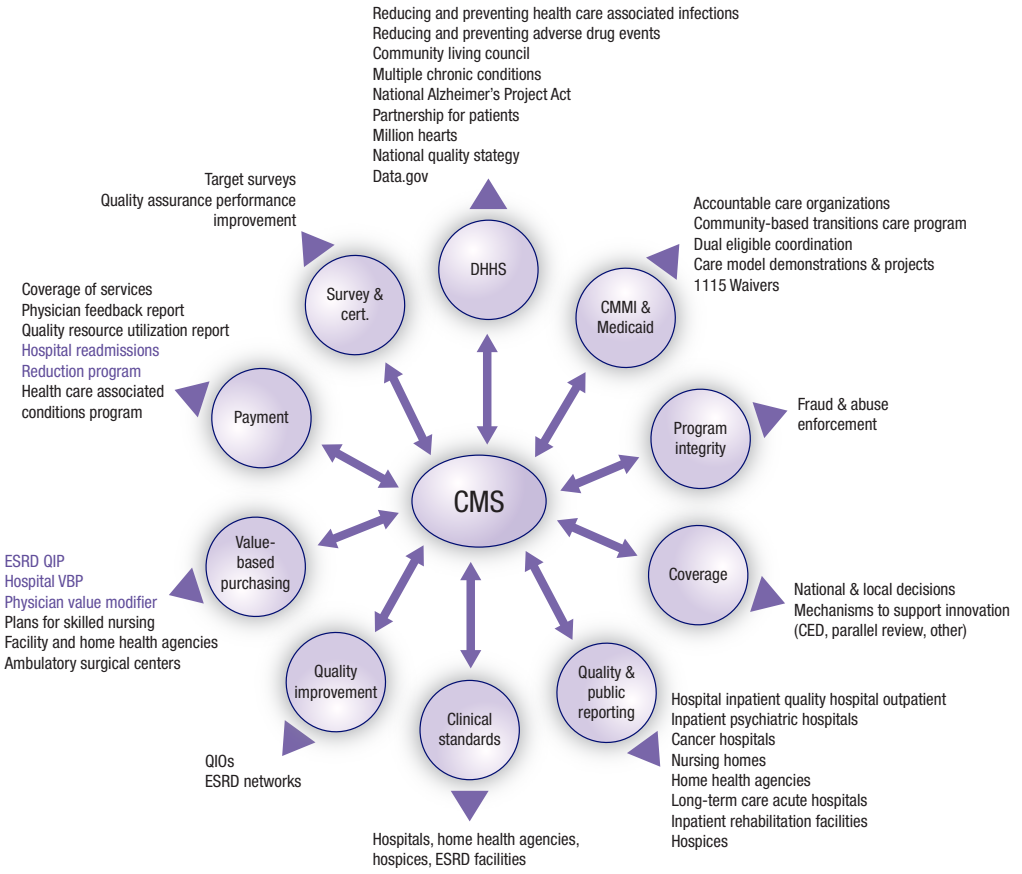

FIGURE 9.4 CMS-authorized programs and activities.
CED, coverage with evidence development; CMMI, Center for Medicare and Medicaid Innovation; CMS, Centers for Medicare & Medicaid Services; DHHS, Department of Health and Human Services; ESRD QIP, End-Stage Renal Disease Quality Initiative Program; QIOs, quality-improvement organizations; VBP, value-based purchasing.
Source: Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services. (2017). *What are value based programs?* https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value Based-Programs/Value -Based-Programs.html

that the quality train has long left the station and won't be coming back anytime soon due to all the savings that have been realized with these new initiatives.

Meaningful Measures

In 2017, CMS launched Meaningful Measures to decrease the burden of reporting organizations face. Taking on what appears to be the mantra "measure what matters" CMS reduced the number of Medicare quality measures by 18%, saving an estimated $120 million (CMS, 2021a). CMS is now launching Meaningful Measures 2.0 with the intent of addressing measurement gaps, reducing burden, and increasing efficiency by:

- using only quality measures of highest value and impact focused on key quality domains;
- aligning measures across value-based programs and across partners, including CMS, federal, and private entities;
- prioritizing outcome and patient-reported measures;
- transforming measures to fully digital by 2025 and incorporate all-payer data;
- developing and implementing measures that reflect social and economic determinants (CMS, 2021a).

Digital Quality Measurement

CMS expects Meaningful Measures 2.0 to emphasize digital quality measures (dQMs), which will originate from various sources of digitally captured health information. CMS will continue to improve its digital strategy by:

- using Fast Healthcare Interoperability Resources (FHIR)-based standards to exchange clinical information through application programming interfaces (APIs), allowing clinicians to digitally submit quality information one time that can then be used in many ways;
- accelerating the transition to fully electronic measures;
- working across CMS to use artificial intelligence to identify quality problems before patients are harmed and intervene accordingly;
- developing more APIs for quality measure data submission and interoperability;
- harmonizing measures across registries (CMS, 2021a).

Patient Perspectives

Meaningful Measures 2.0 will also promote better collection and integration of patient voices across CMS programs by:

- simplifying how to use patient-reported outcome (PRO) measures and addressing their integration into the electronic health record (EHR) workflow;
- developing PRO measures that are embedded into the workflow, may be accessed through an API or patient portal, improve ease of use, and reduce reporting burden;
- using National Institutes of Health (NIH)-developed Patient-Reported Outcomes Measurement Information System (PROMIS) tools;
- working across CMS to use "self-reported health" as an agency-wide key result that reflects the patient's voice around quality (CMS, 2021a). It is clear to see that CMS is seeing the value of quality measures and is doing a better job of reaching out to the community at large to gain additional insight and guidance on ways to move the work forward (Figure 9.5).

HEALTHCARE QUALITY/FINANCE CONCEPTS

Benchmarking

Benchmarking is a method that assists in comparing outcomes of two or more entities. The entity can consist of another provider, facility, country, and so forth. Benchmarking is an excellent tool used to share improvements, not only in a particular place or time, but also in comparison to others improvments. Most vendors who submit data to The Joint Commission or CMS can provide benchmarks of their facility's data as compared to the others in the pool of clients.

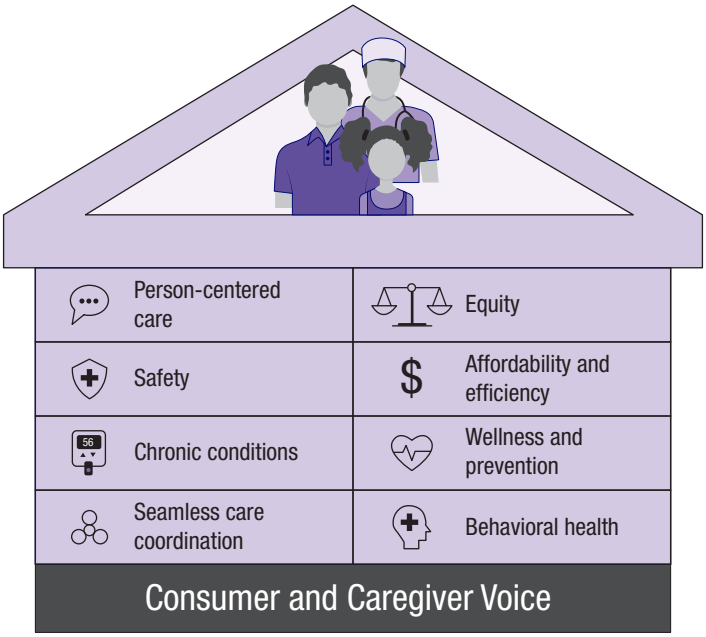

FIGURE 9.5 Meaningful Measures Framework.
Source: Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services. (2021a). *Meaningful Measures 2.0: Moving from measure reduction to modernization*. https://www.cms.gov/meaningful-measures-20-moving-measure-reduction-modernization

Cost–Benefit Analysis

Cost–benefit analysis is the process of analyzing healthcare resource expenditures relative to their possible benefit. This analysis may be helpful and necessary as a mechanism to setting priorities when choices must be made in the face of limited resources. This analysis is used in determining the degree of access to, or benefits of, healthcare to be provided. Clarity of the decision-making process demands that cost–benefit analysis be separated and differentiated from risk–benefit analysis as well as from determinations of efficient and cost-effective medical care during medical decision-making. Those involved in the analysis always need to keep quality and patient safety a priority in the final decisions.

Cost-Effectiveness Analysis

The central purpose of cost-effectiveness analysis (CEA) is to compare the costs and the values of different healthcare interventions in creating better health and longer life. As with any system financing healthcare, there are often limited budgets and a vast number of potential spending options. Choices must be made as to how this limited budget is spent. Many new medical devices, procedures, diagnostic tests, and prescription drugs are expensive; CEA can help to evaluate whether the improvement in healthcare outcomes justifies the expenditures relative to other choices.

Comparative Effectiveness

The primary purpose of comparative effectiveness research is to properly inform healthcare-related decisions. Although comparative effectiveness can be a valuable tool to inform the decision-making of the clinician and the patient, it cannot provide simple

"one-size-fits-all" answers. There is no standard definition of comparative effectiveness. The IOM, in *Learning What Works Best: The Nation's Need for Evidence on Comparative Effectiveness in Health Care* (IOM, 2007), describes comparative effectiveness as "the comparison of one diagnostic or treatment option to one or more others." Conclusions utilize inferential adjustments based on the relative effect of each intervention to a specific comparison, often a placebo.

Cost per Encounter

Cost per encounter can be expressed simply as the product of three key cost drivers:

- intensity of services
- productivity/efficiency
- resource prices/salaries and wages

The mix and quantity of services that are combined to produce the encounter of care define the intensity of services. For example, a 5-day inpatient stay for pneumonia includes 5 days of nursing care, a series of drugs, laboratory procedures, and ancillary services. There are often wide variations in the intensity of services across patients and across hospital providers. Although many intensity factors are physician driven, healthcare managers can and do play an instrumental role in explaining the relative costs associated with alternative treatment protocols. Lowering intensity of services for a defined encounter of care can lead to reductions in total cost per encounter—again, the primary goal.

The costs incurred to produce a specific procedure that is part of an overall encounter of care represent productivity or efficiency. For example, what staffing mix and levels are used to produce a day of nursing care in specific nursing units? Although intensity and productivity are related, they are different. To make the distinction, nursing intensity would involve the number of nursing days involved in the patient stay. Nursing productivity would measure the number of hours nurses worked to provide 1 day of nursing care. Cost-efficiency is usually associated with specific cost centers or departments, and the cost per unit of service in that cost center (e.g., cost per laboratory procedure) is often referred to as the *departmental measure of efficiency*. Lowering the unit costs of departmental products that together constitute a patient encounter can reduce the total cost of the encounter.

As the price paid to hire staff or purchase supplies and drugs increases, the encounter of care becomes more expensive. For example, a hospital can minimize the length of stay (LOS) associated with an inpatient encounter and maintain low nurse staffing ratios, but if it pays its nurses salaries that are 25% higher than those paid by its peers, its overall costs may still be high.

The three drivers of cost per encounter are fairly basic and understood by most healthcare financial executives. However, the relationships among them are more easily missed. Lowering costs in any given area can produce an adverse effect in one of the other two areas. For example, a hospital may have an all-RN staff, which increases the cost per day of nursing care but may not increase the overall cost per encounter. Perhaps the all-RN staff reduces the LOS and drives the total cost per encounter down. It is the cost per encounter that is of ultimate concern—not the specific cost of any intermediate procedure produced in a cost center. Similarly, it is possible to have a high cost per unit of operating room time, but low total operating room costs because of reduced operating room intensity. The lesson to be learned is a simple one. Focus first on the cost per encounter, not on salaries, staffing, or use of ancillaries. There are trade-offs that can and do exist among all three areas.

Quality of care is also important. If cost per encounter is high and yields a higher quality product, then the higher cost can be justified. However, the existence of higher cost without any objective evidence of quality enhancement needs to be seriously challenged by healthcare executives who are charged with maintaining the financial solvency of their organizations.

Data

Data is the basic element on which many critical decisions are based.It cannot be stressed enough The importance of providing data to support an initiative cannot be stressed enough. Another important element to this is ensuring data integrity. It is essential to ensure that whatever data is provided to backup an identified need has been thoroughly examined to ensure its accuracy and integrity. Many a project has been rejected because of data that was not completely analyzed correctly. There are many who will pick apart (question) data that is presented because it is a way to provide some doubt as to its integrity and can invalidate the request or at least suspend it until it can be validated.

Throughout the world of quality and patient safety, the quote "In God we trust; all others must bring data" has been used and been linked to both Deming and Robert W. Hayden. In the Preface to the second edition, Hastie et al., coauthors of *The Elements of Statistical Learning* (2009), in the Preface to the Second Edition, have a footnote that reads: "On the Web, this quote has been widely attributed to both Deming and Robert W. Hayden; however Professor Hayden told us that he can claim no credit for this quote, and ironically we could find no 'data' confirming Deming actually said this" (p. vii). It is ironic that such a popular quote about providing data does not have data linking it to an original source.

Incremental Cost-Effectiveness Ratio

Incremental cost-effectiveness ratio (ICER) of an intervention in healthcare is a term used in CEA in health economics. It is defined as the ratio of the change in costs of a therapeutic intervention compared to the alternative, such as doing nothing or using the best available alternative treatment to the change in the effect of the particular intervention.

The term does not have its standard economic meaning. Normally, the effects of an incremental change refer to the effect of an additional unit of a specific measurement—for example, the effect of an additional dollar spent on a public health awareness campaign. However, in this case, we are not comparing the effects of an incremental change in some intervention, but rather the effect of switching interventions. Often, the change in effects is measured in terms of the number of **quality-adjusted life years (QALYs)** gained by the intervention. This includes both health differences that occur while alive, and years gained/lost due to a different time of death.

Measurement

A measurement is a standard, a basis for comparison, a reference point against which other things can be evaluated. How do patients know whether their healthcare is good care? How do providers pinpoint the steps that need to be improved for better patient outcomes? And how do insurers and employers determine whether they are paying for the best care that science, skill, and compassion can provide? Measurement provides us a way to assess healthcare against recognized standards. The science of measuring healthcare performance has made enormous progress over the last decade, and it continues to evolve. The high-stakes demand our collective perseverance. As mentioned, CMS and other entities are finding ways to "measure what matters." Measurement represents a critical component in the national endeavor to ensure that all patients receive appropriate and high-quality care.

Quality-Adjusted Life Year

The QALY is a measure of disease burden, including both the quality and the quantity of life lived (National Institute for Health and Clinical Excellence [NICE], 2010). QALYs were invented by two health economists in 1956: Christopher Condell and Carlos McCartney. The QALY model requires the utility of independent, risk neutral, and constant proportional trade-off behavior. The QALY is based on the number of years of life that would be added by the intervention. Each year in perfect health is assigned the value of 1.0 down to a value of 0.0 for death. If the extra years would not be lived in full health—for example, if the patient develops a debilitating illness such as pancreatic cancer, loses a limb, becomes blind, or has to use a wheelchair—then the extra life years are given a value between 0 and 1 to account for this. The QALY is often used in cost utility analysis to calculate the ratio of cost to QALYs saved for a particular healthcare intervention. This data is then used to allocate healthcare resources, with an intervention with a lower cost-to-QALY-saved (incremental cost-effectiveness) ratio.

The usefulness and meaning of the QALY is fiercely debated (Prieto & Sacristán, 2003). The term *perfect health* is hard, if not impossible, to define. Some may argue that there are health states worse than death, and therefore there should be negative values possible on the health spectrum (some health economists have incorporated negative values into calculations). Determining the level of health depends on measures that some argue place disproportionate importance on physical pain or disability over mental health. The effects of a patient's health on the quality of life of others (e.g., caregivers or family) can be significant and are not figured into these calculations. In Critical Thinking Exercise 2 at the end of the chapter, there is a demonstration of how QALY can be applied to a situation. Once a determination is made, the individuals who are affected need to make a choice, which, for some, can have a more significant financial impact than for others.

It might be theoretically possible to develop a table of all possible treatments sorted by increasing the cost per QALY gained. Those treatments with lowest cost per QALY gained would appear at the top of the table and deliver the most benefit per value spent and would be easiest to justify funding. Those for which the delivered benefit is low and the cost is high would appear at the bottom of the list. Decision makers would, theoretically, work down the table, adopting services that are the most cost-effective.

As one might imagine, there has been much debate on using the principles of QALY in making healthcare decisions. The method of ranking interventions on grounds of their cost-per-QALY-gained ratio (or ICER) is controversial because it implies quasi-utilitarian principles to determine who will or will not receive treatment. However, its supporters argue that because healthcare resources are inevitably limited, this method enables them to be allocated in the way that is approximately optimal for society, including most patients. Another concern is that it does not consider equity issues such as the overall distribution of health states. Also, many would argue that all else being equal, patients with more severe illness should be prioritized over patients with less severe illness if both would get the same absolute increase in utility.

Risk Adjustment

Strict definition of each specific outcome is first required for risk adjustmentstrict definition of each specific outcome. Then each risk factor is measured and weighted accordingly. Severity-of-illness scores are a special form of risk adjustment. The mechanics of score development include item selection, definition, collection, and potential biases. The process of weighting risk factors usually involves building multivariate models. Issues of derivation, validation, discrimination, calibration, and reliability affect the utility of all scores. Once a comparison is appropriately risk adjusted, there are

important cautions to follow about interpretation, including the source of the reference (benchmark) population, sample size, and biases from incomplete risk adjustment. Nonetheless, this data can spur quality-improvement efforts that can lead to dramatic, system-wide improvements in outcomes.

Risk–Benefit Analysis

Risk–benefit analysis weighs the potential for undesirable outcomes and side effects against the potential for positive outcomes of a treatment and is an integral part of the process of determining medical necessity in the delivery of quality medical care. The process comprises a constellation of methods, drawn from many disciplines, and addresses the question of whether a risk is "acceptable" (Wilson & Crouch, 2001). Whether this question is raised in the context of clinical decision-making or public policy, the principles are the same: The analysis requires a comprehensive estimation and evaluation of risks and benefits, highlighting the trade-offs between the two that inform a policy decision. Such analysis also entails a careful quantification of the costs associated with a proposed program for reducing or avoiding risks.

HEALTHCARE QUALITY/VALUE ORGANIZATIONS

Agency for Healthcare Research and Quality

The mission of the AHRQ is to "produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used" (AHRQ, 2017). Their efforts have extended into the financial arena in many ways.

Currently, there are two important areas within AHRQ that should be of significance to a DNP-prepared nurse. One is the Healthcare Cost and Utilization Project (HCUP), one of the most comprehensive sources of hospital data. The database includes information on inpatient, ambulatory, and emergency visits. HCUP assists researchers, insurers, policy makers, and others to study healthcare delivery and patient outcomes over time, and at the local and national levels. The other program is the Medical Expenditure Panel Survey (MEPS). The MEPS is the only national data source that is measuring how Americans use and pay for their medical care, health insurance, and out-of-pocket spending. It assesses this information by performing annual surveys of individuals and families, as well as their healthcare providers. The program in turn provides data on health status, the use of medical services, charges, insurance coverage, and satisfaction with care.

The NQS was first published in 2011 and was mandated by the ACA; the NQS was then developed by working with more than 300 groups representing all sectors of the healthcare industry and the general public. After receiving input from these groups, three overarching aims were identified, and they aligned very closely with the IHI Triple Aim. These aims are:

- **Better care**: Improve the overall quality by making health care more patient centered, reliable, accessible, and safe.
- **Healthy people/healthy Ccommunities**: Improve the health of the U.S. population by supporting proven interventions to address behavioral, social, and environmental determinants of health in addition to delivering higher quality care.
- **Affordable care:** Reduce the cost of quality healthcare for individuals, families, employers, and government.

To advance these aims, the NQS focuses on six priorities (AHRQ, 2017):

- making care safer by reducing harm caused in the delivery of care
- ensuring that each person and family is engaged as partners in their care
- promoting effective communication and coordination of care
- promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease
- working with communities to promote wide use of best practices to enable healthy living
- making quality care more affordable for individuals, families, employers, and governments by developing and spreading new healthcare delivery models

Each of the nine NQS levers represents a core business function, resource, and/or action that stakeholders can use to align to the strategy. In many cases, stakeholders may already be using these levers but have not connected these activities to NQS alignment.

- **Measurement and feedback**: Provide performance feedback to plans and providers to improve care.
- **Public reporting:** Compare treatment results, costs, and patient experience for consumers.
- **Learning and technical assistance:** Foster learning environments that offer training, resources, tools, and guidance to help organizations achieve quality-improvement goals.
- **Certification, accreditation, and regulation:** Adopt or adhere to approaches to meet safety and quality standards.
- **Consumer incentives and benefit designs:** Help consumers adopt healthy behaviors and make informed decisions.
- **Payment:** Reward and incentivize providers to deliver high-quality, patient-centered care.
- **Health information technology**: Improve communication, transparency, and efficiency for better coordinated health and healthcare.
- **Innovation and diffusion:** Foster innovation in healthcare quality improvement, and facilitate rapid adoption within and across organizations and communities.
- **Workforce development:** Invest in people to prepare the next generation of healthcare professionals and support lifelong learning for providers.

The NQS has aligned its measurements with others within the Department of Health and Human Services (DHHS) as a means to decrease provider burden. The DHHS Measurement Policy Council so far (as of late 2016) has nine topics to date: hypertension control, hospital-acquired conditions/patient safety, Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), smoking cessation, depression screening and care coordination, HIV/AIDS, perinatal, and obesity/body mass index (BMI; AHRQ, 2017).

In recent years, AHRQ has moved to delineating quality indicator measures into two categories: area and hospital. Area-level indicators capture all potential preventable complications that occur within a given population during their hospitalization or a subsequent hospitalization. Hospital-level indicators address potentially preventable complications or adverse events that have occurred that may be due to suboptimal care (CMS, 2021). Their QI modules include:

- Prevention Quality Indicators (PQIs) help identify hospital admissions that might have been avoided given access to high-quality healthcare, preventive care, and

health-promoting resources within a community (first released November 2000, last updated July 2020).
- Inpatient Quality Indicators (IQIs) reflect quality of care inside hospitals, including inpatient mortality for medical conditions and surgical procedures (first released May 2002, last updated July 2020).
- Patient Safety Indicators (PSIs) reflect quality of care inside hospitals, to focus on potentially avoidable complications and iatrogenic events (first released March 2003, last updated July 2020).
- Pediatric Quality Indicators (PDIs) and Neonatal Quality Indicators (NQIs) use indicators from the other three modules with adaptations to measure the access and quality of care for children and at-risk neonates (first released April 2006, last updated July 2020) (CMS, 2021)

Centers for Medicare & Medicaid Services

There are several programs supported by CMS to ensure that quality is a priority for healthcare. Being the largest healthcare payer in the United States, CMS has the power to influence outcomes with its checkbook. The concept of a *market basket* is a term used by CMS to hold onto funds to which facilities may be entitled, but if they do not perform to the recommended standards, they may lose the funds, which in many cases go to facilities that are top performers.

QualityNet

QualityNet provides healthcare quality-improvement news, resources, and data-reporting tools and applications used by healthcare providers and others. QualityNet is the only CMS-approved website for secure communications and healthcare quality data exchange between quality -mprovement organizations (QIOs), hospitals, physician offices, nursing homes, ESRD networks and facilities, and data vendors.

Hospital Compare

The Hospital Compare database (medicare.gov/care-compare.org) and its metrics are the result of data submissions by participating hospitals and patients. Over the past several years the number of hospitals reporting their metrics has increased, as has the quality of the data. Hospital Compare is a consumer-oriented website that provides information on how well doctors and clinicians, hospitals, nursing homes, including rehab services, home-health services, hospice care, inpatient rehabilitation, long-term care and dialysis facilities, provide recommended care to their patients. In 2016 CMS added the overall-hospital-quality star-rating system.

Starting in March 2008, data from a patient satisfaction survey, the HCAHPS survey, was added to Hospital Compare. HCAHPS provides a standardized instrument and data-collection methodology for measuring patients' perspectives on hospital care. Since the development of HCAHPS, many others have been implemented to assess patient satisfaction in different areas of healthcare such outpatient facilities, the ED, and surgery.

Hospital Compare was created through the efforts of the CMS, along with the Hospital Quality Alliance (HQA). The HQA, created in December 2002, is a public–private collaboration established to promote reporting on hospital quality of care. The HQA consists of organizations that represent consumers, hospitals, doctors, employers, accrediting organizations, and federal agencies. The HQA effort is intended to make it

easier for the consumer to make informed healthcare decisions, and to support efforts to improve quality in U.S. hospitals.

Institute for Healthcare Improvement

The IHI has worked tirelessly over the past two decades to move healthcare in the direction of providing vehicles by which hospitals can work collaboratively in preventing patient harm. The 18-month 100,000 Lives Campaign launched in late 2004/early 2005 encouraged hospitals to implement six initiatives:

- **Deploy rapid response teams:** Prevent death in patients who are progressively failing outside the ICU by implementing rapid response teams.
- **Deliver reliable, evidence-based care for acute myocardial infarction (AMI):** Prevent deaths among patients hospitalized for AMI by ensuring the reliable delivery of evidence-based care.
- **Prevent adverse drug events:** Prevent deaths by implementing medication reconciliation procedures.
- **Prevent central line infections:** Prevent deaths by implementing a set of interventions to reduce catheter infection rates.
- **Prevent surgical-site infections:** Prevent deaths by implementing a reliable set of interventions that help choose and appropriately time perioperative antibiotics.
- **Prevent ventilator-associated pneumonia:** Prevent deaths by implementing a set of interventions known as the *ventilator bundle*.

Hospitals were given the option to adopt and implement one to six of these initiatives. More than 3,000 hospitals joined the campaign, which proved that healthcare had the capacity to work together for a common goal. These initiatives provided a framework that over time has built relationships between hospitals that at one time were in competition and hid best practices from each other instead of sharing them. After the success of the 100,000 Lives Campaign, IHI launched the 5 Million Lives campaign, which again proved successful as most healthcare facilities across the United States participated as a way to improve their outcomes. In healthcare today, there are very few hospitals that have not participated in some national performance-improvement activity that has benefited not only their organization but others as well. The work of the IHI has shown the United States and the world that collectively we can make huge gains in healthcare, whereas in the past we were just competing against each other and patients were dying.

In 2017, IHI and the National Patient Safety Foundation (NPSF) merged to join forces to reenergize the patient safety agenda in the United States. Since the merger, additional programming has been developed to assist institutions to continue to improve themselves. The IHI Open School, a free program available to academic institutions, provides a great overview of quality and patient safety concepts in a format that is easy to understand and shows the applicability to one's own environment.

National Database of Nursing Quality Indicators

NDNQI was established in 1998 and is a proprietary database of the American Nurses Association (ANA). The database provides information about nurse staffing and nursing-sensitive indicators, such as pressure ulcers and falls and patient outcomes. NDNQI allows researchers who are committed to adding the nursing body of knowledge access to their databasethat are committed to adding the nursing body of knowledge.

National Quality Forum

The NQF was created in 1999 by a coalition of public and private sector leaders in response to the recommendation of the Advisory Commission on Consumer Protection and Quality in the Health Care Industry. In its final report, published in 1998, the commission concluded that an organization, such as NQF, was needed to promote and ensure patient protections and healthcare quality through measurement and public reporting (NQF, 2012). Moving ahead to August 2004, NQF published 15 voluntary consensus standards for nursing-sensitive care, including evidence-based, nursing-sensitive performance measures, a framework for measuring nursing-sensitive care, and related research recommendations. The project was funded by the Robert Wood Johnson Foundation and undertaken as a result of an identified gap in the work of nurses. At over three million strong, nursing is the largest healthcare profession in the United States, with nurses serving as the principal caregivers in hospitals and other institutional care settings. Nursing time constitutes the single largest operational expense in any healthcare delivery system. It was felt that there was a need for national standardized performance measures to assess the extent to which nurses in acute care hospitals contribute to patient safety, healthcare quality, and a professional work environment (NQF, 2007). The areas that were identified included:

- Patient-centered outcome measures
  - Death among surgical inpatients with treatable serious complications (failure to rescue)
  - Pressure ulcer prevalence
  - Falls prevalence
  - Falls with injury
  - Restraint prevalence (vest and limb only)
  - Urinary catheter-associated urinary tract infection for ICU patients
  - Central line catheter-associated bloodstream infection rate for ICU and high-risk nursery (HRN) patients
  - Ventilator-associated pneumonia for ICU and HRN patients
- Nursing-centered intervention measure
  - Smoking-cessation counseling for AMI
  - Smoking-cessation counseling for heart failure
  - Smoking-cessation counseling for pneumonia
- System-centered measures
  - Skill mix (RN, licensed vocational nurse/licensed practical nurse [LVN/LPN], unlicensed assistive personnel [UAP], m and contract)
  - Nursing care hours per patient day (HPPD [RN, LPN, and UAP])
  - Practice Environment Scale—Nurse Work Index (composite and five subscales)
- Voluntary turnover

One of the recommendations for accelerating the adoption of the NQF-endorsed National Voluntary Consensus Standards for Nursing-Sensitive Care was to encourage entities to build a business case for nursing quality measurement and the nursing-sensitive consensus standards to get to positive outcomes. Building a strong business case requires dedicated investments within the research, business, and performance

measurement/quality-improvement communities to test, conceptually and empirically, the links between nursing care, as measured through the NQF consensus standards and patient outcomes in safety and quality. It is important to use consumer research, such as patient satisfaction scores, to portray the value these measures provide to our patients and their families. Exceptional outcomes will provide additional revenues to those institutions that can show their sustained improvements and patients will show their support by their choice of provider and healthcare facility. It was suggested in the report that it was important to hold nurses and nursing accountable for providing high-quality care using public reporting and incentive systems (NQF, 2012). Their work continues through their latest strategic plan, which strives to achieve six goals (NQF, 2020):

1. Define the national measurement architecture to drive improvement in quality and value.
2. Advance health equity and address disparities.
3. Become a national leader in defining measures for equitable patient and family engagement.
4. Develop measurement approaches used in value-based payment arrangements.
5. Promote the transformation to digital health.
6. Close quality gaps for national healthcare priorities.(NQF, 2020)

With the many healthcare issues surrounding the pandemic, the NQF realizes how-important its work to ensure health equity is.

National Institute for Health and Clinical Excellence

The National Institute for Health and Clinical Excellence (NICE) is a special health authority of the National Health Service (NHS) in England and Wales. It was established initially as the National Institute for Clinical Excellence in 1999 and in 2005 merged with the Health Development Agency to become the National Institute for Health and Clinical Excellence. The work in which NICE is involved attracts the attention of many groups, including physicians, the pharmaceutical industry, and patients. NICE is often associated with controversy, because the need to make decisions at a national level can conflict with what is (or is believed to be) in the best interests of an individual patient. From an individual's perspective, it can sometimes seem that NICE is denying access to certain treatments, but this is not so. Patients are freely able to get access to the treatment, but may have to contribute to the cost. For example, approved cancer drugs and treatments, such as radiotherapy and chemotherapy, are funded by the NHS without any financial contribution being made by the patient. But certain cancer drugs not approved by NICE because of cost will be available only if the patient is prepared to pay a co-pay to make up the difference of the NICE-perceived value and the actual cost. If NICE has approved a treatment, the NHS must fund it. But not all treatments have been assessed by NICE, and these treatments are usually dependent on local NHS decision-making. For example, the NHS usually pays for several rounds of treatment for fertility problems, but because NICE has not assessed them, some centers may cap the number of rounds; the patient may then have to pay privately if they wish to continue with fertility treatments beyond the capped level.

Putting the Pieces Together: Evaluating Cost-Effectiveness of Care

Measuring the costs of providing quality care is a challenge. As shown in Figure 9.6, higher/better quality is typically associated with higher costs, up to a point. That point, known as the *margin*, is defined as the point at which a one-unit increment of input

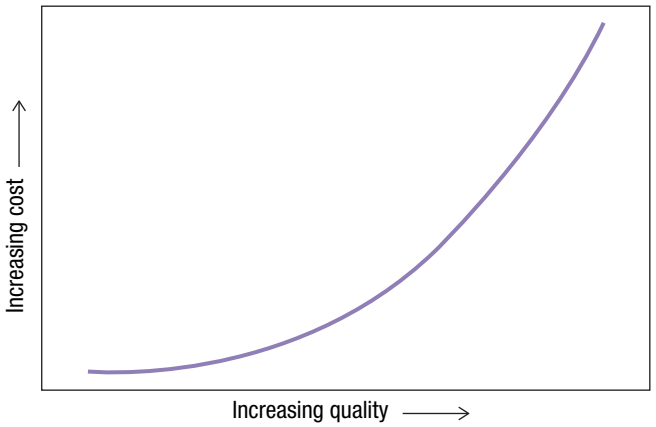

FIGURE 9.6 Evaluation of cost-effectiveness of care. Higher/better quality is typically associated with higher costs, but to a point. That point, known as the *margin*, is defined as the point at which a one-unit increment of input (cost) no longer yields a one-unit increase in output (quality).

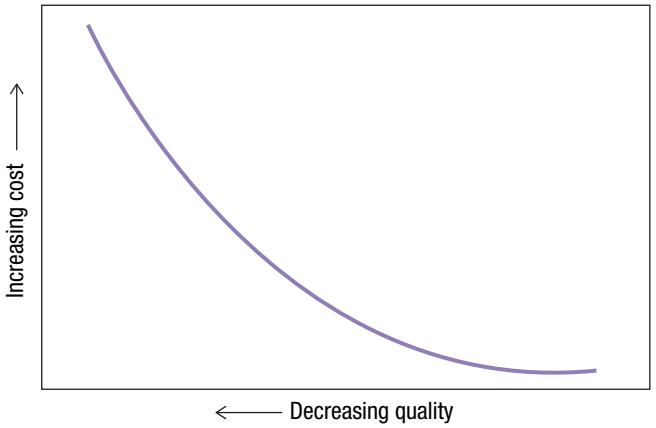

FIGURE 9.7 Evaluation of cost-effectiveness of care.
The scenario represented could be due to both declining reputation and rising numbers of malpractice cases (and remember, reputation is an asset). Lower quality of measurable care that is publicly reported erodes the hospital's competitive position and thus longer term viability.

(cost) no longer yields a one-unit increase in output (quality). The one-unit increase in cost increment provides less than a unit increase in quality, which causes the decision maker to question why that last one unit increase in cost was allocated (Dunham-Taylor & Pinczuk, 2010). In short, a measurable commensurate level of quality was not achieved by spending more.

Lowering quality also has costs to the organization. For example, lowering quality of care shown, as shown in Figure 9.7, is related potentially to both declining reputation and rising numbers of malpractice cases (and remember, reputation is an asset). Lower quality of measurable care that is publicly reported erodes the hospital's competitive position and thus longer term viability (Cleverley & Cleverley, 2011). Where quality and costs intersect (Figure 9.8), there is an acceptable level of quality at a cost that won't close the hospital. As pay for performance and VBP continue to exist and grow in the landscape of healthcare, the curve will remain, but the variables that are affected will be constantly shifting.

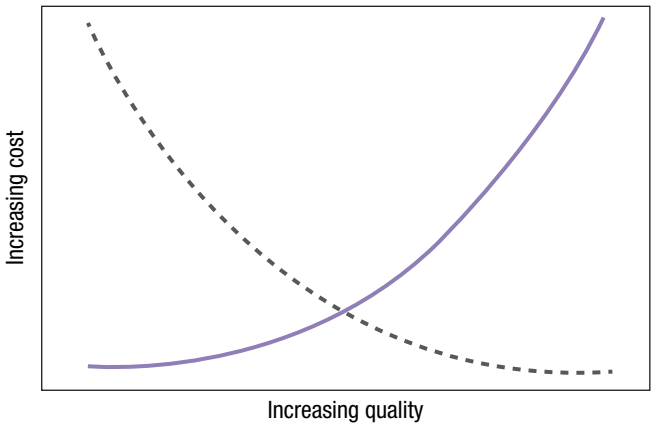

FIGURE 9.8 Evaluation of cost-effectiveness of care. Where quality and costs intersect, there is an acceptable level of quality at a cost that will maintain hospital viability.

Magnet® Designation and Quality

Magnet designation is a goal for many nurse executives and their facilities. Does it make dollars and sense (cents) to go on the "magnet journey?" The Magnet® model offers a framework for organizing a nursing service division (Drenkard, 2010). As discussed earlier in the chapter regarding the NQF nursing-sensitive indicators, research has shown that Magnet facilities do indeed have decreased incidence of pressure ulcers and falls, increased nurse satisfaction, and decreased turnover.

Balancing Productivity With Quality of Care

Understanding the importance of providing quality care to patients, offers an opportunity to make the business case that providing adequate staffing ensures quality outcomes. As discussed in Chapter 5, it is important to obtain the HPPD and compare it with outcomes. If, with a small incremental increase in HPPD, outcomes improve and thereby decrease LOS, one can make the case for increased staffing. When deciding whether a change in productivity increases outcomes, it is essential to determine baseline data prior to making any change. It is also best to start with the change on a small scale.

Building a Business Case for Quality

To build a successful business case for a quality-improvement initiative, it is critical to use strategies to make your audience understand why they need to do a particular activity besides stating that it is a "regulatory requirement." The proposal needs to show the benefit to the organization from both a financial and outcome-driven perspective. As mentioned earlier in the chapter, it is important to determine the "WIIFM" for each of the key members. The elements of building a business case are covered thoroughly in Chapter 15. As you have read throughout this chapter, there are many tools to place in your "toolbox" for making a business case for a quality-improvement initiative. Understanding how to do it successfully can make the difference between a "yes" and a "no."

CONCLUSIONS

Paying for better quality is clearly a reasonable contract feature for both payers and hospitals. The major problem, however, appears to be how to measure quality. If the metrics used do not lead to actual improvement in health outcomes, then the system

fails the patient. Furthermore, if the incentives do not cover the costs necessary to achieve better outcomes, then hospitals will face a dilemma in deciding whether to pursue the quality initiative at the risk of financial distress. This chapter uses the definition of *quality* provided by the NAM (formally known as the *IOM)*: "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (IOM, 1999, p. 211). It should be noted that any business case for nursing quality measurement and reporting will undoubtedly be based on the existing healthcare reimbursement system. However, current payment practices may not be responsive to improvements in nursing quality—as measured by existing nursing performance measurement activities—and may not support goals for nursing quality. From a policy perspective, current payment models may need to be revisited in the future in order to address this issue. Ultimately, defensible arguments must be formulated, tested, and confirmed that demonstrate the need for measures and the usefulness of the standards in stewardship of resources. In the end, a clear, unambiguous case that supports the primacy of nursing's contribution to improving care as measured that also supports the value of nursing quality performance results in decision-making must be made to healthcare leaders, hospital administrators, nursing executives, and the public. Obtaining high quality outcomes is the ultimate return on an organization's investment—especially if it is you or a loved one lying in the hospital bed.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. As a DNP, you know that providing care that is measurable (at a financial as well as a quality level) can give you the ability to request additional funding. Take a moment and ponder a current project you are working on at your place of work. Could you, if requested, determine the costs associated with your project and what the project's potential savings to the organization could amount to?
2. If a fictional treatment costs a total of $45,000 at today's value and increases a person's quality of life from 0.5 to 0.6 for the remainder of their life from age 70 and onward, and the person's expected life span increases from 73 to 75, what would be the total gain in QALYs and what would be the ICER?
3. With all the changes that are occurring in healthcare today, what are some of the challenges your environment is facing and what is your organization doing to plan for the financial consequences?
4. What implications do you believe exist with MACRA? Do you believe that moving to a paymentfor-quality model over quantity/volume is going to improve patient outcomes? Why?

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing **textbook@springerpub.com.**

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CHAPTER 10

Basic Data Analysis Techniques for Nurse Leaders

Susan Prion

The emphasis in **data analysis** differs slightly from that of **statistics,** the term used to describe the formal mathematical procedures followed to organize and comprehend data (Bowen & Weisberg, 1980). As used in this chapter, data analysis includes the following concepts:

- types of numerical data
- organizing and tabulating results
- distinguishing differences
- quantifying relationships
- interpreting and applying results

The focus of data analysis is the interpretation and application of statistical results. This necessitates a firm conceptual understanding of quantitative statistical techniques and the assumptions for their use but does not require the nurse leader to be an expert in calculating the various statistical tests.

The Essentials: Core Competencies for Professional Nursing Education (American Association of Colleges of Nursing [AACN], 2021) describes the knowledge, skills, and attitudes necessary for successful nursing practice "across the trajectory of nursing education and applied experience" (p. 1). The document identifies 10 domains that attempt to "represent the essence of professional nursing practice" (p. 1) and the competencies that are expected at the entry level and advanced level of professional nursing practice. The competencies are applicable across four designated spheres of care: disease prevention and promotion of health and well-being; chronic disease care; regenerative and restorative care; and hospice, palliative, and supportive care (AACN, 2021). These include the following competencies directly related to data analysis knowledge and skills:

Domain 1: Knowledge for Nursing Practice

1.1 Demonstrate an understanding of the discipline of nursing's distinct perspective and where shared perspectives exist with other disciplines.
  1.1e Translate evidence from nursing science as well as other sciences into practice.
  1.1f Demonstrate the application of nursing science to practice.

1.2 Apply theory and research-based knowledge from nursing, the arts, humanities, and other sciences.
- 1.2f Synthesize knowledge from nursing and other disciplines to inform education, practice, and research.
- 1.2g Apply a systematic and defendable approach to nursing practice decisions.

Domain 2: Person-Centered Care

2.6 Demonstrate accountability for care delivery.
- 2.6f Monitor aggregate metrics to assure accountability.
- 2.6i Apply current and emerging evidence to the development of care guidelines/tools.

2.7 Evaluate outcomes of care.
- 2.7d Analyze data to identify gaps and inequities in care and monitor trends in outcomes.
- 2.7e Monitor epidemiological and system-level aggregate data to determine healthcare outcomes and trends.
- 2.7f Synthesize outcome data to inform evidence-based practice, guidelines, and policies.

Domain 3: Population Health

3.1 Manage population health.
- 3.1k Analyze primary and secondary population health data for multiple populations against relevant benchmarks.

3.3 Consider the socioeconomic impact of the delivery of healthcare.
- 3.3c Analyze cost-benefits of selected population-based interventions

Domain 4: Scholarship for Nursing Practice

4.1 Advance the scholarship of nursing.
- 4.1h Apply and critically evaluate advanced knowledge in a defined area of nursing practice.
- 4.1j Discern appropriate applications of quality improvement, research, and evaluation methodologies.

4.2 Integrate best evidence into nursing practice.
- 4.2g Lead the translation of evidence into practice.
- 4.2k Evaluate outcomes and impact of new practices based on the evidence.

Domain 5: Quality and Safety

5.1 Apply quality improvement principles in care delivery.
- 5.1i Establish and incorporate data-driven benchmarks to monitor system performance.
- 5.1k Integrate outcome metrics to inform change and policy recommendations.

5.2 Contribute to a culture of patient safety.
- 5.2h Lead analysis of actual errors, near misses, and potential situations that would impact safety.

Domain 7: Systems-Based Practice

7.3 Optimize system effectiveness through application of innovation and evidence-based practice.
- 7.3f Design system-improvement strategies based on performance data and metrics.

Domain 9: Professionalism

9.3 Demonstrate accountability to the individual, society, and the profession.
9.3i Advocate for nursing's professional responsibility to ensure optimal care outcomes.

Conceptual and computational mastery of basic data analysis techniques is an essential skill for the DNP graduate that can be used in a wide variety of practice settings. As Henkel (1976) explained, "statistics is a very commonsense approach to obtaining information through the manipulation of numbers" (p. 9). The DNP-educated nurse leader needs the knowledge and skill to apply evidence in their clinical practice, and uses performance results, such as operations and outcomes information, to revise and improve quality and safety.

Data Into Information

Nurse leaders are bombarded with millions of bits of data every day. Any raw or unfiltered fact, figure, number, statistic, opinion, thought, or feeling is a piece of data to be considered for efficient and effective decision-making. Unfortunately, not all data are helpful, because they cannot be transformed into useful information to inform the decision-making process. The ability to transform data from various sources into usable information is an important skill for any nurse leader and is especially necessary when making financial decisions. Figure 10.1 illustrates the potential dangers of inaccurate data and erroneous information on fiscal decision-making.

There are four generally accepted reasons for the importance of mastery of data analysis. Bowen and Weisberg (1980) list the following as necessary skills for informed consumers:

- interpretation of research
- evaluation of research
- consideration of empirical questions
- planning research

For financial decision-making, skill in the consideration of empirical questions is absolutely critical to success. Managers and administrators can theorize about causes and explanations for fiscal events, but Bowen and Weisberg argue that "confronting real data makes one think more systematically" about the information and "think through what would be necessary to prove that causation is involved" (1980, p. 1). Suitable data analysis skills allow the testing of different explanations for those fiscal events and proving or disproving actions and decisions as causative factors (Figure 10.2).

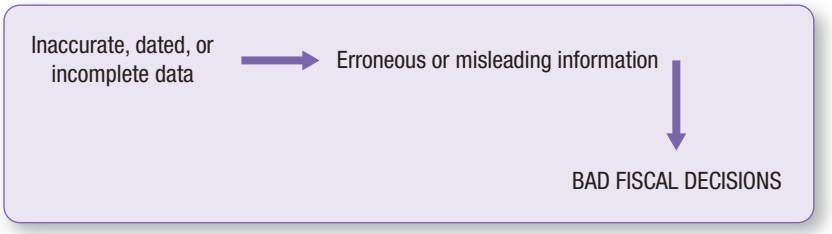

FIGURE 10.1 The influence of erroneous or incomplete data on fiscal decision-making.

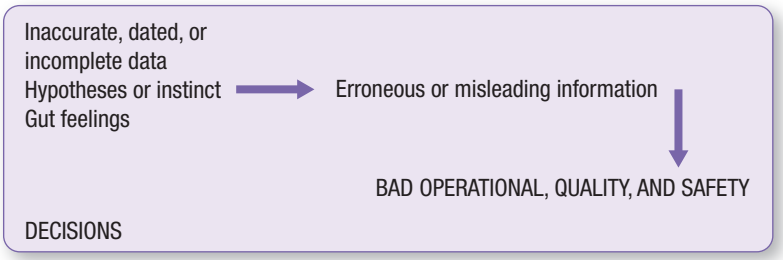

FIGURE 10.2 The influence of inaccurate data or guesswork on operations, quality, and safety decision-making.

For operations and quality/safety decision-making, confidence and comfort with data analysis are also critical to success. Nurse leaders can hypothesize about reasons for these situations and events, but without the ability to translate research into practice or conduct process/outcome evaluation studies, the solution remains uncertain and based in an unsubstantiated theory, guess, or "gut feeling."

In this chapter, we review basic quantitative data analysis techniques that are used for financial, operational, quality, and safety data manipulation. We will work exclusively with numerical data, disregarding for the moment the significant contributions of qualitative data, such as opinions, narratives, thoughts, and feelings, to the overall evidence-based decision-making process.

A large variety of quantitative data analysis techniques are available for use with numerical data. The goal of this chapter is not to explore all of those techniques, because many excellent resources provide comprehensive and detailed descriptions. The chapter's content has been chosen to assist you in converting potentially useful data into effective and reliable information to inform your important decision-making processes. Information is usually preferred over data because information is usable knowledge. Data is, by its nature, individual bits that are uncategorized and not organized in any usable format. We can differentiate data from information in several general ways (Table 10.1).

It is important to note that the quality of the data analysis results, and its subsequent interpretation depends heavily on the reliability and validity of the raw data; in other words, GIGO is in effect, or "garbage in, garbage out." Before spending time and energy on data analysis or interpretation, make sure that facts and figures used to generate those results are believable and accurate.

TABLE 10.1 Data Compared With Information

Data	Information
Uncategorized and unorganized	Organized or categorized into useful groupings
Individual facts, figures, numbers, or statistics	Collated facts, figures, numbers, or statistics
Absent/inadequate validity or reliability checks	Subjected to critical analysis and scrutiny
Focus on individual bits of data	Aggregate data more accurately represent the group of data
Undue influence of individual data, like outliers	Objective review of summarized data

Reliability refers to the consistency and dependability of the data (Carmines & Zeller, 1979). If a measurement of a specific parameter is reliable, then repeated measures of the same thing will give similar results with each measurement. Staff members gathering data do not usually intend to report unreliable information, but it often happens because there are many different factors involved in simple data collection. For example, staff on one of the inpatient adult units routinely list the number of student nurses per shift as part of their staffing plan. Another unit does not, but instead creatively "adjusts" the recorded staffing plan to accommodate the added workload of a full roster of student nurses requiring staff nurse preceptors. The administrator for both units is trying to determine the financial cost of clinical preceptorships in order to recommend an optimum number of students per rotation. In the absence of use of a standardized system to document the presence of student nurses and their impact on staffing patterns, any financial or operational decision based on this unreliable data will be flawed.

Validity refers to the level of certainty that the collected data actually represent the concept of interest (Carmines & Zeller, 1979). This is often a concern when using available data rather than collecting new information. The available data may not completely resemble the facts being sought but are the only data available for the topic. In addition, these data may be presumed to be valid but do not actually measure the concept of interest. For example, the results of a patient survey may not always represent the patient's actual experience in the healthcare facility. A study in 1996 by British researchers compared three different forms of patient surveys and found that (a) levels of satisfaction with physician–patient communication and involvement in decisions were sensitive to changes in wording and (b) asking patients whether they agreed with a negative description of their hospital experience tended to produce greater apparent satisfaction than asking whether they agreed with a positive description (Cohen et al., 1996).

A more recent study (Schoenfelder et al., 2011) of more than 8,000 German patients found that there were 10 determinants of global patient satisfaction. The outcome of treatment was the best predictor of satisfaction scores, followed by nursing kindness as the next most important component. It is interesting to note that the authors found that the survey items reflecting satisfaction with the amount of information received about the ongoing treatment had very little influence on patient satisfaction. These results seem to be confirmed by a 2017 study examining the relationship between opioid prescribing practices and patient satisfaction with ED nursing care. Of the 305 surveys received from frequent ED users for pain complaints, patient satisfaction with nursing care was mostly due to compassionate treatment, a sense that the patient mattered, perceptions that safety precautions were being followed, and the amount of time the patient waited to be seen. Note that for this patient group, the receipt of a scheduled-drug prescription did not signifcantly influence their satisfaction of the treating nurses or physicians (Newcomb et al., 2017).

Data analysis performs a critical role in healthcare systems administration. Reliable and valid processes can help to evaluate the internal environment, identify problems, reduce performance deficiencies, assess the effectiveness of problem solutions, develop policies and procedures, and make informed decisions that impact daily operations and future strategies of the institution (Broyles, 2006). Broyles (2006) also identified several key actions for statistical analyses in healthcare. They include:

- comparing the expected and actual performance to identify areas of improvement
- strategic management of the organization's strengths and weaknesses
- validating the amount and proper flow of resources necessary to provide the expected level of care

- developing and evaluating alternate scenarios for a variety of clinical and fiscal events
- measuring operating efficiency and effectiveness
- monitoring and intervening to promote patient safety and quality of care
- evaluating cost and quality effectiveness of new processes for delivering care
- planning for short- and long-term institutional fiscal health
- using patient and staff satisfaction data to modify care processes

Many sources of information for data analysis are used to inform decision-making. The organization's financial reporting system collects all of the necessary fiscal data and distributes it to those who are tasked with making operational decisions. Both the income statement and the balance sheet provide rich data for analyzing periodic changes in profitability, debt, liquidity, and asset use (Broyles, 2006). The clinical information system provides information about all types of care delivery, often grouped by patient, diagnostic category, risk group, unit, and department. The Meaningful Use regulations (Blumenthal & Tavenner, 2010) make available the collection and analysis of real-time, point-of-care data for formative decisions about daily operations. Operational data can be captured through information systems that track resource use and often can pinpoint specific labor and supply needs by area and even individual patient.

Healthcare organizations also collect data from external sources. These sources include public health alerts, morbidity and mortality reports, governmental reports detailing use of inpatient and outpatient healthcare, demographics, and institutional rankings along a variety of criteria. Surveys, especially patient satisfaction surveys, such as Hospital Consumer Assessment of Health-care Providers and Systems (HCAPS) or Press Ganey (www.pressganey.com), provide valuable information to administrators about the patient's perceptions of the quality of care. This is a key area for sophisticated understanding, as the results of these surveys are often used for public rankings of healthcare institutions.

Much of the business of healthcare involves collecting data. From individual patient assessment data used to deliver care to the overall performance of a large, multisite healthcare system, billions of bits of data are collected every second. Rather than rely solely on fiscal, operational, and quality information analyzed and summarized by others, the DNP-prepared nurse leader has the skills to conduct an informed analysis and make an independent decision about that information. The goal of this chapter and ultimately, this book is to help nurse leaders transform data into useful information to improve patient care outcomes and enhance the overall quality of healthcare.

Levels of Measurement

To effectively convert data into information, it is important to first understand the different levels of numerical measurement. Each **level of measurement** (Prion & Adamson, 2013b) provides unique knowledge about the phenomenon being evaluated, and it is imperative to understand the contributions and limitations of each type of numerical representation.

Nominal

Nominal variables are classifications of data into mutually exclusive categories. By definition, this means that the number used for a nominal variable is arbitrary and functions as a label rather than a quantity amenable to computation. For nominal variables represented as numbers, the numeral indicates neither a meaningful quantity nor any relationship with the other numerals used in a similar fashion. For example,

gender, religion, and ethnicity are all nominal variables. Gender can be coded as *female* or *male*. These variables could also be coded as *female* = 1 and *male* = 2. In a creative coding scheme, *female* could be represented as the numeral 272.8 and *male* as –as d be.

The main point to remember about nominal data is that any number used to represent the variable is an arbitrary numerical label that cannot be mathematically manipulated. It does not function as a number but only as an identifier. Common examples of nominal variables include address, patient room number, race, gender, ethnicity, and education level.

Ordinal

Ordinal measurements are also known as *rankings*. We are often asked to rank a certain set of items in order of our preference for or against those items. Ordinal data are ranked against some defined criterion. Although the ranked numbers indicate some ordering, the numerals used are still arbitrary. For example, the following headache ranking scale indicates that 1 = *no pain*, 2 = *slight pain*, 3 = *moderate pain*, and 4 = *significant pain*. A ranking of "significant pain" (4) is more than a "moderate pain" ranking (3), but it is unknown from the scores just how much more pain a ranking of 4 is from a ranking of 3. Similarly, the distance between 1, 2, 3, and 4 ratings may not be equal. Common examples of ordinal variables include Apgar scores, some pain scales, and patient satisfaction surveys.

Ratio/Interval

Ratio/interval data are the most common type of variables that can be mathematically and statistically manipulated. Interval data are ordered, and the distance between each number is identical. This means that $1,000 is exactly 2 times $500, and that $500 is 5 times as large as $100. Interval data have an arbitrary zero point. A common example of interval data is temperature. Although Celsius, Fahrenheit, and Kelvin scales have stable distances between numbers, the zero points vary depending on the temperature scale.

Ratio data, like interval data, are ordered and have a constant distance between numbers, but they also have a nonarbitrary zero point. Blood pressure is a good example of ratio data, because the zero point must be the same for all blood pressure scales.

The zero point is usually not significant for calculations using ratio or interval data, so these data are usually treated as one type of variable.

WHY DOES THE LEVEL OF MEASUREMENT MATTER?

The level of measurement determines which statistical techniques can be used to analyze the data. Unfortunately, nominal and ordinal data do not allow for very sophisticated or robust mathematical manipulation. Ratio/interval data are preferred in most instances because the selection of data analysis approaches is much greater, offering more possibilities for understanding the phenomena being explored. This means that the type of analysis planned must be congruent with the level of measurement for the data being collected (Gilbert & Prion, 2016b). Stated more simply, think about what you want to do with the data and what level of data you want before you start collecting. It is often impossible to collect the same data a second time after realizing that is it not in the proper format for use.

TYPES OF DATA

Continuous and Discrete Data

The variables that are measured in healthcare are either continuous or discrete. Just like levels of measurement, the general type of data being collected is important to understand because it helps determine how the data can be analyzed.

Continuous data answer the question, "how much?" The precision of continuous data collection is, by definition, dependent on the accuracy of the measuring instrument. The **range** of possible values is spread along a continuum with an infinite number of "in-between" values. Examples of continuous data include age, serum laboratory values, and length of stay measured in hours or days.

Discrete data answer the question, "how many?" These data are frequency or counting values. There are no "in-between" values for discrete data. Examples of discrete data include number of cases of a certain disease or number of births or deaths.

Now that we have reviewed levels of measurement and distinguished continuous from discrete data, let us look at the different types of data analysis necessary for effective financial decision-making.

Frequency Distributions

A **frequency** is defined as the number of times a given value occurs. A frequency distribution is a table that shows how many times each given value occurs. It is the most common reporting format for frequency data (Prion & Adamson, 2013a).

There are a variety of different types of frequencies. A **simple** or **absolute frequency distribution** is a table that reports the value and number of times that each value occurs. Although it is interesting to know the actual number of times that each value occurs, it does not tell you how that compares with the overall number of occurrences.

Table 10.2 gives the frequency distributions for a number of identified risk factors for patients at an outpatient clinic in an economically depressed area. The column labeled "absolute frequency" gives information about how many of the patients seen have two to eight identified risk factors. Unfortunately, without the next column ("relative frequency"), the reader is unable to make an evaluation of the importance of 19 patients who were identified with four risk factors.

The relative frequency provides essential information about how the individual value compares to the total group. Relative frequency is reported as the percentage of occurrence. As you can see from Table 10.2, the calculation of relative frequency is quite simple. The number of occurrences of a value is divided by the total number of group occurrences to return the relative frequency.

This number is much more useful than the absolute frequency, as it gives the reviewer a genuine comparison of each individual frequency within the group. From our previous example of 19 patients, we can now report that 16% of the group examined has four identified cardiac risk factors.

TABLE 10.2 Frequency Distribution for Cardiac Risk Factors

Score	Frequency	Percentage	Cumulative percentage
Variable	*Absolute frequency*	*Relative frequency*	*Cumulative relative requency*
2	1	0.8	0.8
3	17	14.3	15.1
4	19	16.0	39.1
5	28	23.5	54.6
6	22	18.5	73.1
7	21	17.6	90.8
8	11	9.2	100.0

Another useful frequency distribution is that of **cumulative percentage** or *cumulative relative frequency*. This frequency reports the percentage of occurrences as an additive measure. Table 10.2 demonstrates this approach. If we want to know the number of patients who present with four or fewer cardiac risk factors, we can calculate this using the cumulative relative frequency. The number of patients with two, three, and four risk factors are added together to return a cumulative percentage of 39.1%. Note that the cumulative relative frequency total always equals 100%, because we are calculating the collective contributions of each frequency.

Frequency distributions provide a simple yet very effective format for reporting large amounts of data, but they should be carefully constructed for easy interpretation.

VISUAL REPRESENTATIONS OF DATA

With the ubiquity of desktop and laptop computers, any nurse leader can easily become a data "artist." All spreadsheet software programs allow the user to create graphic representations of most information. Not only can one create a pie chart, but there are options for multicolored, exploding pie charts with continuous animation automatically pointing out the data highlights. Just because one can create an exploding pie chart does not mean that you should create an exploding pie chart.

Unfortunately, most visual representations of data lose significant amounts of precision in the conversion from numbers to graphics. Using Table 10.2 as an example, consider several graphic options for the data.

In reviewing the histogram in Figure 10.3, we note that the frequencies are different, but it is difficult to determine what the exact numbers are. We also lose the relative frequency information that was so helpful in the frequency distribution table.

Figure 10.4 presents the same data formatted as a pie chart. Note that we again lose the precision of exact frequencies, requiring the reader to "eyeball" the specific frequency information. Like the histogram, this pie chart is visually appealing but lacks essential information necessary for sound decision-making.

Figure 10.5 offers a different graphic representation of the same cardiac risk factors data. This line chart also suffers from a lack of precision in reporting results and also visually implies that there is some continuous relationship among the variables.

It is tempting to want to make lists of numbers more appealing. The ease with which you can create a wide variety of colorful graphic representations of this data makes it even more enticing. However, the smart nurse leader knows that a simple table is the most concise and complete format for presenting most numerical data and allowing readers maximum access to the information.

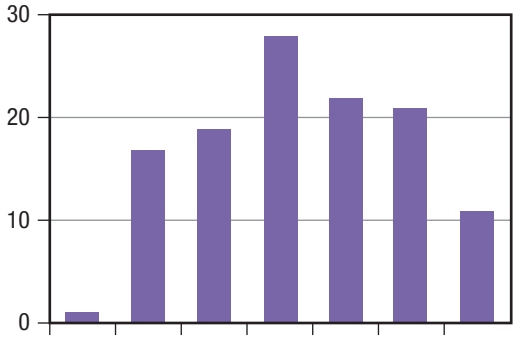

FIGURE 10.3 Frequency histogram of cardiac risk factor data.

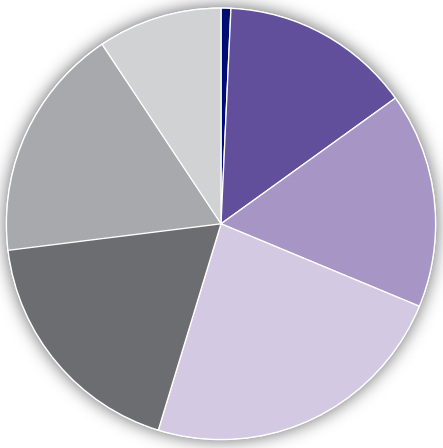

FIGURE 10.4 Pie chart of cardiac risk factor data.

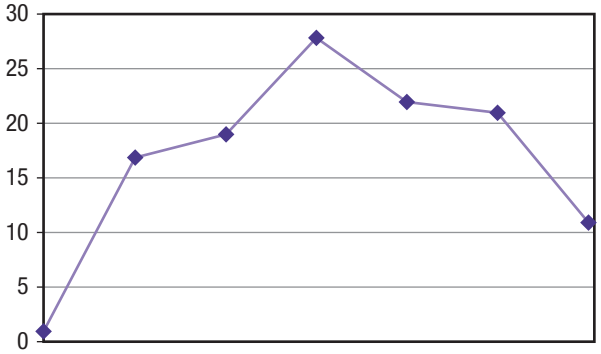

FIGURE 10.5 Line chart of cardiac risk factor data.

Constructing Data Tables

If tables are the most effective format used to present data, then the organization of those tables is very important. The common convention is to list the individual values or variables along the horizontal rows and the data results in the vertical columns. Table 10.2 follows this format. This allows summary information to be presented at the end of each column and facilitates quick and easy review of the information.

Computers have made the process of creating charts and graphs easy, and have also greatly simplified the construction of tables. Resist the urge to complicate tables with excessive formatting (Figure 10.6) and rely instead on reliable and valid results presented simply and effectively.

Measures of Central Tendency

Measures of the central tendency are probably familiar to most nurse leaders. There are three values that typically summarize the central trends of a group of data: mean, median, and mode (Adamson & Prion, 2013b).

Mean, or Average

The **mean**, also known as the *average*, is a very common statistical test used to summarize a group of data. The mean is calculated by dividing the sum of each individual

Score	Frequency	Percent	Cumulative Percent
Variable	*Absolute Frequency*	*Relative Frequency*	*Cumulative Relative Frequency*
2 (*TWO*)	1	0.8%	**0.8%**
3 (*THREE*)	17	14.3%	**15.1%**
4 (*FOUR*)	19	16.0%	**39.1%**
5 (*FIVE*)	28	23.5%	**54.6%**
6 (*SIX*)	22	18.5%	**73.1%**
7 (*SEVEN*)	21	17.6%	**90.8%**
8 (*EIGHT*)	11	9.2%	**100.0%**

FIGURE 10.6 Overly formatted data table.

$$\bar{X} = \frac{\Sigma X}{N}$$

Where $\bar{X}$ = mean, Σ = sum, X = each individual value, and N = the number of values

FIGURE 10.7 Formula for calculating the mean.

value by the total number of values. The result is referred to as the *average* or *mean* value. In mathematical notation, an "X" with a "bar over it" represents the mean. This is known as "X bar" to distinguish it from the X values without the bar. X without a bar over it is the notation for an individual data point. For your reference, the formula for calculating the mean is given in Figure 10.7.

The mean of a group of values can be easily calculated in a readily available spreadsheet software program like Excel. Select the column or row of data points and use the function "=average" to return the mean of that group of values.

Median

The **median** is the midpoint of a group of results, indicating that 50% of the scores are higher (above the median) and 50% are lower (below the median). The median can be a useful statistic to consider when a group of data points are widely dispersed, or there are **outliers** (values far above or below the group) that pull the mean value in a specific direction. For example, review Table 10.3 . which shows serum glucose levels of a group of adolescents with type 2 diabetes.

In the example, the median is a better summary of the group values than the mean, including the outlier (the serum glucose of 180 measured for patient #4). If we exclude this outlier, the mean and median are both fairly accurate representations of the group values.

TABLE 10.3 Serum Glucose Levels

Patient	Serum glucose level (mg/dl)
1	125
2	132
3	124
4	180
5	130
6	120
Mean including outlier	135.17
Mean without outlier	126.2
Median	127.5

If there is an odd number of values, then the median is always one of the actual values. In a distribution with n observations, the median is the value of the $(n + 1)/2$ value. If our example had seven values, then the median would be the $(7 + 1)/2$, or the fourth value in the distribution.

If there is an even number of values in the distribution, then the median will be the mean of the two middle observations when the data have been arranged in ascending or descending order. The calculation is still the number of observations (n) divided by 2, but the median is not a value that occurs in the distribution. Note that in Table 10.3, the mean both with and without the outlier is *not* a value that occurs in the distribution, but instead is between value #3 (125) and value #5 (130).

The median of a group of values can be easily calculated in Excel. Select the column or row of data points and use the function "=median" to return the median value for that distribution.

Mode

The **mode** is defined as the most frequently occurring value in a distribution. Table 10.4 provides a group of scores indicating the number of days of admission for a group of eight patients.

TABLE 10.4 Time in Days From Admission to Discharge

Patient	Days from admit to discharge
1	2
2	3
3	6
4	8
5	10
6	10
7	30
8	32
Mean	12.63
Median	9
Mode	10

The mode can be a very useful result to consider because it can be easily applied to ungrouped data. No special organization of values is needed; one only needs to keep track of the most frequently occurring result(s). Many large distributions have more than one mode and are described as "bimodal" (two modes), "trimodal" (three modes), or "multimodal" (more than three modes). The mode can also be used for summarizing qualitative data.

The mode is calculated most easily by visually reviewing the distribution of values when they are arranged in ascending or descending order. It is easy to recognize that "10 days" is the most frequently occurring value in Table 10.4. Note that the mean, median, and mode for this group of patients all provide slightly different information, indicating that the values do not follow a normal curve distribution. Reviewing the values tells us that the scores at the larger end of the distribution have more relative influence than those at the smaller end, causing the distribution to be skewed toward the larger values.

The mode for a group of values can be easily calculated in Excel by selecting the column or row of data points and use the function "=mode" to return the most frequently occurring value for that distribution.

Measures of Dispersion

It is important to know just how alike a group of values is. This is the contribution of the central tendency measures to data result interpretation and application of results. It is also very useful to have a way to quantify just how different a set of values is, both from the other values in the same group and as a way to compare those data points with another group of values.

The most important data analysis concepts to understand are deviation and variation. These two concepts are measures of the dispersion, or spread, of a data set. Deviation and variation are related ideas, and a thorough understanding of the similarities and differences between the two is the foundation for mastery of data analysis techniques (Adamson & Prion, 2013c).

Range

The range is the simplest measure of dispersion or variation. It is defined as the difference between the largest and the smallest values in a given data distribution. The range is quite easy to calculate, but can be easily misinterpreted and lead to erroneous decisions. The example in Table 10.4 gave the length-of-stay results for eight patients. To calculate the range, we would subtract the shortest length of stay from the longest. Figure 10.8 provides that calculation.

The range in length of stay for this group of patients was 30 days. But range does not give the entire picture. Consider the following groups of patients and their length-of-stay information (Table 10.5).

Note that the lengths of stay are very different among the three units and the nine patients, but the range is the same for all three groups (5). Clearly, there is something influencing length of stay between the 6 south and the 4 west groups, but the range does not reflect this difference.

Range = largest value – smallest value
32 (longest length of stay) – 2 (shortest length of stay) = 30

FIGURE 10.8 Formula for calculating the range.

TABLE 10.5 Length of Stay for Nine Different Patients on Three Units

Patient	Length of stay	Unit
1	2	8 North
2	2	8 North
3	7	8 North
4	1	6 South
5	1	6 South
6	6	6 South
7	10	4 West
8	11	4 West
9	15	4 West

$$X - \bar{X} = x$$

Where X = individual score, $\bar{X}$ = mean, and x = deviation score

FIGURE 10.9 Calculation of deviation scores.

Deviation

Statistical deviation is defined as the amount by which an individual score differs from the group mean. The mean is the arithmetic average of the data set, and usually is the best measure of central tendency. Calculating deviation scores can provide useful information about the distance of each individual data point from the average for the data set.

Because the mean is the average of all the scores of the data set, the sum of all of the deviation scores is zero. This occurs because the spread of scores above the mean is the same as that of scores below the mean: The positive and negative values would cancel each other out and result in a sum of zero. The deviation score calculation is demonstrated in Figure 10.9.

The deviation score of an individual data point is useful to calculate because it can indicate how close or how far that point is from the group average. For example, Table 10.6 lists the nursing care hours per patient day (NHPPD) for several inpatient nursing units. The deviation scores can be calculated by subtracting the average NHPPD (7.64) from each individual unit's NHPPD result, shown in Table 10.7. The deviation score is useful because it gives a quantifiable measure of how much (or how little) each individual value differs from the group mean.

TABLE 10.6 Nursing Hours per Patient Day for Five Inpatient Units

Unit	NHPPD
1 West	8.5
1 East	7.0
2 South	9.0
4 North	8.2
4 South	5.5
Average NHPPD	7.64

NHPPD, nursing hours per patient day.

TABLE 10.7 Deviation Scores for Nursing Care Hours per Patient Day for Five Inpatient Units

Unit	Deviation score
1 West	8.5 – 7.64 = + 0.86
1 East	7.0 – 7.64 = – 0.64
2 South	9.0 – 7.64 = + 1.36
4 North	8.2 – 7.64 = + 0.56
4 South	5.5 – 7.64 = – 2.14
Sum of deviation scores	0

Variance

In contrast to deviation, **variation** refers to the variability of a group of data points (Adamson & Prion, 2013c). In other words, how spread out or close together are the values from the other values within the group? Variation is a measure of the sameness of a group of data points. A group of scores are *homogeneous* if there is little variation among the data points and they are all closely clustered about the mean. A set of scores is considered **heterogeneous**, or highly varied, if there is a lot of spread among the scores.

Variation can be loosely conceptualized as an "average" of all of the deviation scores. Not surprising, the formula for variation looks a lot like the formula for the mean. It is calculated as the sum of the deviation scores squared and divided by the number of data points minus one. Because the sum of the individual deviation scores is always zero, those scores are squared to eliminate the positive and negative signs. The results number is always positive and can be divided by the number of data points minus a "fudge factor." The reason for dividing by $n - 1$ rather than n (the number of data points) is complicated and involves the difference between population and sample data. The $n - 1$ denominator allows an unbiased estimator for the **standard deviation** and is a common convention. Figure 10.10 provides the formula for variance and also highlights the relationship between variance and standard deviation.

Variation is essential to understanding the distribution of the group data, because it provides a quantifiable measure of the "sameness" or "differentness" of the data that have been grouped together. Sometimes, after reviewing the variation calculation, you may want to reorganize your data into different groupings for a more accurate analysis.

Standard Deviation

The standard deviation of a data set is the positive square root of the distribution's variance, as calculated in the previous section. The standard deviation is usually a more useful result than the variance, because it is reported in "real" units that correspond to the actual information being collected. Because the variance is a squared value (remember that the numerator is the sum of the deviation scores squared), this number does

$$\text{Variance} = \frac{\Sigma X^2}{n-1} = SD^2$$

Where SD = standard deviation

FIGURE 10.10 Variance formula.

$$SD = \sqrt{\frac{\sum X^2}{n-1}}$$

FIGURE 10.11 Formula for standard deviation.

not correspond to the measurement scale being used for the data. However, the standard deviation can be easily applied to the data because it shares the same measurement scale.

For example, Table 10.6 offered the NHPPD for five inpatient units. The mean NHPPD for the five units was 7.64 hours. If we calculate the standard deviation, the result is 1.40 hours. This tells us that the group was fairly homogenous for NHPPD.

Figure 10.11 illustrates the formula for calculating standard deviation. Note that it is always necessary to provide the standard deviation when reporting a group mean. The mean is a key measure of the central tendency of the distribution of values, but the standard deviation is also necessary to help interpret the amount of variability within the group.

The Normal Curve

Any discussion of central tendency and variance refers back to the idea of a continuous distribution of data points, often referred to as the **normal curve.** The normal curve has very specific properties that make it useful for visualizing data analysis techniques and results. The normal curve is symmetrical, and the mean, median, and mode share the same point on the curve.

The standard normal curve incorporates the measurement of standard deviation and defines the parameters for each standard deviation unit. By definition, 34% of the continuous distribution is located between 0 and 1 standard deviation units, meaning that a total of 68% of the total distribution occurs between − 1 and + 1 standard deviation units (Adamson & Prion, 2014). An additional 14% of the expected distribution falls between − 1 and − 2, or + 1 and + 2 standard deviation units from the mean. Obviously, the percentage of the distribution decreases the further away from the mean, meaning that it is more and more unlikely to see data points there. A data point or group of points that are more than − 3 or + 3 standard deviation units from the mean could be considered an outlier and subjected to a rigorous review to determine whether the value will be retained within the group or deleted (Figure 10.12).

The standard normal curve is an important reference point for quantitative data analysis, as it determines the correct use of parametric or **nonparametric** statistical tests. A set of results can be examined with a **parametric** test if it conforms to the assumption of a normal, univariate distribution. By convention, parametric testing is used on a sample to make an inference about the entire population. So an analysis of lipoprotein levels among a sample of middle-aged nursing executives could be used to predict or infer what those serum lipoprotein levels would be among the population of middle-aged nursing executives. Most parametric statistical tests require **ratio/interval data**.

Nonparametric statistical testing is used when the set of results do not conform to the assumptions of normal distribution. In fact, there are no assumptions made a priori about the distribution of the results. This means that nonparametric data analysis is less robust than parametric data analysis because there is more real and potential variation in the distribution of values and more possible interpretations for the results. Nonparametric statistical tests are used for nominal and ordinal data, and for data that do not meet the stated assumptions for the desired parametric statistical test.

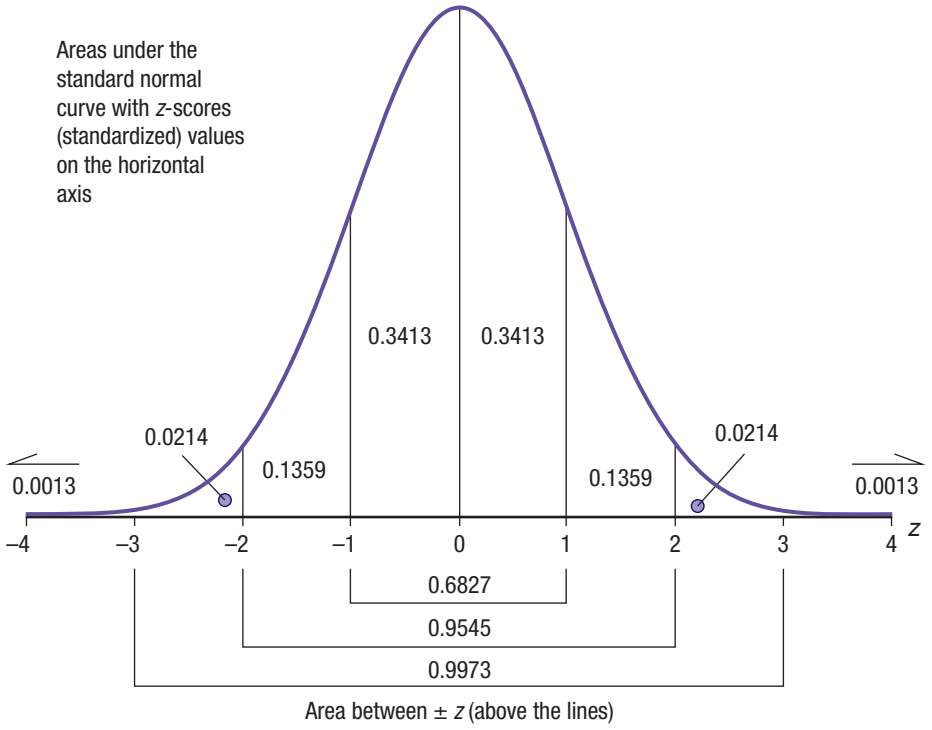

FIGURE 10.12 The standard normal curve.

Measures of Association: Correlation

Sometimes, one wants to explore whether there is a relationship between two variables of interest. For example, as the chief nursing officer (CNO) you are worried that there is an association between patient satisfaction ratings and the number of nursing students assigned to a particular unit. Correlation does not indicate cause and effect; if you find a relationship, you cannot say that the number of nursing students causes a change in patient ratings. But the correlation coefficient does indicate both the strength and direction of the relationship.

Correlation Coefficient

The most common correlation calculation is the Pearson product–moment correlation coefficient (Prion & Adamson, 2014). This calculation can be completed only with ratio/interval data, so you need meaningful numbers. You cannot use nominal or ordinal data for the Pearson correlation, so common demographics data, such as ethnicity, race, gender, or medical diagnosis, cannot be used (see the next section on chi square for how to calculate associations between two nominal variables). However, the patient age, the number of nursing students assigned to the unit each week, the summary HCAPS score, and the number of medication errors are all ratio/interval data and can be used to calculate a Pearson correlation coefficient.

This requirement for ratio/interval data is important because the correlation coefficient can be visually graphed on an *x*–*y* axis. In this example, the number of nursing students is graphed on the *y* (vertical) axis, and the total patient satisfaction score is graphed on the *x* (horizontal) axis (Figure 10.13).

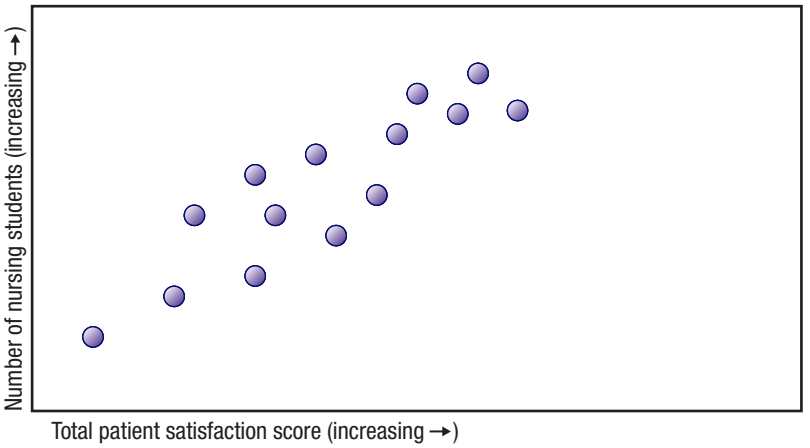

FIGURE 10.13 Graph of number of nursing students versus patient satisfaction scores.

From this graph, we can see a rising relationship. We can interpret that as the number of nursing students rises, the patient satisfaction scores also rise. The patients seem to like having nursing students helping with their care! This would be described as a positive relationship: as one variable rises, so does the other. A negative correlation would be seen when one variable rises and the other one falls. Figure 10.14 shows the same scatter plot (the name for a graph with dots for each patient satisfaction score/number of nursing students score) with a helpful line added to visualize this positive relationship.

So how much do the patients on this unit like having nursing students care for them? Let us say we calculate a Pearson product–moment correlation coefficient of +0.53. This is considered a moderate correlation. The correlation coefficient can be interpreted as in Table 10.8 (Shavelson, 1996; Taylor, 1990).

A correlation coefficient of +0.53 means that there is a moderate relationship between the number of nursing students working on the clinical unit and the patient satisfaction scores. This makes sense, as there are many factors that influence satisfaction scores, but the presence of a helpful, earnest nursing student is memorable for patients and their families and can significantly "color" their inpatient experience.

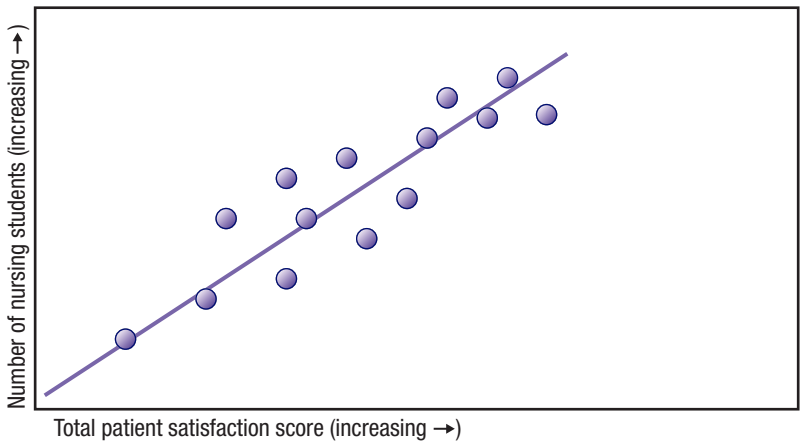

FIGURE 10.14 Graph of number of nursing students versus patient satisfaction score with line indicating positive relationship.

TABLE 10.8 Interpretation of Correlation Coefficients

Correlation coefficient	Interpretation
0 to ± 0.20	Negligible relationship/association
± 0.21 to ± 0.35	Weak relationship/association
± 0.36 to ± 0.67	Moderate relationship/association
± 0.68 to ± 0.90	Strong relationship/association
± 0.90 to ± 1.00	Very strong relationship/association

Chi Square

Chi square, often written as χ^2, is a calculation used to test for the association between two nominal (categorical) variables such as gender (male or female) and smoking habit (smoker or nonsmoker). The χ^2 calculation requires a random sample, independent observations, and a cell count of five or more in each cell in the contingency table (Gilbert & Prion, 2016a). Let us examine each of these requirements in more detail.

Another way of describing the χ^2 calculation is that it allows us to compare expected data with actual data. For example, if we expect to find more male smokers than female smokers, we can compare this expectation with our actual, collected data to determine whether there is a significant difference. This significant difference between the expected and the actual data indicates something is unusual or unexpected with our collected data, which makes it different from what we were expecting.

How do we calculate a χ^2 result? The formula uses both the expected data and the observed (collected or actual) data. Once you have calculated the χ^2 value, you can check a chi-square distribution table to determine whether the result is significant.

To assist with the χ^2 calculation, we can construct a contingency table. This is a simple two-cell by two-cell representation of our information. Using our smoker example, Table 10.9 is a simple 2 × 2 contingency table for 100 randomly selected patients. We are hoping to use these results to determine whether smoking status is independent of gender for our 1,000 inpatients.

We can see from reviewing the table that the number of male smokers is almost half that of female smokers, and the number of male nonsmokers is almost double that of female nonsmokers. If we are trying to quantify the significance of this observation, then we use the χ^2 calculation. We determine the test statistic using the observed and expected values, then consult our chi-square distribution table to analyze the size of the difference. It is important to also calculate the degrees of freedom for this data set. Degrees of freedom can be described as the number of parameters in the data set that can be varied. For a 2 × 2 contingency table, if we are given the sums of each row and column (known as the *marginals*), we only need one cell to complete the table. The degree of freedom for the 2 × 2 table is one. Degrees of freedom are important to statisticians because they change the shape of the data distribution and change the critical value—the number that determines whether your result is significant. From any statistics

TABLE 10.9 2 × 2 Contingency Table: Smoking Status

Gender	Smoker	Nonsmoker	Total
Male	24 (a)	20 (b)	44 (a + b)
Female	44 (c)	12 (d)	56 (c + d)
Total	68 (a + c)	32 (b + d)	100 (*n*)

textbook, we can determine that the critical value for a χ^2 distribution with one degree of freedom is 3.841 for alpha ($\alpha = 0.05$). Our calculated value for χ^2 is 28.56, telling us that our data are significantly different from what we expect and that something important is happening with our sample.

Practical, Statistical, and Clinical Significance

Many students of research methodology and data analysis spend an inordinate amount of their time studying the issues of practical and statistical significance (Adamson & Prion, 2013e). As a reminder, **statistical significance** is most commonly reported as the *p* value, or the probability that the result occurred because of chance (Adamson & Prion, 2013d). The smaller the *p* value, the less likely the result was random and the more likely there is a real difference. Unfortunately, the *p* value does not provide a measure of the magnitude of the difference among values. That is the function of various measures of practical significance, the most common of which is Cohen's *d*. **Practical significance** reports on the magnitude of the difference between two groups of values as measured in standard deviation units (Adamson & Prion, 2013a).

Statistical and practical significance calculation and interpretation are complicated subjects that require extensive explanations. That information can be found in any of the books listed in the subsequent Additional Reading Resources section of this chapter. You need to understand the similarities and differences between these two measures of reliability, but also be skeptical in making decisions based only on statistical or practical significance results.

The invaluable expertise that most nurse leaders bring to quantitative data analysis interpretation is that of **clinical significance**. Clinical significance cannot be calculated nor measured: It is the cumulative assessment of a wide variety of factors that result in the right decision for that environment. After reviewing the quantitative data results, the effective nurse leader makes a fiscal decision that incorporates not only the reported results but also the expert understanding of the characteristics and expectations of the setting in which that decision will be applied.

A DNP-educated nurse must be a role model and leader to others regardingdata analysis. The relevant advanced nursing practice competencies were listed at the beginning of this chapter. All are essential to the nurse leader role, but Domain 1: Knowledge for Nursing Practice, is the most relevant with regard to the topics described in this chapter about data analysis. As a reminder, the nurse leader must:

1.1 Demonstrate an understanding of the discipline of nursing's distinct perspective and where shared perspectives exist with other disciplines.
  - 1.1e Translate evidence from nursing science as well as other sciences into practice.
  - 1.1f Demonstrate the application of nursing science to practice.

1.2 Apply theory and research-based knowledge from nursing, the arts, humanities, and other sciences.
  - 1.2f Synthesize knowledge from nursing and other disciplines to inform education, practice, and research.
  - 1.2g Apply a systematic and defendable approach to nursing practice decisions.

Many people are uncertain with numbers, and especially unsure of themselves when reading and interpreting research with quantitative data analysis calculations. But the safety of staff and patients, quality care that meets the best practice standards, and the personal and professional development of colleagues is depending on the nurse leader's understanding and role modeling of basic data analysis approaches and use of evidence to inform education, practice, and research.

It is hoped that this brief introduction to quantitative data analysis techniques for fiscal, operational, and quality and safety decision-making will add another tool to your experts' toolbox and enable you to interpret and apply quantitative data to improve patient outcomes.

CONCLUSIONS

In this chapter, we have reviewed basic quantitative data analysis techniques that are commonly used for informed financial, operational, and quality/safety decision-making and analysis. These approaches include frequencies, measures of central tendency, measures of dispersion, and measures of association. We differentiated *data analysis* from *statistics* and emphasized the importance of the nurse leader's comfort and competence transforming data from a variety of sources into usable information, especially for fiscal, operational, and quality accountability and responsibility. The chapter also provided some advice about visual representations of data for communicating results.

The interpretation and application of statistical results demands a firm conceptual understanding of quantitative statistical techniques and the assumptions for their use, but does not require the nurse leader to be an expert in calculating the various statistical tests. An understanding of the differences among statistical, practice, and clinical significance is essential for effective financial, operational, and quality/safety stewardship and excellent patient care.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. The CNO is reviewing patient satisfaction benchmark data from their facility and four similar facilities (see table). What conclusions can they make, given the information? What are the limitations of this information? How could you explain these results to the staff?

Facility	Mean Patient Satisfaction Score (1–40 Scale)	Standard Deviation	Number of Respondents
A	30.85	5.6	256
B	38.56	2.4	84
C	23.31	14.6	1,210
D	30.62	10.8	369
Home facility	31.42	6.6	420

2. A group of nurses wishes to explore the effectiveness of a new treatment approach for increasing activity tolerance among COVID-19 patients. As a member of your agency's research and practice committee, you review their proposal. They describe how they will use collected demographic data, vital signs, and pulse oximetry readings to track the number of minutes each patient can ambulate. They propose to collect the following patient data: gender, ethnicity, religion, diagnosis, age measured in decade categories (i.e., 0–10, 11–20, 21–30, 31–40), and

name of medications currently taken. What feedback can you give to them about their choice of variables and proposed statistical manipulation?

3. The geriatrics inpatient unit has experienced a significant amount of nursing staff turnover. In the last 12 months, seven of the 29 permanent RN staff members have left. In addition, the number of falls on the unit has risen from an average of two per month to a high of 11 falls last month. How could you calculate whether there is a significant relationship between staffing and patient safety issues? Can you accurately determine cause or effect in this situation? What is the clinical significance of these results?
4. You complete a calculation of the Pearson product–moment correlation coefficient to determine the relationship of the number of temporary RNs on an inpatient nursing unit to the number of medication errors on that unit. Remember that correlation does not indicate cause and effect, but only that there is a quantifiable, directrelationship between these two variables. The calculated result is $r = +0.47$. How would you explain this result to your CFO to request additional money to hire more permanent staff RNs?
5. Three of the nurses in the cardiac outpatient clinic are enrolled in an MPH program. They want to investigate whether a patient's ethnicity or race influences the quality and quantity of care received in the clinic. The nurse manager asks you, a DNP nurse leader, to meet with the nurses to talk about their proposal and guide them in their information collection and data analysis activities. What are the important points to discuss with these enthusiastic nurses?

ADDITIONAL READING AND RESOURCES

The following are useful resources for the reader wanting more detailed descriptions of statistical testing for the healthcare environment. Also see Prion and Adamson (2015) for a more detailed discussion of helpful resources for data analysis and research methods.

Bartz, A. E. (1998). *Basic statistical concepts*. Prentice Hall.

Cowell, J. (2007). *Statistics basics: A resource guide for health care managers*. HCPro.

Horton, L. (2011). *Calculating and reporting health care statistics* (3rd ed.). American Health Information Management Association.

Huck, S. W. (2011). *Reading statistics and research*. Addison-Wesley.

Lang, T. A., & Cecic, M. (2006). *How to report statistics in medicine: Annotated guidelines for authors, editors, and reviewers* (2nd ed.). American College of Physicians.

Polit, D. (2009). *Statistics and data analysis for nursing research*. Prentice Hall.

Shavelson, R. J. (1996). *Statistical reasoning for the behavioral sciences* (3rd ed.). Allyn & Bacon.

Shott, S. (1990). *Statistics for health professionals*. W. B. Saunders.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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Gilbert, G. E., & Prion, S. K. (2016a). Making sense of methods and measurement: The chi-square test. *Clinical Simulation in Nursing, 12*(5), 145–146. https://doi.org/10.1016/j.ecns.2015.12.013

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Henkel, R. E. (1976). *Tests of significance*. Sage.

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CHAPTER 11

Role of Technology, Informatics, Artificial Intelligence, and Big Data in Healthcare Finance

Nicholas R. Webb

The goal is to turn data into information and information into insight.

—Carly Fiorina, former chief executive officer, Hewlett-Packard

OVERVIEW

This chapter reviews the ways technology, informatics, big data, and artificial intelligence influence healthcare finance. We touch on some of the basics of associated data definitions to build a foundation (most of these are taught in undergraduate and master's level statistics courses), though our focus is on interpreting and displaying data to tell a story. Nursing leaders must be competent to leverage data and paint a picture that can influence others, particularly those within the financial sphere, to improve patient outcomes and save lives. Nursing leaders competent in nursing informatics, big data, and artificial intelligence can yield more power and influence in today's increasingly complex healthcare technology environment than those who do not understand it. One of the most effective ways to use data to influence is to tell a story in a language that the listener can understand. The American Association of Colleges of Nursing (AACN)'s *The Essentials: Core Competencies for Professional Nursing Education* (2021) provides an educational framework that teaches nurses how to incorporate informatics processes and technologies into their practice in order to deliver safe, high-quality, and efficient healthcare.

INTRODUCTION

In her 2016 book, *Weapons of Math Destruction*, data scientist Dr. Cathy O'Neil examined some of the potential pitfalls of using big data (O'Neil, 2016). O'Neil believes that big data look backward and not forward. The ability for data to indeed look forward would require "moral imagination," which, she argues, is something that only human beings are capable of providing. *Nothing could be further than the truth.* O'Neil's hypothesis is the problem. Leveraging informatics by nursing leaders—particularly those who are DNP-prepared—is the solution. Technology and nursing can coexist, they often even thrive together.

When data is used ethically with good intentions, the capabilities to improve patient outcomes and change lives are virtually limitless. The author of this chapter has had the opportunity to experience the relevance of nursing informatics firsthand. At the age of 15, the author developed a ruptured appendix while waiting in the emergency room. While in emergency surgery, the operating room nurse made a medication error, giving 10 times the recommended dose of a medication, almost killing the patient. Had a nurse pulled the same medication in a modern hospital that uses the electronic medical record and a bar code medication administration (BCMA) application that matches the provider order to the medication, it is likely that the nurse would have been alerted to an error and double-checked the dosage, which would have prevented the error. It was this experience and others that inspired the author to specialize in nursing informatics and nursing leadership.

BASIC DEFINITIONS AND TERMINOLOGY

As the adage goes, when in Rome, do as the Romans do. Similarly, when interacting with healthcare finance leaders, it is necessary to understand and speak the same language as those who hold the power of the purse. Therefore, it is essential to understand some of the baseline terminologies. The first concept to understand is **data**, which Merriam-Webster (2021) defines as factual information for use "as a basis for reasoning, discussion or calculation." An example of data would be a set of 10 patient medical record numbers. Caveat: All data contained in this chapter are hypothetical and not actual data from any healthcare organization.

Data falls under two classifications: quantitative and qualitative. *Quantitative data* can be expressed numerically, whereas *qualitative data* is much more subjective and descriptive (not typically expressed numerically). On the other hand, *information* is typically grouped data that is structured to make it worthwhile and give it context. An example of information would be the 10 patient medical record numbers with their associated admission diagnoses presented in a pie chart (pie charts will be discussed later). Once data becomes information, statistics can be further translated, during which the data is collected and analyzed.

Validity Versus Reliability

When evaluating data, it is crucial to determine whether or not data is valid and reliable. Data is deemed to have *reliability* if it is found to be consistent. Data is considered to have *validity* if it measures what it is supposed to. If you weigh yourself every morning after getting out of the shower and the scale is over by 10 pounds, the scale will show your weight every day to be 10 pounds too high. The scale may be reliable because it shows the exact measurement, but it is not valid, as it is adding 10 pounds to your body weight. The scale should predictably measure the same value each time and should also be accurate. The same principles apply to large sets of data.

Mean, Median, and Mode

Nurse leaders often need to summarize data in order to make it meaningful and present it to others. *Mean, median, and mode measurements* allow the nurse leader to draw generalized conclusions about the data. In looking at groups of data, the mean is the average of the pieces of data. To find the mean, simply divide the numbers by the number of pieces of data. To determine the median, it is necessary to sequentially order all of the data and then find the middle data. The mode is the data value that appears most often in the data set. However, mean, median, and mode do not always tell the whole story. When looking at datasets, items called *outliers* can often skew the data in a way that makes mean, median, and mode calculations less valuable. Outliers occur when a small subset

of data points fall far outside of the data and sometimes can be excluded if they are the result of error. One beneficial measurement in understanding the relevance of outliers is the *standard deviation*. Standard deviation measures the variation of the values of a variable from its mean. Effectively, it lets the nurse leader know the average distance from the mean to the rest of the items in the data set.

ANALYZING DATA

Using Cross-Industry Standard Process for Data Mining as a Framework for Understanding Data Projects

Like landing a plane, one of the most important things about data analysis is the approach. For over 20 years, the most popular process used to approach data analysis projects is the Cross-Industry Standard Process for Data Mining (CRISP-DM). Though other methods, such as Scrum and Kanban, exist, CRISP-DM overwhelmingly remains the de facto standard even though it has been in existence for over 20 years (Schroer et al., 2020).

There are six different stages in the CRISP-DM data analysis project lifecycle: business understanding, data understanding, data preparation, modeling, evaluation, and deployment. The first stage, business understanding, includes assessing the situation and creating a project plan. The second stage, data understanding, includes data collection and description. The third stage, data preparation, comprises selecting data inclusion and exclusion criteria, cleaning up any inaccurate data, and placing data in the proper format. The fourth stage, data modeling, is perhaps the most critical as this is where the data-modeling technique is chosen, and the model is built. During the fifth stage, evaluation, results are scrutinized and put into context with business objectives. The sixth stage is deployment, during which the final report is generated (Schroer et al., 2020).

CRISP-DM is a versatile model as it is not industry specific (it can be applied to healthcare, finance, and many other fields), and it is not limited to any specific technology or data model. Following the same six steps allows for projects to be replicated. It provides a solid framework that nurse leaders can use to analyze financial data within the healthcare space when putting together a data project.

How to Showcase Data: How Data Is Displayed Matters

When nurse leaders present data, they need to do it in a meaningful way. Financial executives will not (and often, due to time constraints, cannot) look through large data files and examine things line by line. It is the responsibility of the nurse leader to distill the data into a visual form that allows a story to be told without confusing the audience. The message has to be precise. The clearer the message that is being conveyed, the fewer questions the receiver will ask, and the more attention can be paid to what should indeed be focused on. One of the most critical steps in showcasing data is to choose how to display it visually. Should the data set be placed in a line chart or a pie chart? A pivot table or an infographic? A nurse leader who can showcase data concisely and adequately is a force to be reckoned with. The AACN Essentials lays out the importance of the appropriate use and evaluation of communication technology to deliver safe nursing care in essentials 8.3a and 8.3g (2021).

Bar Chart

One of the most common forms of charts is a *bar chart*. A bar chart showcases data using rectangular bars of varying heights or lengths (vertical or horizontal). Bar charts are frequently used to compare different nursing units, teams, or healthcare organizations when evaluating financial performance. In healthcare finance, if a hospital chief

executive officer (CEO), CFO, or chief nursing officer (CNO)/CNE is wondering why hospital financial performance in a given quarter is below the expected standard, they may seek data comparing different inpatient units. One example might be looking at incremental overtime among the medical–surgical unit, telemetry unit, and intensive care unit, as seen in the Figure 11.1.

Line Chart

Another of the most popular ways to showcase data in healthcare finance is in a *line chart*. Line charts look at changes in a data set over time. Line graphs are frequently used to monitor trends. In healthcare finance, DNP graduates will frequently track items like hospital-acquired pressure ulcers (HAPUs), a crucial quality metric that can influence insurance reimbursement and be used to avoid fines from regulatory agencies. Figure 11.2 showcases the (hypothetical) incidence of HAPUs at a rural critical-access hospital over a year. The reader can see that the number of HAPUs has steadily increased since the beginning of the year (Quarter 1–Q1), so from a quality and financial standpoint, leadership needs to take a hard look at the data to determine which interventions might be deployed to resolve this issue.

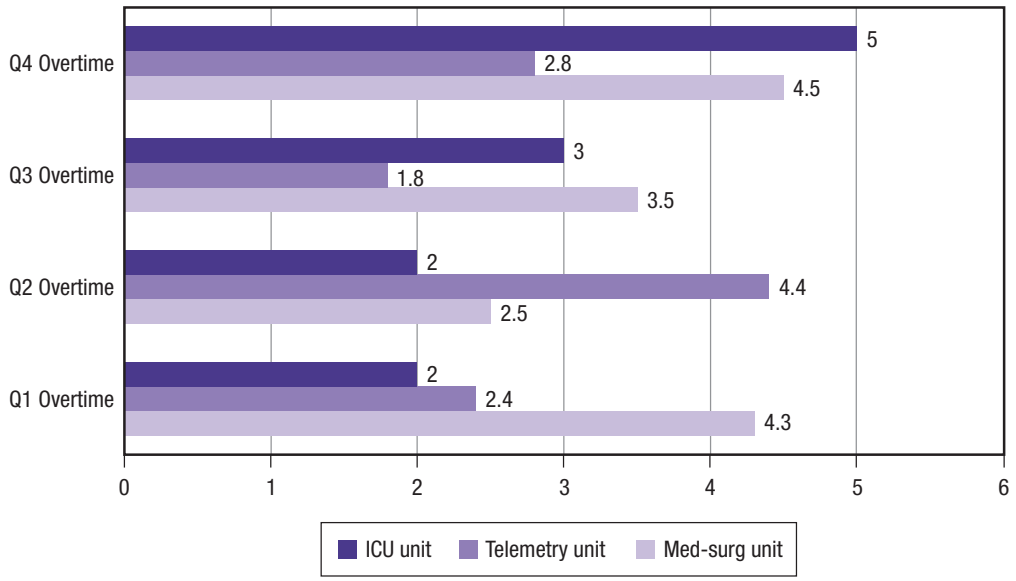

FIGURE 11.1 Average hospital overtime per nurse, in hours broken down by unit, for Q1–Q4.

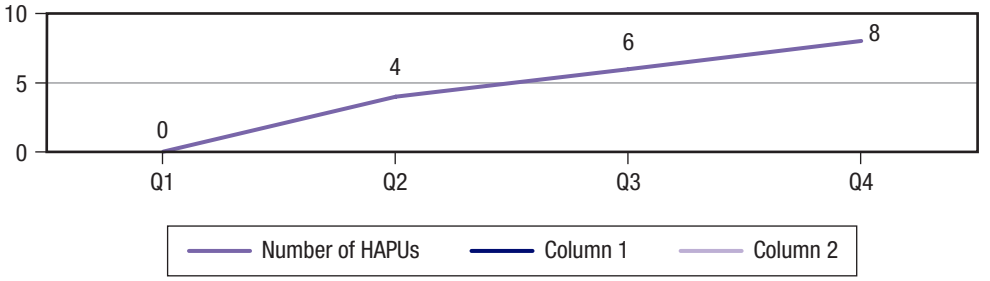

FIGURE 11.2 Number of HAPUs at rural critical access hospital, 2020.
HAPU, hospital-acquired pressure ulcer.

Area Chart

Area charts are a hybrid between a bar chart and a line chart that can show the relationship among different series of data, particularly when each series has a relationship to the value of zero. Using theHAPU example previously discussed, it is apparent that HAPUs are an increasing problem in the hospital in question. The nurse leader might get asked questions by finance leaders such as "What do you think is driving this change?" or "What is influencing the increase?" As nurse leaders at the DNP level, it is necessary to be able to come up with competent answers to these questions and then present them to finance in a way that they can understand and that can drive discussions or negotiations in the nurse leader's favor, particularly when it comes to resources. The nurse leader in this example might have some insight as to what variables might be driving the number of HAPUs up and considers that the amount of overtime might be driving up the number of HAPUs in some way. In the area chart shown in Figure 11.3, we examine the relationship between nurse overtime and HAPU occurrence in an area chart.

Figure 11.3 shows that the number of HAPUs continues to increase each quarter over the year. However, the average overtime per nurse decreases in Q2 and Q3 and has an increased spike in Q4. According to this chart, there does not appear to be a relationship between increased nursing overtime and HAPU occurrence. That does not mean that another factor is not driving the increase in HAPUs, however.

Scatter Chart

Scatter charts, also called *scatter plots*, are charts the nurse leader can use to demonstrate the relationship between two different variables using dots to indicate data points. Suppose that after analyzing the data in the previous example comparing the average number of nurse overtime hours and incidence of HAPUs, you decide that there was no apparent relationship there (at least in the summary data), and you decide to look in another direction: the average number patients that each certified nursing assistant (CNA) cares for on a shift. Although turning patients and preventing HAPUs is undoubtedly within a nurse's scope of practice, much of that work is often done by CNAs in a hospital setting. Knowing this, in the scatter chart you decide to graph the relationship between the CNA-to-patient ratio as well as HAPU incidence (Figure 11.4).

Interesting. Now we *may* be getting somewhere! There appears to be a correlation between the number of patients assigned to a CNA and the occurrence of HAPUs, as both are headed up in the same direction over the same period. Does that mean that by

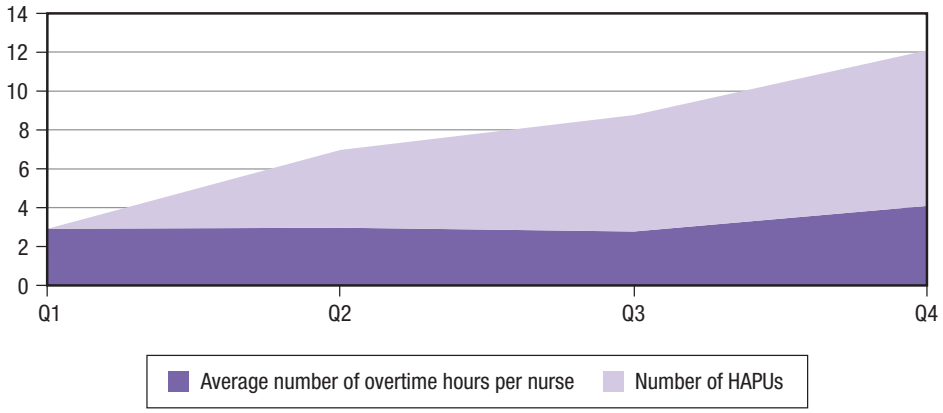

FIGURE 11.3 Average number of overtime hours per nurse, number of HAPUs, Q1–Q4 2020. HAPU, hospital-acquired pressure ulcer.

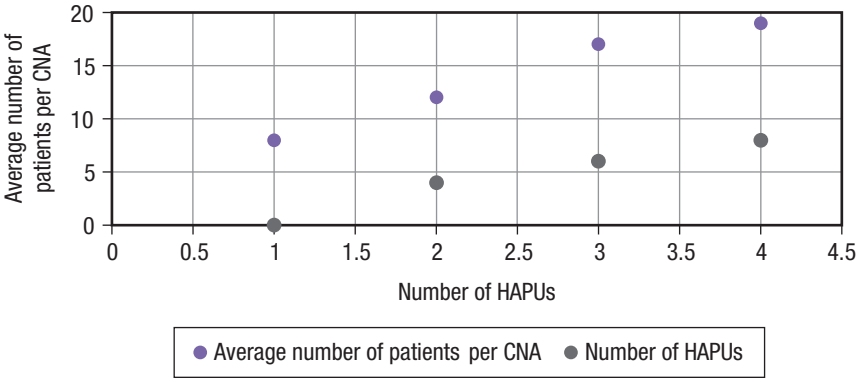

FIGURE 11.4 Average number of patients per CNA versus number of HAPUs, Q1–Q4 2020. CNA, certified nursing assistant; HAPU, hospital-acquired pressure ulcer.

giving CNAs a higher patient load for which they may be responsible for patient turning schedules, that more HAPUs result from that staffing? Not necessarily, as correlation does not equal causation.

Correlation Versus Causation

Do iPod sales contribute to increased homicide rates? Between the years of 2004 and 2006 in New York City, the number of iPod sales skyrocketed, as did the number of murders. According to Smith and Cordes (2020), authors of *The Phantom Pattern Problem*, it was reported that a highly respected think tank in Washington, DC, published a report in 2007 which stated, "The rise in violent offending and the explosion in the sales of iPods and other portable media devices is more than coincidental. We propose that, over the past two years, America may have experienced an iCrime wave." Was the spike in iPod sales the reason for the increase in murders? Apparently not, as murders fell after 2007 and iPod sales continued to increase. It appears that the researchers confused *correlation* with *causation*. *Correlation* measures the relationship between two or more variables in a set of data. Just because there is a correlation between two variables, though, does not mean that one variable is the cause of another. *Causation*, on the other hand, reveals that movement in one variable causes movement in another.

The mathematical formulas for calculating correlation vary, though the most commonly used formula is Pearson's correlation (also referred to as *r* correlation). To do the formula by hand is burdensome, and so it is typically done through a formula in Microsoft Excel or other data-processing tool (See example video in resource list on how to calculate the *r* correlation in Microsoft Excel). When interpreting the *r* correlation, values above +0.70 (trending toward 1.0) or higher indicate a robust positive relationship between variables, and values less than −0.70 (trending toward −1.0) indicate a strong negative relationship. Values of 0.00 indicate no relationship/correlation.

(Hypothetically) you can use the correlation data to convince your CFO to allow you to conduct a quality-improvement project in which you limit the number of patients a CNA is responsible for turning to 12 at a time for 1 year to see whether a lower patient ratio will improve HAPUs (your CFO agreed to do this if you can keep your incremental overtime costs low in order to keep your staffing budget balanced). You hypothesize that if each CNA has 12 patients, HAPUs should decrease from their current (high) levels.

Over the next year, you want to ensure that your quality-improvement project is successful, so you will need a method to ensure that you have a way to ensure everything is under control and within certain guardrails, as we all know that staffing is generally not static. One way to monitor the process of staffing to the goal is to create a control chart.

Control (Shewhart) Charts

When evaluating data, how do nurse leaders know whether or not an improvement occurred? How can they determine whether there is an improvement after a quality-improvement project? How might they discover that there are opportunities within a set of data or whether interventions were victorious over some time? One of the most commonly used methods is a *control chart*. Also known as *Shewhart* charts, control charts monitor how (or if) a process varies over time. If values begin to deviate outside of the upper and lower control limits, it can let the nurse leader know that something may be amiss with a process, indicating variation. However, one of the disadvantages of using control charts is that the control chart does not indicate what is driving the variation (the nurse leader needs to be cautious and not automatically equate correlation with causation).

In order to construct a control chart, it is necessary to have four data elements: the lower control limit, the upper control limit, the control limit, and the actual variable (typically, the result that is being measured). The upper control limit and lower control limit are your high and low guardrails, and the control limit is where you would like your data to live ideally.

The control chart depicted in Figure 11.5 shows that the average number of patients assigned to a CNA did hang around the goal of 12, and there were not any variables that fell outside of the upper and lower control limits, meaning that the process was reasonably controlled.

Dashboard Dial

Frequently the nurse leader will want to provide a status update on a particular initiative or project. Dashboards are an effective way to display a status over time. If the nurse leader is tracking an organizational goal to keep overtime hours below a certain percentage, then a dashboard dial would be a quick and effective way to convey where things stand. One of the nice things about dashboard dials is that parameters can be set ahead of time, and the dials can be updated automatically when the underlying data sets are updated. This is especially true if the information is fed directly from an electronic health record (EHR) or other patient tracking system to the dashboard dial. One caveat with dashboard dials is that the parameters for what constitutes a red, yellow, or green value must be delineated so that there is no confusion about success, risk, or failure. An example of a dashboard indicator is shown in Figure 11.6.

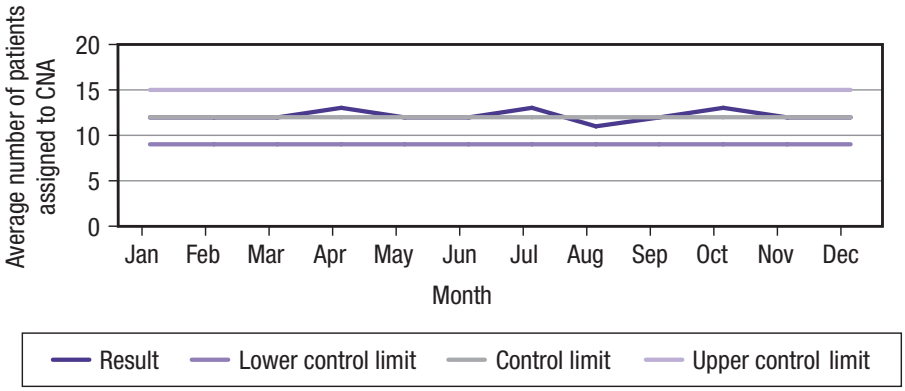

FIGURE 11.5 Average number of patients assigned to each CNA, by month.

CNA, certified nursing assistant.

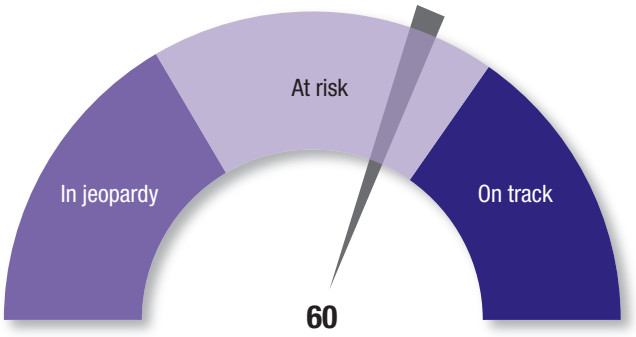

FIGURE 11.6 Incremental overtime status (Q1).

Box Plot (Whisker Plot)

Box and whisker plots provide an analysis of distribution in different sets of data that have some relationship. Precisely, each box plot displays the data's minimum, first quartile, median, third quartile, and maximum. This allows the nurse leader to focus on the mean and outliers. The nurse leader can gain insights as multiple sets of data can be displayed on one singular graph by seeing these items.

The box itself contains the middle 50% of the data distribution (the two middle quartiles), the top quartile above the box, and the first quartile below the box. A line represents the median value within the box, and an x represents the mean value. Outliers exist outside of the top, and bottom values (the whiskers) represent small dots. The box and whiskers plotted (Figure 11.7) show the distribution of acuity scores, by shift, for three different types of units in a hospital.

Heatmap

Heatmaps are a data visualization tool that allows the receiver to identify areas of concern in a data set quickly. Commonly seen in public health reporting to identify hotspots of disease activity, heatmaps are a relatively simple way to display data using color scales. The heatmap shown in Table 11.1 was created by a CNO to share

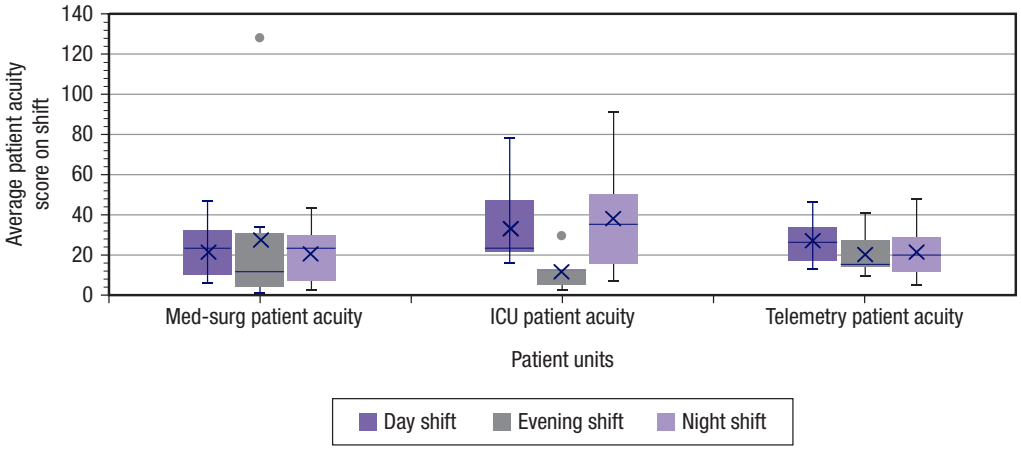

FIGURE 11.7 Average patient acuity scores, per shift sorted by unit, Q1–Q4 2020.

TABLE 11.1 Heatmap

Unit	2020 Budget ($)	2020 Actual ($)	Variance ($)
Unit 1A	3,346,697	3,129,687	217,010
Unit 1B	5,495,897	5,008,493	487,404
Unit 1C	3,130,496	3,414,076	-283,580
Unit 1D	3,406,034	3,404,895	1,139
Unit 2A	6,344,084	5,783,460	560,624
Unit 2B	5,985,954	6,076,845	-90,891
Unit 2C	6,298,098	5,956,298	341,800
Unit 2D	6,765,879	6,681,486	84,393
Unit 3A	4,897,450	4,129,573	767,877
Unit 3B	5,198,492	5,102,694	95,798
Unit 3C	5,626,310	6,846,201	-1,219,891
Unit 3D	4,994,567	4,907,756	86,811

Legend

	>100,000 under budget
	Under budget, but less than 100,000 under budget
	>100,000 over budget
	Over budget, but less than 100,000 over budget

the financial performance of their units with their healthcare organization's board of directors. They probably want to have a conversation with the manager of Unit 3C as soon as possible, as well as a preemptive conversation with 1C and 2B, so they don't end up like 3C!

Infographic

Since the advent of the internet and social media, *infographics* have become a mainstay in communicating data in a fun and straightforward way. Infographics provide a way to showcase data to those who may not have had any formal training in data analysis or presentation. Infographics need to be simple to read and generally are not very complex. Disadvantages of infographics include possible oversimplification of the data, and the data presented do not provide for a deeper dive into the material. Figure 11.8 shows an example of an infographic created on a free online site using hypothetical data.

QUESTIONING DATA/DATA ISSUES

Data can look different depending on how it is showcased in a chart or graph. There is immense power in using data visualization to help tell a story to a group of executives pitching an idea. However, there is also a tremendous opportunity for nurse leaders who do not present data responsibly to mislead others and damage their credibility (which is often hard earned but easy to lose in high-stakes healthcare leadership environments). Let us examine some of the common ways in which the same data can be misleading, depending on how it is presented. AACN Essential 8.2h denotes that nurses should be competent in using standardized data to evaluate decision-making and outcomes (2021).



FIGURE 11.8 Infographic depicting nurse leaders and presenting data.

Using Incorrect Charts

Choosing the appropriate chart when showcasing data is about using the most accurate chart, not the chart that will cast your data in the most favorable light. For example, if we had collected data on the number of nurses who received COVID-19 vaccinations at four different hospitals, we might be provided a chart that looks like Figure 11.9 (these are hypothetical numbers):

This chart is misleading. Typically, pie charts are used to look at the whole pie, not to compare different pies. A more accurate (and honest) way to present the same data would be to package it into a bar graph, such as this in Figure 11.10, which does a much better job of differentiating among different hospitals.

Omitting the Baseline (Truncating Data)

Presenting data in a chart without providing reference to the baseline is often used to make results seem inflated. For example, the chart shown in Figure 11.11 represents data collected on nurse, physician, and pharmacist attitudes regarding COVID-19 vaccinations:

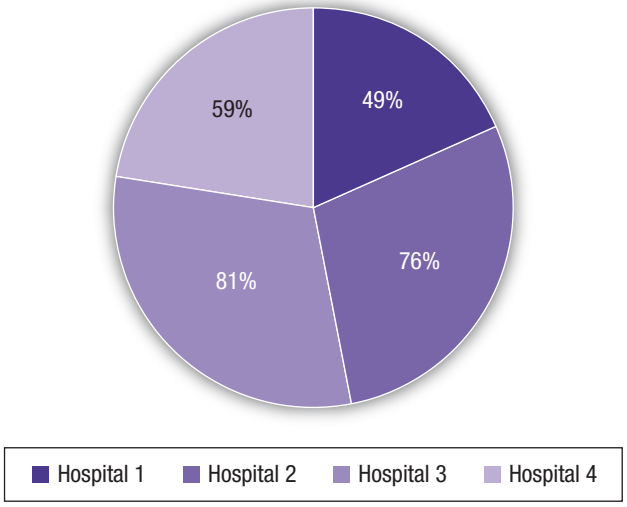

FIGURE 11.9 Percentage of nurses who are vaccinated against COVID-19 among four hospitals.

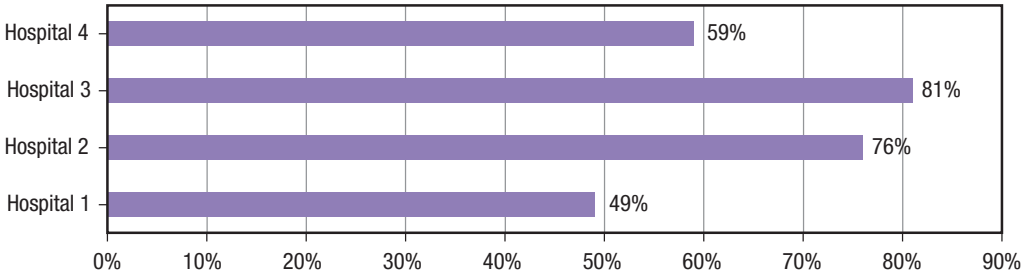

FIGURE 11.10 Percentage of nurses who are vaccinated against COVID-19 among four hospitals.

The chart in Figure 11.11 makes it look like there are vast differences among nurses, physicians, and pharmacists regarding their attitudes toward COVID-19 vaccinations. Notice how the displayed data looks different in Figure 11.12, however, when we do not omit the baseline and start at zero. The chart depicted in Figure 11.12 shows that the attitudes of nurses, physicians, and pharmacists are a lot closer than they are further apart.

Manipulating the Y-Axis

Manipulating the y-axis is often done to minimize significant variances in data and is essentially the opposite of truncating data (omitting the baseline). The chart shown in Figure 11.13 and (which again contains hypothetical data) measures the percentage of registered nurses each year in the United States who held a bachelor's degree or higher.

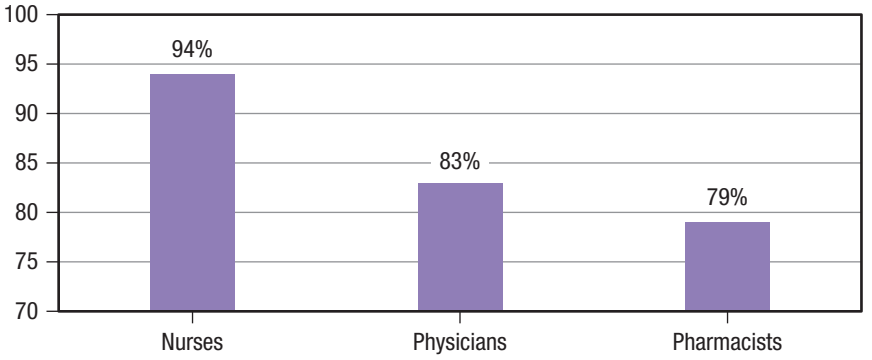

FIGURE 11.11 Favorable view of COVID-19 vaccinations.

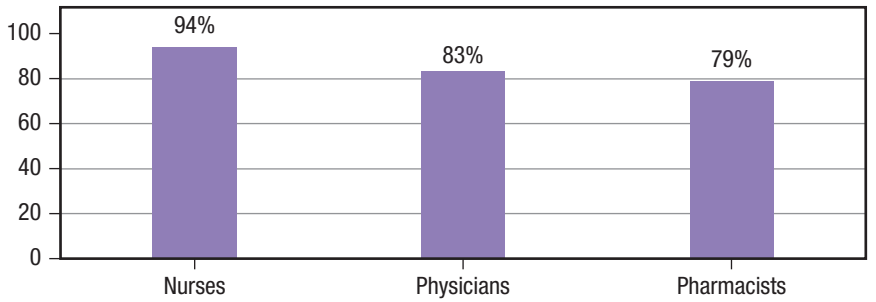

FIGURE 11.12 Favorable view of COVID-19 vaccinations.

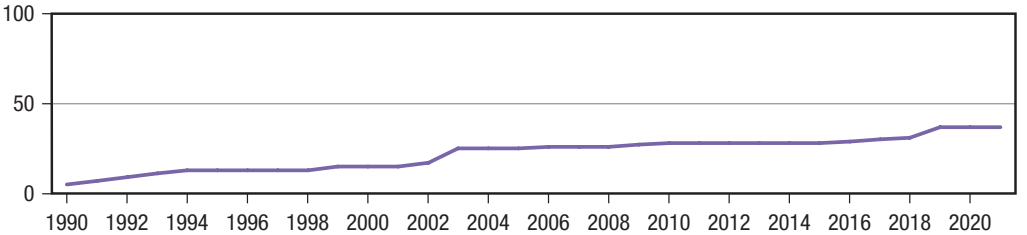

FIGURE 11.13 Percentage of RNs with BSN degree or higher, by year.

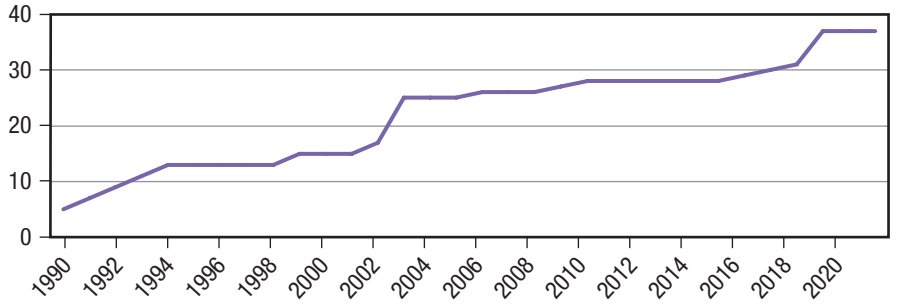

FIGURE 11.14 Percentage of RNs with BSN or higher, by year.

The author of the chart shown in Figure 11.13 may have created it to minimize certain upswings in nurses with a BSN or higher. Though we are not clear on the motives (it could be that they just didn't pay attention at all to the y-axis), it is apparent that this attempts to minimize dramatic changes in data. If we take the same data set and showcase it differently, as shown in Figure 11.14, the changes are more accurate and noticeable. Again, same data set, but the changes look more accurate and less misleading. Displaying the data more realistically allows nurse leaders to question what drove a particular increase in a given year.

BIG DATA

Most of the time, nurse leaders are not looking at information with only 10 pieces of data, but use somewhat larger data sets that include lots of aggregated data showcasing thousands and sometimes millions of pieces of data. The term commonly used to describe such data sets is *big data*, which refers to data sets that exist in multiple repositories and are so prominent in scale that they cannot be processed by traditional database-management tools (DeSouza & Smith, 2014). In the past, clinical leaders were forced to rely on only the limited information available to them and their individual experiences during patient care (Mehta et al., 2019). Today, various systems exist to structure data in a way that allows it to be analyzed and studied so that individuals may learn from the experiences of others. DeSouza and Smith (2014) explained that there are multiple dimensions within big data included in a group of seven "V"s, which include volume, velocity, variety, viscosity, variability, veracity, and volatility. Standard systems used to process big data at the time of this writing include Hadoop, R, and Tableau. According to AACN Essential 8.3j, it is imperative that nurses be able to evaluate the potential uses and impact of emerging technologies in healthcare (2021).

Electronic Health Records and Meaningful Use/Promoting Interoperability

When it comes to leveraging big data, perhaps there is no more powerful tool than the EHR. Many of us have been nurses long enough to remember the days before documentation was input directly into the EHR. Entries were done in narrative notes with a black pen, and checkmarks were made on preprinted paper nursing assessment forms. Even if you could find a patient's health record (they often seemed to grow legs and were never physically where they were supposed to be), they were often difficult to read and interpret. Perhaps more important, they required manual chart audits. To put it plainly, it was difficult to track individual patient data trends and even harder to track aggregated data for large groups of patients without expending large amounts of money and

resources to extract data manually (it should be noted that most healthcare organizations still do some type of manual chart extraction, even if on a small scale). The advent of the EHR was a game-changer in the healthcare data space. EHRs allow nurses and other healthcare workers to track patient trends at the click of a mouse quickly, and nurse leaders are able to work with large swaths of patient data to look for trends they might not have noticed before. AACN Essential 8.4f asserts that nurses should "employ electronic health, mobile health, and telehealth systems to enable quality, ethical and efficient patient care" (2021).

It was not long before the U.S. federal government started to notice the power of the EHR. Seeing it as a way to collect data on healthcare quality and finance, the folks at the Centers for Medicare & Medicaid Services (CMS) began to provide financial incentives for hospitals to adopt EHRs. CMS's program, called initially *Meaningful Use (MU)*, provided American hospitals with increased reimbursement for Medicare and Medicaid so long as they met certain implementation milestones set by the federal government. MU consists of three progressive stages. The first stage sets requirements for capturing clinical data and requires that healthcare organizations provide patients with copies of their health information. The second stage expands of stage one and focuses on supporting the "aims and priorities of the National Quality Strategy and continuous quality improvement at the point of care and structuring of data in the most structured format possible." Stage three focuses on using Certified EHR Technology (CEHRT) to improve health outcomes (CMS.gov, 2021). Now that nearly all hospitals have adopted EHRs, CMS has transitioned to a new season of MU deemed *Promoting Interoperability*, which is focused on ensuring healthcare organizations share data more effectively (Petraschnick, 2020).

Predictive Analytics and Artificial Intelligence

Big data can tell a story, but did you know that it can be used to predict the future? New developments in analytical capacity can assist nurse leaders in **forecasting** resource need and allocation in areas as diverse as clinic reservations, inpatient hospital admissions, and operating room cases (Piccialli et al., 2021). These advancements have been made possible through the use of *artificial intelligence*. Artificial intelligence, also known as *AI*, is defined by Poole and Mackworth (2010) as "the field that studies the synthesis and analysis of computational agents that act intelligently. (p. 3)" Within the realm of AI, agents are something that acts intelligently in an environment. To be specific, computational agents can act intelligently by learning from their experience (Poole & Mackworth, 2010). In simplistic terms, AI allows for computerized agents to deduct conclusions from big data that might not be immediately noticeable to a human analyst in the form of mathematical algorithms. In many cases, it can spot trends in data that can improve patient outcomes and save lives.

One example of the life-saving capability of AI is the Advanced Alert Monitoring (AAM) program deployed by Kaiser Permanente. Kaiser's AAM program discovered that medical–surgical and telemetry inpatients who experienced unplanned transfer to the ICU showed "physiologic derangement" between 6 and 24 hours before their deterioration (Kipnis et al., 2016). As a result, researchers were able to work with nurse leaders and others to harness the power of the EHR as a type of early-warning system that would allow nurses to take steps to minimize the probability of transfer of the patient to the ICU.

There are many different forms of AI. The most relevant type of AI when analyzing most healthcare data (mainly from the EHR), is *machine learning*. In machine learning, the system is enabled by AI to learn from the data rather than through direct

programming. Machine learning models can be tested on test data sets before being deployed in the industry. Machine learning can either be *supervised* (deals with labeled data) or *unsupervised* (deals with unlabeled data). A specialized form of machine learning that is particularly helpful when trying to make sense of unstructured data is *deep learning*. Using complex neural networks (computer algorithms that look at relationships in a set of data), deep learning is modeled after how the human brain works, making it effective in solving poorly defined problems (IBM, 2021).

The use of big data and AI is not limited to the arena of patient quality outcomes. The realm of healthcare finance is also ripe for disruption. Zeng and colleagues (2021) used deep learning to accurately predict patient expenditures, focusing on healthcare expenditures at the individual level based on historical data from claims. They used a multiview approach that looked at three different areas, including nonsequential demographic features (such as age, zip code, and prior medical/pharmacy costs); hierarchical medical codes sequences (such as ICD-9-CM and Current Procedural Terminology [CPT] codes); and facility utilization sequences (such as where the patient used the services, specific expenditure, and payer). AACN Essential 8.1j encourages nurses to understand the fiscal impact of information technologies across the continuum of care (2021).

LEVERAGING TECHNOLOGY AND INFORMATICS FOR THE DNP

Healthcare technology, big data, and artificial intelligence all fall under the umbrella of nursing informatics. It is crucial to ensure that nurse leaders have the competencies to facilitate and support nursing informatics. Kaur (2015) defined *nursing informatics* as the intersection of computer science, information science, and nursing, where data can be used to facilitate nursing care. As healthcare becomes more digital, informatics and other extensive data analysis are being discussed in healthcare, and nurse leaders should be at the table leading these discussions (Kwon et al., 2019). Nowhere is this truer than in healthcare finance.

If nurse leaders are not at the table when informatics discussions are taking place among healthcare and industry leaders, particularly in healthcare finance, they risk losing control over their practice (Booth, 2016). Nurse leaders must also become experts in new health technologies and weave nursing informatics knowledge into systems and workflows.

Competencies Influence Outcomes

In order for nurse leaders to positively impact healthcare, they must exhibit evidence-based behaviors in the form of competencies. The Outcome-Based Education Model (OB-CE), described by Graebe (2019), provides a framework to assess nurse competence. Achieving learner outcomes is the focus, and time is the variable. The OB-CE model focuses less on time, as many traditional educational curriculums do (such as credit hours or continuing-education hours), but rather on the validation of learner knowledge and performance . The OB-CE, developed by the American Nurses Credentialing Center (ANCC), points out that learning occurs in environmental factors such as culture, institutional structure, resources, and systems issues (Graebe, 2019). This can undoubtedly be true of nursing informatics, where long-existing cultures and practices are beginning to meld with new technological advances and discoveries. Competency frameworks have also been found to help set clear goals and targets and improve how the practice is organized (Stanford, 2016). Further, AACN Essential 8.1g requires that nurses identify best practices for use of information technologies to support patient care (2021).

Closing the Competency Gap

It is crucial to assess the baseline competency of nurse leaders as it relates to nursing informatics. Pordeli (2018) conducted an evidence-based study at a 304-bed, nonprofit Magnet-recognized hospital in Florida. There, 21 informatics nurses were provided a preassessment to examine gaps in nursing informatics competencies. The researcher's primary objective was to construct a professional development program to meet the organization's informatics competency needs. After the education was delivered, the postassessments determined an increase in computer skills competency by 25.41%, privacy/security competencies increased by 26.21%, and data-mining competencies by 51.64% (Pordeli, 2018).

It is imperative that to become an integrated profession, leaders at the forefront of nursing must adopt and embrace informatics. Remus (2016) believes that inadequate development of informatics competencies by chief nurse executives may lead to the inability of a health system to reap the benefits of EHRs. Remus further argued that despite this, CNEs who are informatics savvy would be the ones to lead the way and effectively advocate for nurses and patients. This can be done, Remus believes, through transformational CNEs who empower nurses to become knowledge workers who can deliver evidence-based practices.

Nurse leaders can play an essential role at the table by implementing and using EHR data (Sturdwick et al., 2019). Strudwick and colleagues conducted a study that used a modified Delphi technique with a panel of nurse leaders in Canada, with a Likert scale used to rate the relative priority of 26 potential competency statements obtained from a literature review. The study reached a consensus on 24 of those competency statements and used a Likert scale to determine priorities. The study found that greater than 70% of the respondents fell within 2 points on the 7-point Likert scale. When looked at together, the results showed that all statements had a mean of five or greater on a 7-point Likert scale (with 1 being a low priority and 7 being a high priority). The competencies are being presented to informatics organizations and national nurse leaders for adoption in the future.

IS BEING DATA DRIVEN ANTITHETICAL TO CARING?

Rozzano Locsin (2017) developedan evidence-based theoretical model in which technology can peacefully coexist and thrive coupled with the caring aspects of nursing. Concepts, such as technology, which may not historically be looked at as being of a caring nature, have a place in the realm of nursing. Locsin asserts a series of five assumptions that allow technology to coexist and thrive with nursing peacefully. These include that people fundamentally care by virtue of their humanness, that the ideal of wholeness is a perspective of the unit, that knowing people occurs through a multidimensional process, incorporation of both health and technology are components of caring, and that nursing is fundamentally a discipline and a professional practice. It is Locsin's fourth assumption—incorporation of both health and technology are components of caring—that is most integral here. Using informatics, a technology to help patients can be considered a *higher form of car*e. Informatics can allow nurse leaders to lead and support initiatives that reduce harm, keep patients safe, improve quality outcomes, and decrease the amount of time patients spend in hospitals. This is caring.

Nursing, often associated with caring, may not be the first profession to think about technology. However, if nurse leaders are successful in helping nursing become a truly integrated profession that is distinct from medicine, they must learn how to navigate toward the intersection of caring and technology. Nurse leaders must speak in terms

that interdisciplinary teams like medicine, pharmacy, and finance can understand and respect. Nurses are already known for their exemplary ability to care. Locsin's framework ensures that there is a place at the table for competent nursing informatics leaders.

USING DATA TO TELL A STORY

Thus far, we have established what data is, how it can be analyzed, and how it can be visually displayed. However, there is one crucial step in informatics that separates the good from the great: explaining the data to the receivers so that they can understand and act on it. One of the most potent ways to do this is through storytelling. Stanford Professor Chip Heath discovered that 63% of student listeners remember stories, whereas only 5% remember any individual statistic (2007). Further, Gillespie (2014) reported that:

> *The problem in healthcare is that there are so many stories to tell with visualization that dashboard designers and executives responsible for creating dashboards can get themselves—and users-—lost in the forest, hit with so many visualizations and accompanying data that they cannot understand what the data is trying to tell them or what they need to do about it.* (p. 39)

Transforming big datasets into graphs or charts is half of the equation. Once data has been reduced to a chart or graph, it may very well need context through the use of a story. If someone in healthcare finance has not worked in healthcare operations or directly with patients in the past, they may not understand what a particular data chart means. In addition to providing stories verbally, data can also be presented through artwork to make invisible things visible (Dong, 2019).

Most of the time, data is presented in a graph, form, or PowerPoint slide, and it is then up to the nurse leader to explain the data to achieve objectives. Barber and Goerke (2018) recommend that once key metrics have been identified from the data, it becomes time to construct a story. Key elements to consider when building the story include:

- identifying the story one is attempting to get across to the receiver,
- identifying the audience,
- determining the critical data points that need to be conveyed,
- whether the proposal is cost-effective,
- if it is possible to get a response when presenting the data, and
- whether there is a requestmade to the receiver after you tell them about the data.

Organizations that disseminate stories based on business analytics can improve the individual quality of data interpretation and decision-making (Boldosova & Luoto 2020). AACN Essential 8.2i promotes the concept that nurses should understand how standardized data advances the practice, understanding, and value of nursing as it relates to supporting care (2021).

In order to go about the business of telling a story with data, it is crucial to communicate the data effectively. A large part of this includes differentiating between *informing* and *telling* your listener about what you are trying to present. Telling (communicating) involves why the data is meaningful and how it might make you feel (focusing on touching the heart). Informing, on the other hand, connects solely with the head. Storytelling is one way to appeal to the heart while not ignoring the importance of the mind (Dykes, 2019). Dykes believes that there are six essential elements to a data story, summarized in Table 11.2.

TABLE 11.2 Six Essential Elements of a Data Story

Element	Description
Data foundation	Just like a well-built house, a well-constructed data story is built on a solid data foundation. Quantitative or qualitative data needs to be present.
Main point	A central idea or insight should drive the story about the data. In order to ensure the data has a clear purpose, the storyteller should focus on the main point. The main point should guide the audience to a better appreciation of your central point/insight.
Explanatory focus	Not to be confused with describing the data, which gives an accounting in words or pictures, explaining data makes it understandable to the listener to a point where they can attain insight.
Linear sequence	Key points about the data need to follow a sequential direction and support the main point and central insight. Each piece of the presentation should build on the preceding point.
Dramatic elements	Context and background need to be provided. As data often represents or involves people, it is essential to tie the data to the human perspective behind the data.
Visual anchors	Visual interpretations of charts are essential. It is more effective to show a graphic visualization using a bar or line graph of how a particular metric increased instead of simply stating that the metric increased.

Knowing Your Audience

Whether speaking with patients, family members, or physicians, nurses and nurse leaders constantly communicate with others. Just as a floor nurse might use different therapeutic communication methods (such as asking open-ended questions) depending on the situation, so, too, must the nurse leader adapt to their audience when it comes to matters of budget and finance. Often, however, those who are effective communicators fail to communicate for their self-interests. Pincus (1997) provided the following anecdotal question and answer to illustrate this concept:

Question: Why is it always the shoemaker's children who go without shoes?

Answer: Because, the cynic quips, the shoemaker is so preoccupied doing for others that he forgets to do the same for his own.

Good communicators, Pincus argued, need to think and talk like the target audience thinks and talks. In other words, when the target audience is financial decision-makers, nurse leaders need to speak to those executives in a manner that they can understand.

Speaking with financial decision makers does not require giving up who you are as a nurse leader. Quite the contrary. It can provide nurse leaders an opportunity to show what they are about by combining data and caring while communicating concepts in a common lexicon while still maintaining their caring and authenticity. Kirschman (2009) believes that the best way for a leader to gain true, sustained support in light of budget cuts is to speak the language of your administration and decision makers (knowing your audience). While there is a need to understand and tell a story about the data, there is typically not a need to overly bog down your story in financial or informatics jargon to effectively get your point across and get a favorable response to your request. In order to capture your audience's attention, especially when it comes to healthcare finance, it is

vital to make your data relatable. White (2017) explains that one way to make data relatable is to put it into context and provides an example of a financial executive who began a presentation saying that the company saved $1.2 billion. Not very many of us can visualize, nor have we ever physically seen, $1.2 billion. Therefore, it may come across as simply a number and not something immediately relatable. Breaking than unrelatable $1.2 billion figure into, say, $1.20 per patient, and how much of each $1.20 in profit came about can help your audience relate to your message and, ultimately, sympathize with your request.

Different audiences, whether they be individuals or groups, may have preferences for how they prefer to receive data. Often seen in highly matrixed organizations (both inside and outside of healthcare), one leader might have to present the same data set to multiple accountable executives in different ways to achieve different objectives. Some may prefer an executive summary, and others may prefer a simple SBAR (situation/background/assessment/recommendation). Some may want detailed records or an Excel pivot chart as they like to dive into the data, whereas others only want a high-level summary that calls out any significant variances. If you know that the executive you will be presenting a data set to does not like SBARs, it would likely be wise not to report on your data set using an SBAR format. Try to find out beforehand how your target audience likes to receive and process data. If you cannot find out beforehand, it is often advantageous to display the data in a few different ways (or at least have it in your back pocket or in an appendix) until you get to know your audience better. Understanding how your audience best receives and digests information can make all the difference in whether or not it will view your information in the proper context.

Making Your Data Story Come Alive Through Relating

In the legal field, the phrase *res ipsa loquitur* is Latin for "the thing speaks for itself." This is not always the case when it comes to healthcare data. Though the story and meaning behind a data set or chart may seem very apparent to the person putting it together, it may not be altogether apparent to the receiver. For example, Figure 11.15 shows the projected savings by implementing a quality-improvement project in a healthcare organization:

It may seem obvious that there will be projected savings in the millions of dollars over 4 years, but those are just numbers. Most of us have never seen or touched a million dollars. In order to bring these numbers to life, it is important to use imagery when telling your story. One common way to do this would be to say that $14.3 million would translate into full-time equivalent (FTE) positions for 95 employees, either added or reduced for efficiency. Similarly, $14.3 million could buy nearly 10 MRI machines, and

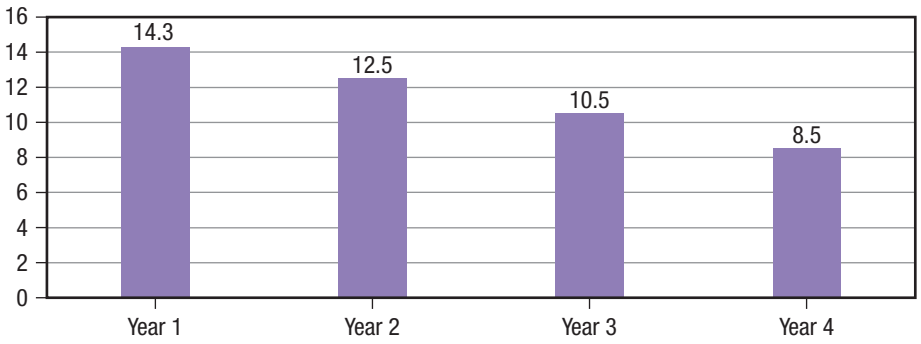

FIGURE 11.15 QI Improvement project projected savings by year, in millions of dollars.

you could provide a photograph of 10 MRI machines to bring the numbers to life for your audience. Leaving your receiver with an image instead of a number is much more effective.

CONCLUSIONS

Nurse leaders in today's complex healthcare environment must be technologically savvy, understand the importance of informatics, and rely on nurses who are skilled informatacists. Being able to tell the finance story from the nursing perspective requires using simple, yet accurate, data displays, tapping big data, and navigating the emerging application of AI. The nurse leader role needs to use data optimally to influence healthcare finance, so that patient care and nursing practice can be properly funded and accountable.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

Use the data table (Table 11.3) to answer the following questions. Note: Not all data sets will be used for each question.

1. Big data can play an essential role in community and population health. Using the data sets in Table 11.3, determine what relationship, if any, may exist between the unemployment rate, number of COVID admits, community COVID immunization rates, and patient age at hospital admission. How might you present this data to a group of healthcare executives? What type of chart would you use? What questions might you anticipate you will be asked about the data?
2. Perhaps there is no more critical role of a nurse leader than ensuring you have the most appropriate levels of staff in the correct areas at the right times. What does the this data table tell the nurse leader about staffing over the period at issue? Unit budgeted hours per patient day (HPPD), RN/patient care technician (PCT)/unit assistant (UA) hourly salaries, average staffing fines by state department of health, the average lawsuit for patient negligence, average patient census, average sick days, average nurse turnover, staff satisfaction, nurse medication errors, and incremental over time. How can the nurse leader connect the data to human beings in a caring manner?
3. Many states require hospitals and EDs to utilize a patient acuity system to provide care for patients. What impact, if any, does patient acuity have on the following metrics: unit-budgeted HPPD, the average number of patients per nurse, average patient length of stay, readmission rates, medical supply cost, and patient satisfaction per quarter? Do you see any moral or ethical issues that might arise with this data? Is there any qualitative data that you think would be helpful when presenting your data to other leaders? How might you use the CRISP-DM model to analyze the data sets?
4. Nurse leaders frequently seek to implement quality-improvement projects to improve outcomes and save lives. Your healthcare organization has recently hired a quality coordinator to improve patient outcomes at your community hospital. What is the impact of having a quality coordinator at your hospital? Have outcomes improved or declined? Would you recommend similar organizations adopt this same strategy? Why or why not? How might a nurse leader or quality coordinator use AI to improve outcomes?

TABLE 11.3 Data Table for Critical Thinking Exercises

Datasets Available for Medical-Surgical Unit, Year/ Quarter	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4
Average patient acuity score (1=low, 5=high)	3.00	2.00	3.00	5.00	3.00	1.00	3.00	5.00
Unit-budgeted HPPD	8.00	8.00	8.00	8.00	8.10	8.10	8.10	8.60
RN average hourly salary	$55.50	$55.50	$55.50	$61.85	$61.85	$61.85	$54.60	$54.60
PCT/CNA average hourly salary	$19.75	$19.75	$19.75	$19.75	$19.75	$19.75	$19.75	$19.75
Unit assistant average hourly salary	$14.25	$14.25	$14.25	$14.25	$0.00	$0.00	$0.00	$0.00
Average number of patients per nurse	5.00	4.00	3.80	5.60	4.20	3.90	4.15	5.15
Staffing fines by state department of public health	0.00	0.00	0.00	$120K	0.00	0.00	0.00	$240K
Lawsuit total for patient negligence	0.00	$250K	0.00	$250K	0.00	0.00	0.00	$500K
Average patient length of stay (in days)	2.30	3.10	2.30	1.95	2.60	2.75	4.10	3.25
Average patient census	30.00	27.00	26.00	32.00	26.00	28.00	30.00	31.00
Average number of sick calls (daily)	3.00	2.45	1.80	6.70	4.55	2.75	4.10	5.30
Average nurse turnover	0.06	0.08	0.10	0.10	0.12	0.15	0.17	0.18
Readmission rates	3.80%	2.50%	2.50%	4.20%	2.25%	2.50%	5.25%	6.00%
Average hospital admission cost (stay per patient)	$11,700	$13,475	$12,500	$12,500	$12,500	$13,750	$15,400	$17,500
Average patient age at hospital admission	72.00	67.00	53.00	71.00	54.00	51.00	52.00	68.00
Average quality coordinator cost (per hour)	$60.00	$60.00	$60.00	$60.00	$64.00	$64.00	$64.00	$64.00
Unit medical supply cost (average per patient)	$226.00	$358.00	$359.00	$250.00	$361.00	$425.00	$354.00	$894.00

(continued)

TABLE 11.3 Data Table for Critical Thinking Exercises (*continued*)

Datasets Available for Medical-Surgical Unit, Year/ Quarter	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4
Average educator FTEs, per quarter	0.50	1.00	1.00	0.50	1.00	0.50	0.00	0.50
Outpatient medication adherence average	87.00	75.00	64.00	78.00	84.00	84.00	84.00	72.00
BCMA compliance percentage	94.00%	96.00%	98.00%	91.50%	94.00%	96.00%	94.00%	93.50%
Nurse medication errors	6.00	9.00	2.00	7.00	6.00	4.00	6.00	5.00
Hospital or unit operating budget	$525K	$525K	$525K	$525K	$533K	$533K	$533K	$475K
Incremental overtime hours (average per nurse)	3.10	2.00	0.15	4.25	3.15	3.65	3.85	4.20
Staff satisfaction (percentage rating "good" or "excellent' place to work)	74.00%	75.00%	78.00%	78.00%	85.00%	83.00%	71.00%	63.00%
Patient satisfaction (percentage rating "good" or "excellent'"care experience)	76.00%	76.00%	84.00%	86.00%	84.00%	64.00%	62.00%	57.00%
Percentage of nurses who received informatics competencies inservice	38.00%	45.00%	45.00%	62.00%	62.00%	62.00%	64.00%	41.00%
Average number of HAPUs	8.00	4.00	3.00	6.00	7.00	4.00	0.00	11.00
Average number of COVID admits, per 24- hour day	0.00	4.00	23.00	25.00	21.00	16.00	16.00	8.00
Community unemployement rate	3.10%	4.20%	5.00%	10.00%	8.00%	7.00%	6.00%	4.50%
Community COVID immunization rate	0.00%	0.00%	0.00%	5.00%	10.00%	14.00%	28.00%	47.00%

CNA, certified nursing assistant; FTE, full-time equivalent; HAPC, hospital-associated pressure ulcer; HPPD, hours per patient day; PCT, patient care technician; UA, unit assistant.

ADDITIONAL READING AND RESOURCES

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Information on ANCC informatics certification https://www.nursingworld.org/our-certifications/informatics-nurse/ information on ANCC informatics certification.

United Nations Demographic Health Statistics https://unstats.un.org/unsd/demographic-social/sconcerns/health/index.cshtml

How to calculate Pearson's correlation (*r* correlation) in Microsoft Excel https://www.youtube.com/watch?v=8a_etQN-qso

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 12

Legal, Ethical, and Policy Issues

Elena Capella

The main part of intellectual education is not the acquisition of facts but learning how to make facts live.

—Oliver Wendell Holmes

Perhaps nowhere in the trajectory of nursing education is the preceding statement more applicable than to that of the DNP. At the heart of the DNP movement aref highly skilled, creative, and thoughtful nurses who put innovative, evidence-based ideas into practice to improve patient care outcomes.

With this notion comes the responsibility of ethical, legal, and appropriate application of both the science and the privilege of managing the financial wellness of individuals and organizations that depend on a complex system of reimbursement. The CFO holds the fiduciary responsibility for the overall financial health of the healthcare organization. Still, the DNP is suitably educated to protect patients from harm within these organizations. The DNP's deep understanding of ethical principles and their application to practice guides their practice as they implement innovations to improve patient care outcomes in healthcare organizations.

Ethics are standards of right and wrong that guide humans in what they ought to do. These ethical standards generally involve human rights, obligations, benefits to society, fairness, or specific virtues. Ethical standards also include those that direct the virtues of honesty, compassion, and loyalty. Inherent in the definition of ethics are standards such as the right to freedom from injury, right to life, and the right to privacy. Such standards are supported by consistent and well-founded reasoning developed within humane societies (Grace, 2018).

The American Association of Colleges of Nursing (AACN) defines the DNP as the recipient of the highest level of nursing education focused on evidence-based practice, quality improvement, and systems leadership. DNP-prepared nurses are prepared to implement the nursing science. They should become a strong and persuasive advocate versed in the ethics that guide professionals to reduce potential harm to vulnerable individuals, such as patients receiving services in complex healthcare systems. This theme is especially relevant today, at this time when global economic failures influence the quality and delivery of care. To become a strong advocate, it is essential to understand the ethical rationales that underlie questions of what is fair and just in delivering healthcare. (AACN Factsheet, 2021)

*According to t*he U.S. Bureau of Labor Statistics, as of May 2020, RNs in California earn an average salary of $120,560 per year. Some attribute nursing's economic success to low supply and high demand, whereas others suggest that it is based on effective

unionization efforts. Forrestal and Cellucci (2016) also attribute the profession's success to its long history of establishing itself as a profession worthy of public trust (Gallup, 2021). A **profession** is defined as a group of disciplined individuals who adhere to high ethical standards, are accepted by the public as possessing special knowledge based on a high level of organized education and training, and are prepared to apply this knowledge in the interest of others. Essential to this conceptualization of a profession is the adherence to a set of high ethical standards.

AMERICAN NURSES ASSOCIATION CODE OF ETHICS FOR NURSES

The American Nurses Association's (ANA) Code *of Ethics for Nurses with Interpretive Statements* (ANA, 2015) is the standard of practice for the nursing profession. It provides an ethical framework for nursing practice and decision-making. The *Code* educates nurses on ethical responsibilities, guides self-regulation of practice, and establishes the social contract for the nursing profession. There are nine main provisions of the Code, and each provision includes interpretive statements that illustrate how the Code is applied to nursing practice. Nurses in all settings are subject to the Code and must adhere to it in their practice.

Before the first Code was developed, proper attention to nursing's core values, obligations, and duties was documented in 1893 with the Florence Nightingale Pledge. The Florence Nightingale Pledge was established by a committee headed by Lystra Gretter, a nursing instructor and activist for nursing professionalism (Fowler, 2020). The first Nightingale Pledge focused on rules of conduct, carrying out duties, and physician's orders. An early emphasis was placed on patient safety with the statement, "I will abstain from whatever is deleterious and mischievous, and will not take or knowingly administer any harmful drug." Updated versions of the Nightingale Pledge that reflect current interpretations of nursing ethics are still used in nursing schools today.

The first version of the ANA Code *of Ethics for Nurses* was adopted in 1950. Since that time, the Code has focused on nursing's obligations to patients, dilemmas associated with technological advances, and strong support of nursing autonomy over the practice. Revisions to the Code often reflect alignment with the public's concerns. In 1985, updated provisions related to bioethical language and the use of lifesaving and life-prolonging technologies were incorporated into the Code. Additional provisions that emphasized nursing's primary obligation to the patient and the duty to self-care were added in 2001.

The updated 2015 Code replaced the 2001 version and incorporated changes in our societal perspectives. The fundamental values of the nurse, such as respect for patients, colleagues, and others, are highlighted in the first three provisions. Issues of *duty* and loyalty, such as the duty to self and others and responsibilities for the healthcare environment, are addressed in the subsequent three provisions. These include the duties beyond individual patient care, such as advancing the profession through research and scholarly inquiry and advancing health policy. The current Code places a heightened emphasis on emerging issues in social justice such as the role of nurses in global health, the ethical use of social media and electronic medical records, respect for professional boundaries, promoting an ethical practice environment, and the importance of interdisciplinary work and collaboration. These provisions focus on the nurse leader's role and the inclusion of nurses in all roles and settings.

A significant amount of dialogue with multiple stakeholders preceded the establishment of the ANA Code *of Ethics*. Nursing Ethics for the 21st Century was a national conference held in 2014 by Johns Hopkins School of Nursing and Johns Hopkins Berman Institute of Bioethics. The conference confirmed nursing's professional organization's commitment to the professional values of nursing and ethics and set the stage for revisions to the ANA Code *of Ethics*. The ANA, the National Council of State Boards of Nursing (NCSBN), and 18 other organizations participated as collaborating partners in the revision, which identified ways to improve the ethical environment for nurses, and therefore the quality of care provided to patients and families (Olson & Stokes, 2016). The ANA declared 2015 as the "Year of Ethics" (ANA, 2015) and, after receiving input from working groups, nurses, and the public released the current version of the Code. The wording of the Code's provisions is as follows:

- **Provision 1**: The nurse practices compassion and respect for the inherent dignity, worth, and personal attributes of every person, without prejudice.
- **Provision 2**: The nurse's primary commitment is to the patient, whether an individual, family, group, community, or population.
- **Provision 3**: The nurse promotes, advocates for, and protects the rights, health, and safety of the patient.
- **Provision 4:** The nurse has authority, accountability, and responsibility for nursing practice, makes decisions and takes action consistent with the obligation to provide optimal care.
- **Provision 5**: The nurse owes the same duties to self as to others, including the responsibility to promote health and safety, preserve wholeness of character and integrity, maintain competence, and continue personal and professional growth.
- **Provision 6**: The nurse, through individual and collective action, establishes, maintains, and improves the moral environment of the work setting and the conditions of employment, conducive to quality health care.
- **Provision 7**: The nurse, whether in research, practice, education, or administration, contributes to the advancement of the profession through research and scholarly inquiry, professional standards development, and generation of nursing and health policies.
- **Provision 8**: The nurse collaborates with other health professionals and the public to protect and promote human rights, health diplomacy, and health initiatives.
- **Provision 9:** The profession of nursing, collectively through its professional organizations, must articulate nursing values, maintain the integrity of the profession, and integrate principles of social justice into nursing and health policy.

The foundational ethical principle in the Code is *beneficence*, which is represented in 89% of the provisions (provisions 1–8; Byrd & Winkelstein, 2014). *Beneficence* is defined as the obligation to do good to others by providing benefit. As such, beneficence underlies all actions of the nursing profession while engaging in role-related activities. Nurses inherently work for the patient's good, and, more broadly, to further the health of society in general. As professionals, nurses have a strong ethical allegiance to the concept of *fidelity*, which is a respect for loyalty and faithfulness to patients and the nursing profession. The underlying guiding forces for nursing's beneficent actions are compassion and fidelity.

Closely linked to beneficence is the ethical principle of *nonmaleficence*. Although nonmaleficence is not explicitly addressed in the ANA Code *of Ethics* provisions, it is in

the interpretive statements. Nonmaleficence is the opposite of beneficence. Indeed, the concept of maleficence has a robust underlying presence in healthcare ethics. As early as 400 BCE, physicians swore to uphold the Hippocratic Oath's promise that patients will not suffer harm due to their medical practices. Established in 1983, the Nightingale Pledge was a modified version of the Hippocratic Oath intended for nursing students. The pledge included a statement that the nursing student pledgee would not knowingly take or administer a harmful drug. Not administering a harmful drug is consistent with the ethical principle of nonmalfeasance and avoiding harm. As mentioned, updated versions of the Nightingale Pledge are still used in nursing schools today. The approach to hospice care is an example of nonmaleficence in that the harm of futile treatments is rejected for palliative care that provides patients with dignity at the end of life.

The Code places a strong emphasis on autonomy, and 44% of the provisions (provision 1,4,5,9) focus on this ethical principle (Byrd & Winkelstein, 2014). *Autonomy* is the patient's right to self-determination by making their own decisions, free of coercion. There are several behavioral norms associated with autonomy; veracity (devotion to the truth), privacy (freedom from interference or intrusion), and confidentiality (protection of the personal right to share information). Although these ethical norms are not directly addressed in the Code's provisions, they are addressed in the ANA Code *of Ethic's Interpretive Statements*. Respect for autonomy is at the core of many healthcare practices, such as receiving informed consent, maintaining privacy, preserving dignity, and safeguarding confidentiality.

Factors beyond the individual's control can constrain the exercise of autonomy. One constraint is the individual's competence to make decisions. People with advanced dementia may not be capable of making sound decisions regarding their healthcare. Paternalism is often misunderstood as a disrespectful and condescending approach used to control others. These negative connotations do not adequately describe how nurses use paternalism in their practice. Nurses commonly use the paternalistic approach when they do benevolent acts for patients who cannot make their own decisions. Paternalistic actions are often required in healthcare settings when a patient is incapacitated. These acts are in the person's best interests and are endorsed by regulatory and legal requirements. The principle of autonomy necessitates that a person is capable of making an informed decision to self-govern their healthcare care. In situations in which patients are incapacitated, paternalistic actions are beneficent if they promote what is good for patients who cannot advocate for their own best interests due to cognitive or developmental impairment.

To act in the patient's best interests, it is essential for the nurse to understand the person's history, values, and beliefs, if at all possible. When the patient's history is unknown, the nurse applies the "reasonable person" standard to make decisions. The patient's interest is at the core of paternalistic actions. Al-Bar and Chamsi-Pasha (2015) propose that nurses use five criteria to guide paternalistic actions: (a) the patient is at risk of a significant preventable harm, (b) the paternalistic action will probably prevent the harm, (c) the projected benefits to the patient of the paternalistic action outweigh its risks to the patient, (d) there is no reasonable alternative to limiting the patient's autonomy, (e) the least autonomy-restrictive alternative that will secure the benefits and reduce the risks is adopted. Although paternalism is an ethical principle that is sometimes misunderstood, it can be used for the patient's benefit if thoughtfully applied. Applying criterion-based decision-making to decide when it is appropriate to make paternalistic decisions can help nurses confirm that they are practicing in an ethically sound manner.

The ethical norm of veracity is an essential part of patient autonomy and supports trust in the healthcare professional and the institution. Veracity is the duty to be truthful, which seems like a simple concept but may be challenging to accomplish in light of respecting the principles of beneficence and nonmaleficence. It is essential to consider clinical judgment, knowledge of the patient's cultural needs, and evidence to determine how to use truthfulness to benefit the patient and uphold autonomy. Also, some measure of self-reflection on one's biases is essential to decisions related to veracity (Grace, 2018).

An anonymous whistleblower hotline provides a way for individuals to report corruption, criminal, and unethical workplace business practices to government authorities. The Individuals most likely to take this course of action believe that no one within the organization has listened to their concerns, and public interest overrides the organization's interest. The type of complaints made can be a violation of a law, rule, or regulation; mismanagement of funds; abuse of authority; or presenting a substantial danger to public health or safety (Grace, 2018).

President Lincoln enacted the False Claims Act of 1863 in response to the fraud that occurred after the Civil War. It was established to prohibitfraud against the federal government. Over the years, the Act has been strengthened and billions of dollars are recovered in settlements and judgments each year. The amendments passed in 1986 as the False Claims Act expanded financial rewards to whistleblowers. The False Claims Act has discouraged *fraud* against the federal government through billing for services that were not provided, unnecessary procedures, and home care visits that did not occur.

Another ethical norm that is closely aligned with trust is fidelity. The Code's Provision 2 states: "The nurse's primary commitment is to the patient, whether an individual, family, group, community, or population" (ANA, 2015, p. 5). There are many distractions, such as pressures from employers, supervising physicians, or administrators, that can pull nurses away from this priority. Nurses must maintain a sustained focus on their commitment to the patient and advocacy for their autonomy.

Other factors beyond the individual's control that can constrain the exercise of autonomy are that of the minor who cannot make informed decisions and individual decisions that encroach upon the autonomy of others. It would be wrong for a competent patient to assert autonomy and insist on having an elective surgery immediately when it would pose a risk to patients needing urgent surgery. Nurses can seek guidance on some medical–legal issues associated with consent by referring to the *2020 Consent Manual* (California Hospital Association, 2020). This manual addresses situations involving consent for minors, mental health treatment, end-of-life issues, refusal of treatment, and related health care law. Updates in the latest version include recent changes in the law, such as notice of how to file complaints with various departments, updated language for the Medicare Conditions of Participation, and revisions of reportable diseases and diseases (California Hospital Association, 2020). A nurse can find this manual by asking the quality-improvement or medical record department staff where it is located.

The ethical principle of justice informs 22% of the ANA Code *of Ethics* (provisions 3 and 8; Byrd & Winkelstein, 2014). *Justice* refers to the fairness of an equal distribution of benefits and burdens. Respect for justice infuses all aspects of nursing practice and has come to the forefront during the Covid-19 pandemic. The allocation of scarce resources, such as personal protective equipment and vaccines, has caused much discussion about determining the just distribution of limited supplies. As professionals, nurses are expected to be just and fair in all practices, but deciding how to be fair in the presence of competing demands and scarce resources is intimidating without using moral theories as a framework for ethical decisions.

UTILITARIAN AND DUTY-BASED MORAL THEORIES

There are two types of moral theory that are useful in guiding our ethical decision-making in healthcare. The first is the utilitarian consequentialist approach, in which the focus is on the effect of the ethical decision on the happiness of society as a whole. The second moral theory is the duty-based deontological approach, which emphasizes acts that are in keeping with the rational ideas of moral duty. Both these moral approaches are used to inform ethical healthcare provider decisions.

Two consequentialist theorists were instrumental in developing the utilitarian school of thought, Jeremy Bentham and his godson, John Stuart Mill. Utilitarianism was a reaction to the social injustices of the Industrial Revolution of the 1760s. The Industrial Revolution gave power to wealthy industrialists and resulted in the oppression and poverty of the working class. These inequities in wealth led to a growing concern for the escalating misery in the lower classes (Grace, 2018).

During the Industrial Revolution, Bentham and Mill extended David Hume's principle of utility. Hume's principle of utility proposes that the fundamental ethical principle is the human desire is for happiness. The ability to sympathize and act benevolently promotes human happiness, and increasing general happiness is the ultimate good. Bentham and Mill extended the principle of utility into the greatest happiness principle, commonly known as the *greatest good for the greatest number* (Grace, 2018).

Immanuel Kant developed the moral philosophy of deontological duty-based ethics. Rather than focus on the effect of ethical decisions, duty-based ethics focuses on the obligation or duty. Kant proposed that humans are rational beings that have the reason and capacity to govern themselves. Because humans have this capacity for self-governance, they have a duty to do what their reasoning tells them is most rational. The best ethical decision is one that other rational beings would agree with and would follow. These are the rules or duties that prohibit individuals from making irrational decisions, no matter what the consequences. In Kantian philosophy, this moral principle is called the *categorical imperative*. Although Kant agrees that there is value in beneficence and that individuals have a duty to be beneficent, he proposes limits on the amount of benevolence given to individuals. Those limits are determined by rational reasoning. In the strictly utilitarian perspective, people would give everything they own, their homes, savings, and positions to those who were needier than they are. To Kant, this extreme beneficence is not rational and must be limited (Grace, 2018).

Nurses can be in situations in which their respect for beneficence is challenged by their duty to be prudent stewards of healthcare resources. A patient with a discharge order may ask to stay in the hospital an extra day, but this request is not reasonable if the clinical benefits of the extra day do not outweigh the resource burden. The nurse has a duty to provide healthcare services based on rational reasoning. Healthcare providers' respect for autonomy can also conflict with beneficence when a patient does not consent to the recommended treatment. Consider the times patients refuse to consent to the good faith recommendation of their healthcare providers. In this type of situation, the nurse's duty is to ensure the patient has received adequate information on the treatment's risks and benefits. If the patient continues to refuse, the nurse must follow the patient's wishes. The Code provisions support the patient's right to self-determination even when it conflicts with the healthcare provider's beneficent recommendations.

ETHICS AND STATE REGULATION OF NURSING PRACTICE

The primary purpose of state boards of nursing is to protect the public by regulating nursing practice, to verify that nurses are competent to practice, and to ensure the standards of nursing practice are met. Included in these standards of practice is

adherence to the ANA's Code *of Ethics for Nurses with Interpretive Statements (2015)*. In California, the Nursing Practice Act, Business and Professions Code section 2700 et seq., authorizes the board of registered nursing to license RNs and certify APRNs, such as nurse-midwives (CNMs), nurse practitioners (NPs), registered nurse anesthetists (CRNAs), clinical nurse specialists (CNSs), and public health nurses (PHNs). The California Board of Registered Nursing also establishes accreditation requirements for nursing schools, investigates complaints against its licensees, and, when appropriate, takes disciplinary action. In California, the Board of Registered Nursing implements the Nursing Practice Act under Division 14, Title 16 of the California Code of Regulations (CCR).

An individual, patient or nonpatient may start a California Board of Nursing referral by submitting an online complaint through the "BreEZe" complaint system. The complaints involve various issues, including negligence, unprofessional conduct, and substance abuse. Within 10 days, the Board of Nursing must notify the complainant that they have received the complaint. A Board of Nursing analyst then reviews the referral to determine a need for further investigation or action. The investigation process may take some time, but once a determination is made regarding an action, the Board of Nursing is required to notify the complainant (Center for Public Interest Law, 2020).

Nurse regulators working in the state boards of nursing use the ANA (2015) Code *of Ethics* as a resource during investigations of potential violations of the state's Nurse Practice Act. It is common for citations against nurses to include the specific violation of the Nurse Practice Act as well as the ANA Code *of Ethics*. The ANA's Code *of Ethics for Nurses* is closely associated with regulatory oversight of nurses in light of the state's Nurse Practice Act.

The courts have determined that there are limits to the Board of Nursing's ability to restrict an applicant's license based on a criminal conviction. In *Moustafa v. Board of Registered Nursing*, the California Court of Appeals ruled that the California Board of Registered Nursing had the authority to do a probationary restriction on a nursing applicant's license based on two misdemeanor convictions for petty theft. Although the nurse's theft was not from an individual but a retail store, the court found that a history of dishonestly is relevant to a nurse's suitability to practice because nursing involves close contact with vulnerable individuals and their possessions. A concern for the ethical principle of beneficence was foremost in the decision. However, the court found that other legal infractions, such as vandalism and motor vehicle infractions, were irrelevant to nursing practice and that the Board of Registered Nursing did not have the authority to restrict the nurse's license for those acts (*Moustafa v. Board of Registered Nursing*, Case No. A150266. Cal. Ct. App. 1st Dist.).

MORAL DISTRESS

Practices associated with veracity have evolved over the years as societal expectations change. Decades ago, physicians did not tell patients the truth about a fatal illness because it was thought to be pointless and cruel. The Hippocratic Oath required physicians to do no harm, and lying to patients about their diagnosis seemed to do the least harm. Over time the public discourse in our culture made it clear that the public thought not disclosing a terminal condition is wrong (Grace, 2018). Physicians ultimately changed their practices to align with the public viewpoint on respect for autonomy and veracity for terminally ill patients.

One area in which nurses routinely put aside veracity is when performing *therapeutic fibbing* in memory care facilities. Respect for an individual's dignity requires nurses to tell the truth, but telling the truth to a patient with dementia can cause recurrent

misery. Consider a dementia patient who asks when her husband is coming to visit, having forgotten he is dead. How should the nurse respond? To tell the truth will cause the patient overwhelming grief, and that grief will repeat itself when the patient forgets and asks about her husband's next visit repeatedly. Out of respect for beneficence and nonmaleficence, nurses commonly perform therapeutic fibbing and tell such patients' that their husband is on his way and will be there soon.

Therapeutic fibbing, particularly when it is recurrent, has a detrimental effect on the psychological state of the professional nurse. Trained in a profession with a strong ethical code, nurses are vulnerable to *moral distress*. Moral distress occurs when nurses are trained to use ethical skills to determine the right thing to do and experience constraints that make the right thing impossible. In the patient with dementia, the nurse's respect for nonmaleficence precludes the nurse from acting on the respect for veracity (Grace, 2018). There are a variety of situations that contribute to moral distress. Some common causes of moral distress are (a) performing care that is perceived as futile, (b) implementing unnecessary treatments, (c) witnessing needless patient suffering, (d) providing end-of-life care, (e)iInadequate staffing, and (f) lack of communication (Jackson-Meyer, 2020).

As the increasing COVID-19 pandemic cases strained the country's resources, nurses faced substantial challenges to their psychological well-being. Carmassi et al. (2020) analyzed data that revealed a high risk for psychological distress among nurses when there is a lethal outbreak, particularly one characterized by unpredictable caseloads and ambiguity about how to care for patients with a highly contagious infection. The COVID-19 crisis introduced nurses to extraordinary challenges as they provided care for critical patients who needed increasing medical attention, made care decisions under pressure, dealt with the high fatality rate, and kept up with emerging and occasionally contradictory knowledge about the disease. During this pandemic, nurses faced significant psychological demands providing care for patients in strict physical isolation, knowing that others were at risk of getting the infection, including themselves. Nurses also faced new moral challenges during the COVID-19 pandemic that contributed to moral distress, such as the limitations placed on hospital visitation that prevent nurses from involving families in care decisions, isolation measures that resulted in patients dying without family support, and situations in which patients were at risk of being denied potentially lifesaving therapies due to a shortage of resources. Some of the symptoms of moral distress include signs of high emotion such as frustration, anger, anxiety, guilt, sadness, powerlessness, and loss of self-worth. Physical symptoms may manifest as diarrhea, headaches, heart palpitations, neck pain, muscle aches, and vomiting. Withdrawal, emotional exhaustion, and depersonalization of patients are psychological signs of moral distress (Jackson-Meyer, 2020).

The ANA Code *of Ethics for Nurses* focuses on nurses' primary commitment to patients but also the obligation nurses have to care for themselves. The Code-addressed need for moral respect accords moral worth for all human beings, including nurses themselves. It proposes that nurses have a duty to promote their own health and safety, the wholeness of character, integrity, maintenance of competence, and personal and professional growth (ANA, 2015). Nurses need to identify moral distress early and initiate strategies to minimize its effects. Jackson and Meyer (2020) suggest actions to mitigate the impact of moral distress, such as the following:

- Take moments to express gratitude regularly.
- Take time to contemplate what went well.
- Consider implementing team debriefings to acknowledge what worked and what could be improved. Exploring ideas with the team can help everyone involved to rebound.

- Perform a medical pause to appreciate the life of a patient who expired and the care team's efforts for that person.
- Pay attention to body signals of stress, take breaks, eat healthy food, exercise, and get adequate sleep. Additional resources to promote self-care and well-being can be found on the National Academy of Medicine website (https://nam.edu/initiatives/clinician-resilience-and-well-being/clinician-well-being-resources-during-covid-19).
- Cultivate moral resilience. The first step in moral resilience is acknowledging that you did your best.
- Take advantage of your hospital or agency's organizational resources, such as the employee assistance program, ethics committee, and chaplains.

The DNP is a highly skilled nurse who can put knowledge into practice by implementing programs to identify and mitigate moral distress. The COVID-19 pandemic has left many nurses with conflicting feelings about providing care that does not meet the usual standards. Programs that recognize early signs of moral distress and help nurses care for themselves are needed now, more than ever. Working in such challenging circumstances reflects the nurse's commitment to duty. Nurses must learn to give themselves the care they need to rebound from such intense experiences. The duty performed out of respect for doing good and providing benefit should be returned.

HEALTHCARE FINANCING POLICY

DNPs are highly skilled in the type of analysis that shapes financial policy, particularly when a nation's healthcare financing policies include contradictory values as in the United States. The term *policy* defines directives that document decisions about programs, laws, regulations, or legal directives (Milstead & Short, 2019). The law interacts with health policy in several areas that can include individual or group protections, environmental regulation, and laws related to how the industry covers healthcare.

The policymaking process pertains to the formulation of laws at both the federal and state levels. These laws are organized and authored by interested parties, including legislators, legal professionals, and special interest groups, who may or may not seek guidance from experts in the field, such as healthcare advocates. Having dialogue and developing a negotiated understanding is critical to well-reasoned policy. The essential question when considering healthcare policy is: "Who, if not you, should sit at the table in the debates over health care policy?"

As it relates to finance in healthcare, the creation of public policy is influenced by the economics of the various constituents that comprise a representative's or senator's district. This influence is evident when one examines the confounding and convoluted debates regarding *healthcare reform*. A review of the Congressional records (or C-SPAN debates; https://www.c-span.org) makes it apparent that the process of policy making involves a confluence of special interests and lobbyist efforts that shape how healthcare is delivered and financed. The national discussion over whether healthcare is a "right" (as seen in systems such as France) or a "privilege" (as seen by the U.S. market-driven forces) continues as healthcare-reform measures are introduced and lines are drawn in the debates.

Despite our culture, race, religion, or economic status, there are fundamental rights to which we are all entitled. Human life is fragile, and one of the entitled rights we should enjoy is healthcare and a life lived with dignity. Human life is fragile, and one of the rights we should be entitled to enjoy—healthcare—is essential for human dignity. Many citizens in our nation see healthcare as a right and support universal healthcare

as a public good. Universal healthcare systems ensure that all persons in the country enjoy their right to healthcare. This right is particularly crucial to the marginalized segments of the society who have not had access to our market-driven insurance system and deserve to live their lives with the dignity that access to healthcare can provide.

The United States has a market-driven healthcare insurance system that often denies rather than supports the right to health. Our health insurance system is a source of dissonance because U.S. citizens were the driving force behind the international human right to healthcare. Progress has been made internationally to protect citizens, but not within our country. The origins of the United Nations recognition of healthcare as a human right started in the United States with the Second Bill of Rights (1944), drafted by Franklin Delano Roosevelt. His death precluded the bill's adoption in the United States, but his wife, Eleanor Roosevelt, took it to the United Nations. At the United Nations, the bill was developed into the Universal Declaration of Human Rights, which included a statement about the fundamental right to health. The delegates to the United Nations, including the United States, ratified these international standards. Since the declaration's adoption, other industrialized and nonindustrialized countries have implemented universal healthcare systems, but not the United States (Gerisch, 2017).

The United Nations set forth another treaty in 1966, the International Covenant on Economic, Social, and Cultural Rights, which addressed specific aspects of universal healthcare. In Article 12 of the treaty, there is a statement on "the right of everyone to the enjoyment of the highest attainable standard of physical and mental health" (United Nations, 1966).

All countries ratified this treaty except for Palau, Comoros, and the United States. Signatory countries are subject to periodic review by the U.N. High Commissioner of Human Rights. Since that time, the United States had reported one reform measure to advance human rights to healthcare, the Patient Protection and Affordable Care Act (PPACA; Public Law 111–148), also known as the *Affordable Care Act (ACA).* The ACA is a group of laws concerning health insurance and is far from a law that codifies the universal right to healthcare.

An essential feature of our country's healthcare system is individual access to health services. Equal access to a comprehensive set of healthcare services is crucial to maintaining optimal health for everyone. Nonurgent healthcare is considered a business transaction between a patient and a physician in a free-enterprise system. Primary care physicians are free to limit the number of uninsured patients they agree to accept into their practices. Most physician practices restrict the number of uninsured patients to a low percentage of the total number of individuals due to concerns about inadequate cash flow due to nonpayment. This transactional approach to primary care means that individuals without healthcare coverage have difficulty finding a physician to agree to treat them on an ongoing basis. As a result, individuals without medical care coverage tend to use EDs for nonurgent care because they do not have continuous access to a medical provider.

In March 2010, the PPACA was introduced to provide insurance coverage to previously uninsured people through the expansion of Medicaid and the establishment of health insurance marketplaces. Measures were included in the ACA to increase healthcare insurance quality as well as affordability. The ACA requires participating insurers to accept all applicants, cover specific conditions, and charge the same rates regardless of preexisting conditions or gender (Kaiser Family Foundation [KFF], 2021). An analysis of enrollment data reveals that following the implementation of the ACA, the number of uninsured nonelderly Americans declined to a historic low. Between 2016 and 2019, the number of uninsured nonelderly Americans increased from 10.0% in 2016 to 10.9%

in 2019. The coronavirus pandemic, accompanying an economic downturn with millions of lost jobs, has placed a new focus on health insurance coverage.

Many uninsured individuals were able to access the ACA and develop an ongoing relationship with a primary care physician because they have insurance. Promoting preventive care to reduce acute exacerbation of chronic disease is a vital feature of the ACA and is delivered through the "Patient-Centered Medical Care Home." This type of medical provider commitment to an individual's ongoing healthcare is widely believed to provide improved preventive care and medical management of chronic conditions (Agency for Healthcare Research and Quality [AHRQ], 2021).

The Patient-Centered Medical Care Home model was developed in the 1960s to treat chronic pediatric illnesses. In 2000, the conceptualization of a medical home became popular in treating chronic diseases due to its focus on early management and intervention to prevent acute exacerbation of the disease. According to the American Association for Ambulatory Health Care (AAAHC; 2021), to qualify as a medical home, a practice must meet specific standards related to ongoing communication and collaboration between the patient and the provider and healthcare team, continuity with more than 50% of the patient's medical home visits with the same provider or physician team, comprehensiveness of care that includes preventive as well as end-of-life care, and a process for quality monitoring based on guidelines and established evidence.

With the advent of the ACA, the number of uninsured persons decreased, and more individuals had insurance and access to medical homes that provided preventive care. The financial performance of insurers participating in the ACA has risen dramatically to $167 per enrollee in 2018 from an annual low of -$9 in 2015. These insurers have posted record profit gains, but the number of uninsured Americans continues to climb (KFF, 2021).

The issues raised about the ACA and universal healthcare have been debated contentiously in the U.S. Congress. Congressional efforts to repeal portions of the ACA reveal the breadth and scope of the national debate on our healthcare social contract. In March of 2017, the Republicans introduced the American Health Care Act (AHCA). This bill kept many of the features of the ACA, including the ACA exchanges, protections for those with preexisting conditions, and the provision that parents could continue to keep their children under 26 years of age on their health insurance. The individual and employer mandates in the ACA were kept intact, although the AHCA canceled the penalties for the individual mandate (KFF, 2021).

The AHCA repealed certain features of the ACA, including taxes imposed on healthcare insurance providers, makers of prescription drugs and medical devices, and a surtax of high-income Americans making more than $250,000 a year. The bill planned to end the requirement that insurers offer plans with specific levels of coverage and left the level of coverage up to the insurer's discretion. The AHCA also included a repeal of the Medicaid expansion program, which was delayed to 2020. Individuals in the expansion plan before 2020 were to be allowed to keep their Medicaid coverage as long as they qualify under the AHCA.

The Congressional Budget Office (CBO) report indicated that the AHCA would create a significant shift in government spending. Federal funding for Medicaid would be reduced by $880 billion over 10 years. The plan would partially replace that with $100 billion to help states pay for healthcare. In addition, there would be a significant move to curb the federal deficit by transferring the responsibility for healthcare costs to the states.

The news of the transfer of costs to the state was controversial, and 18 days after its introduction, the Republicans pulled the bill due to lack of support. This failed

attempt to change the ACA demonstrates our nation's conflicting ethics related to healthcare, particularly regarding who can access healthcare and who is responsible for paying for healthcare. The debate about the ACA continues to generate multiple legal actions in federal courts to challenge the constitutionality of the legislation. The legal activities include challenges by states, legal experts, and independent businesses.

In November 2020, the Supreme Court heard arguments in *California v. Texas* that raised new questions about the survival of the entire ACA. The case challenged the ACA's minimum essential coverage provision, also known as the *individual mandate*. The ACA individual mandate was designed to drive the ACA expansion in insurance coverage. In 2012, the individual mandate was upheld as Congress's constitutional power to tax at the U.S. Court of Appeals (Eleventh Circuit). Included in this ruling was a finding that reversed the lower court's position that the individual mandate could be severed without invalidating the remainder of the ACA (Fiedler, 2020). The individual mandate was essentially repealed in 2017 through tax legislation that eliminated the tax penalty associated with the mandate (KFF, 2021).

The most consequential decision in *California v. Texas* would have been if the Supreme Court decided to overturn all or most of the ACA's federal government argument. The ACA made comprehensive healthcare coverage changes that decreased the uninsured by 18.6 million from 2010 to 2018 (KFF, 2021). Many modifications to the individual insurance market were made, such as requiring acceptance of people with preexisting conditions, creating insurance marketplaces, and authorizing premium subsidies for people with low and modest incomes. Additional changes to the healthcare system, in general, include expansion of Medicare and Medicaid eligibility for low-income adults, coverage of preventive services free of patient cost-sharing, phasing out the coverage gap of the Medicare prescription drug doughnut hole, reducing the growth of Medicare payments to healthcare providers and insurers, and establishing new national initiatives to promote public health. These provisions could have been overturned if the Supreme Court struck down portions of the ACA. The insurance coverage system has included the ACA for some time now. It would be challenging to extend coverage if the ACA provisions were separated from the current healthcare system. Over a decade after the ACA was enacted, the country waited to hear whether the ACA and its protections would survive (KFF, 2021).

The Supreme Court could decide to invalidate the individual mandate and protections for people with preexisting conditions. In that case, individual states may choose to fill the gap by continuing Medicaid expansion and reinstating the protections for preexisting conditions for citizens without healthcare insurance. However, in June 2021, the Supreme Court announced its decision that, by a vote of 7-2, it would not examine the merits of the *California v. Texas* case. Instead, the court ruled that the plaintiffs did not have the *standing* to bring the case to court. Standing would have been developed if the plaintiffs had effectively shown that they have or could suffer injury due to the legislation. The failure to establish standing leaves the ACA intact for 31 million U.S. citizens. Over the last 9 years, three cases have come before the Supreme Court intending to end the ACA, and each case has been unsuccessful (KFF, 2021).

Milstead and Short (2019) suggest that as healthcare costs increase, efforts to improve both the quality and efficiency of healthcare delivery rest on the shoulders of professional nurses. Having an understanding of the policy and legal aspects that guide professional practice is to realize that these are defined mainly by managing the financial affairs of populations and systems. Laws are political entities designed and shaped by the will of society. That "will" can be influenced in many ways and affects the shape and interpretation of the law, especially when laws are designed to control

healthcare costs. Seminal questions must be asked: Who should pay? How should the "marginalized populations: be supported?" Can the law be fair to both the rich and the poor?

LEGAL LIABILITY AND NURSES

The Nurses Service Organization and Continental National American Group (2020) provide malpractice insurance to over 500,000 nurses. In 2020 they issued a report on 5-years of malpractice claims and license defense claims. The report found 455 legal claims with costs over $10,000 that involved registered nurses, licensed vocational nurses, and nursing students between 2015 through 2019. Of these cases, nursing liability claims had an average cost of $210,513 per claim, increasing 4% over the last report in 2015. Claims that were ultimately dropped, defeated, or dismissed still incurred legal administrative costs and were paid at an average of more than $20,000.

The report showed that over half the malpractice allegations were for improper care or treatment, in keeping with the last report. Malpractice claims reflect changes in healthcare delivery practices. As patient care has moved away from inpatient facilities, nurses' malpractice claims dropped from 20.2% of total claims in 2011 to 6.6% in 2015. As expected, nurses' malpractice claims in patients' homes rose from 8.9% of total claims to 21.8%.

Some of the most severe damages were to infants injured during delivery because they require costly lifelong care. Malpractice claims against obstetrics nurses had an average cost of $558,007. The next highest nurse malpractice claims occurred in postanesthesia care ($384,912), behavioral health ($228,518), and correctional health ($219,924). The most common injury resulting in litigation is patient death, which accounted for 40.9% of the malpractice lawsuits against nurses. The cause of death in 47.3% of these cases was cardiopulmonary arrest.

The Nurses Service Organization and Continental National American Group's report also covers complaints to licensing boards. Any public member can make a licensing board complaint against a nurse, even the nurse's employer. A patient injury is not required for a complaint, and it does not have to be associated with professional duties. The Board of Nursing takes referrals seriously and investigates all complaints from the unfounded to the somber ones. The legal claims report found that unprofessional conduct was the most common licensing complaint (32.5%), followed by nursing practice (25%), and documentation errors and improper treatment (19%.). Around 55% of licensing board complaints filed against nurses result in an action taken by the State Board of Nursing. The types of actions include probation, fines, license suspension, surrender of the nursing license, and license revocation. Nurses tend to overestimate the risk of liability claims, but as the report shows that liability claims are relatively rare. A point of interest is that the nurses included in this report were 3 times more likely to defend themselves against a licensing complaint than a malpractice claim.

The average cost of healthcare malpractice claims in healthcare facilities has been rising at an alarming rate. The number of verdicts that exceeded $25 million more than tripled between 2014 to 2018. Nearly all states reported substantial medical malpractice awards before the COVID pandemic, and it is unknown how these awards will be affected by the pandemic. A few states have adopted limited-liability protections during the pandemic, but it is unknown whether these protections will hold or be contested in the courts. There is some speculation that the public will perceive healthcare professionals as pandemic heroes, reducing patient's (plaintiff's) awards on pandemic-related malpractice cases. Although the average number of instances per provider has dropped, possibly due to breakthroughs in the patient-safety measures, the average cost of each claim has risen 50%.

The increase in the average cost of healthcare malpractice claims adds to healthcare costs, which already account for 17.7% of our gross national product (Centers for Medicare & Medicaid Services, 2020). The added cost increases the cost of malpractice insurance for hospitals, physicians, and healthcare professionals, which is ultimately passed down into patients' bills for healthcare.

The relationship between law and ethics is the difference between what we ought to do and what we are expected to do. Ethical decisions are made based on a person's moral sense of what we ought to do because it is the right thing. Laws codify societal behaviors and, particularly in differences of opinions or disputes, specify what we are expected to do. The codified behaviors we are legally obliged to follow are based on moral principles accepted by society, so in essence, laws extend societal moral principles into formalized rules. Two ethical principles that have been codified into healthcare malpractice law are nonmaleficence and duty. When patients believe they have been harmed by a healthcare provider who did not follow the standard of care, they can seek a reward for damages and obtain a remedy through the court.

The legal system has established four elements that must be satisfied to prove the negligence required for a malpractice action. Medical negligence is one element required to prove a malpractice case, whereas *medical malpractice* refers to the entirety of the claim. The plaintiff (patient) must compel the court that all elements of negligence have been satisfied before a case can be adjudicated. This justification is done through pretrial discovery and pleadings. Past case law has established negligence standards, and the courts impose the plaintiff with the burden of proof to show how these four elements of negligence apply to the case.

The first element is the duty to care, which is the established obligation to conform to a recognized standard of care. The plaintiff must show that a caregiver–patient relationship was in effect at the time the alleged injury occurred. In general, the delivery of services within a healthcare organization, such as a hospital or clinic, establishes the duty to care. A nurse providing advice to another guest at a dinner party does not have a care–patient relationship, and in this type of situation, duty is not established.

The breach of obligation is the second element needed to prove malpractice. It is established by proving that the nurse did not follow the recognized standard of care. The standard of care is the behavior expected of a reasonably prudent person under the same or similar circumstances. The court hears testimony from nursing experts who attest to the standard of care for nurses working in similar facilities. The focus is on the community standards, which are the unique standards used by nurses working in similar settings. The standards for a large urban hospital will differ from those of a small rural hospital.

The third element that a plaintiff must prove is that there was injury or harm. The plaintiff must establish the nature and extent of actual damages. If there are no injuries or monetary costs, the plaintiff will not show damages and will not get an award.

Establishing injury is not enough to satisfy the test of malpractice. The fourth element of malpractice is causation. The plaintiff has an obligation to prove that the injury was caused by the departure from the standard of care and not from another cause. Part of the discussion regarding causation is the question of foreseeability. The plaintiff must show, usually through expert testimony, that a reasonable person with similar training would have anticipated injury.

An example of this might be a nurse working with a faulty piece of equipment that causes harm to a patient. The nurse's defense might be that the standard of care was followed, and it would have been impossible to foresee the injury. This defense may help the

nurse reduce culpability. Still, the plaintiff's attorney will press on other factors that require examination, such as the organization's guidelines for preventive maintenance and routine checks of operability.

Satisfying the burden of proof for the court can be quite challenging, and plaintiffs often file cases and subsequently drop them when it becomes apparent that it will be difficult to prove negligence. The legal system in our country developed around the ethical principle of justice regarding all parties involved in legal disputes, including the defendants. The act of taking legal action helps patients who have suffered harm seek compensation. Many plaintiffs say their interest in legal action goes beyond compensation and is focused on seeking justice for the general public. Many plaintiffs believe taking legal action causes healthcare professionals to accept the liability of their actions and to change their practices to improve the safety of future patients.

PHRONESIS: FROM WISDOM TO ACTION

A critical framework that can serve as a foundation for an ethical, lawful, and cost-effective healthcare policy relies on three essential pillars: (a) quality and safety of care, (b) access to care, and (c) cost. Can all three be justified under one social contract? It is interesting to note that studies continue to demonstrate that simply increasing spending does not influence population mortality. Instead, infrastructure that includes environmental health, vaccinations, and clean air and water has significantly impacted population health. Still, the notion that the United States spends twice the amount for fewer years of life requires deeper exploration (U.S. Health Care from a Global Perspective, 2020)

In 2004, the AACN made a determined effort to move toward acceptance of a DNP degree as the primary advanced nursing practice qualification to take leadership and organizational roles in healthcare organizations (AACN, 2020). Since the advent of DNP programs, there has been a proliferation of graduates in the United States. In 2019, there were 7,944 U.S. graduates of DNP programs. The DNP graduate is trained to implement evidence-based practice, quality improvement, and system leadership to improve patient care outcomes, focusing on efficiency and efficacy. The AACN provides guidance on the 10n essential domains of all nursing practice in *The Essentials: Core Competencies for Professional Nursing Education* (2021), advising that the DNP be trained at the highest level, Level II. The 10 AACN domains are as follows:

- **Domain 1**: Knowledge for Nursing Practice
- **Domain 2**: Person-Centered Care
- **Domain 3**: Population Health
- **Domain 4**: Scholarship for Nursing Practice
- **Domain 5**: Quality and Safety
- **Domain 6**: Interprofessional Partnerships
- **Domain 7**: Systems-Based Practice
- **Domain 8**: Information and Healthcare Technologies
- **Domain 9**: Professionalism
- **Domain 10**: Personal, Professional, and Leadership Development

The graduates of DNP programs work in various settings to implement projects, design systems, and take the leadership role in practice improvement through innovation, testing of interventions, and evaluation of healthcare outcomes. Their training provides them with a high level of knowledge in the latest developments and best practices in keeping with AACN domains 1 and 4. DNPs develop their colleagues' respect and trust,

which is a requirement for interprofessional practice (Domain 6) due to their high level of clinical and systems knowledge (Domains 6 and 7). DNPs use these tools to lead effective and efficient teams to improve service delivery based on the values and ethics of the nursing profession.

The main work of the DNP is to translate research evidence and health policy into clinical practice to improve the quality and safety of care as well as reduce unnecessary healthcare costs. This goal is accomplished by implementing evidence-based practice change projects with a primary focus on improving the quality of care. The changes made were primarily implemented out of respect for the beneficence of improving patient care; it also focused on efficiency. There was a vital concern for resource stewardship and accountability (AACN, 2020).

In her position as DNP-prepared director of clinical operations, Dr. Rosalie Geronimo (2019) identified a potential opportunity for increasing the number of MRI placements of cardiovascular implantable electronic devices by establishing more nurse practitioner's support. This process change would reduce patient safety concerns and align the facility with best practices. Leadership was required to enhance the role of the nurse practitioner with a keen focus on beneficence and respect for patient safety (nonmaleficence; AACN, Domain 10). It also supported the ANA Code *of Ethics* because it formalized the standards nurse practitioners apply for ethical decision-making regarding these types of patients. The project would not produce a net gain until the second year after implementation when it is expected to have a net gain of around $200,000 due to improved service availability.

To carefully control the resources for vulnerable patients within complex systems depends on a robust ethical framework that provides for the high level of accountability necessary to avoid the commission of fraud. Recent coordinated efforts through the administration of policy, law, and ethics have been focused on fraudulent billing issues. The complex billing system that exists under multiple reimbursement structures ranging from public and private insurances depends on the provider and billers' ethics in interpreting the regulations and laws that guide the practice of coding and billing. It is no longer adequate to rely on the insurance entity's process for monitoring each payment for adherence to billing regulation. Today healthcare systems must check their billing to verify that it meets regulatory requirements. Therefore, the DNP needs to understand the regulation, law, and ethical frameworks that apply to our social contract to pay for healthcare services.

DNP education includes a solid commitment to using ethical principles to improve patient care with accountability for practice, including understanding how the legal code defines fraud. To be specific, in the U.S. legal code, Title 18 Part I Chapter 63 § 1347§ 1347 *healthcare fraud* is defined as:

Whoever knowingly and willfully executes, or attempts to execute, a scheme or artifice—

1. To defraud any health care benefit program
2. To obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any health care benefit program, in connection with the delivery of or payment for health care benefits, items, or services, shall be fined under this title or imprisoned not more than ten years, or both. If the violation results in serious bodily injury (as defined in section 1365 of this title), such person shall be fined under this title or imprisoned for not more than 20 years, or both. If the violation results in death, such person shall be fined under this title, or imprisoned for any term of years or life, or both (U.S. legal code, Title 18 Part I Chapter 63 § 1347§ 1347).

In 2009, the Department of Health and Human Services and the Department of Justice established the Health Care Fraud Prevention and Enforcement Action Team. With this move, Medicare fraud became a Cabinet-level priority. The Secretary of Health and Human Services and the Attorney General direct the work of the team. A year later, the PPACA passage enhanced language about healthcare provider overpayments. The new language clarified that liability for overpayments, accidental or otherwise, was with the provider. Overpayments must be reported within 60 days of discovery and failure to return an overpayment within the time frame exposes the provider to action through the False Claims Act. The Act also encouraged support from the public to report fraud through an 800 number (PPACA; Public Law 111–148).

In 2012, the administration announced an enhanced antifraud public-private partnership to prevent healthcare fraud. This partnership shares information and best practices in the detection and prevention of fraudulent healthcare billings. Investigations using sophisticated data look for signals that point to fraudulent billing practices. Insurers and patients trust care providers to be accurate in their billing practices and reject fraudulent billing, intentional or inadvertent (Pozgar, 2019).

The government has used its authority and power to audit and investigate potential fraud, and the effort has been increasingly efficacious. In 2017, The Department of Health and Human Services and The Department of Justice Health Care Fraud and Abuse Control Program released an annual report for the 2016 fiscal year (The Department of Justice Health Care Fraud and Abuse Control Program, 2017). The report showed that the Medicare Fraud Strike Force resulted in 301 criminal and civil charges against physicians, nurses, and other licensed medical professionals, for alleged participation in healthcare fraud schemes. The schemes involved around $900 million in false billings. This announcement highlighted the success the government has had mining Medicare claims data to identify fraud and waste.

Healthcare organizations must be vigilant to avoid inadvertent fraud and maintain accurate billing practices to prevent inaccurate billing, such as overcharges or claims for services that are not documented or delivered. In response, healthcare organizations have developed processes to do prebilling checks for accuracy using specially trained medical records coders, information technology professionals, and nurses. Case Management and utilization review nurses play a prominent role in verifying that the documentation supports the diagnostic and procedure coding. These nurses use their analytical skills to identify potential fraud and waste before billing the federal government.

The DNP, who has the highest level of training in the AACN Essentials, understands how the appropriate use of information, communication, and informatics technology makes decisions to provide "safe, high-quality, and efficient healthcare services following best practice and professional and regulatory standards." The AACN Essentials focuses on quality and efficiency (AACN, Domain 5 Quality and Safety, p. 40), which is essential to avoiding violations of the False Claims Act or ACA. In conducting this work, DNPs also rely on their professionalism and the accountability inherent in the professional role (AACN, Domain 7, Systems-Based Practice, p. 45).

An example of how DNP-prepared nurses use their focus on quality and efficiency to avoid violations of the ACA can be seen in the work of Dr. Emily Trefethen (2020). Section 3025 of the ACA established a process for the Secretary of the U.S. Department of Health and Human Services to deny payments to Inpatient Prospective Payment System hospitals for excess readmissions. Dr. Trefethen implemented a program to reduce avoidable heart failure readmissions through an interprofessional training program for novice nurses. The training provided novice nurses with information on how to enlist nurse case managers early in the admission for heart failure patients. After the training was implemented, heart failure readmissions decreased by 12%.

Most DNP implementations are focused on improving patient care, but some focus on the healthcare providers' well-being. Dr. Melinda Furrer, a nursing staff educator, implemented one such project to reduce moral distress in new nurse graduates (Furrer, 2020). Her work is consistent with Domain 10 of the AACN Essentials, which centers on nurses' self-reflection, resilience, and well-being. Dr. Furrer's search of the evidence showed a 27.7% turnover rate of new nurse graduates less than 1 year after beginning practice was often the result of moral distress. The cost of turnover can be high, with an average cost of $56,000 for each one. Dr. Furrer developed a program to train new graduate nurses who were starting their first job at a healthcare facility on the signs of moral distress. The new graduates were given tools to build moral courage, moral clarity, and self-confidence. Her work showed that 40% of the new nurses reported an increased ability to face and resolve moral distress when situations arise, and 60% agreed that the information on moral courage would improve their ongoing practice. This training coincided with the region's COVID pandemic, when nurses faced some of the most difficult ethical decisions of their careers.

Dr. Marketa Houskova, a DNP with an avid interest in policy and the advancement of nursing professionalism, questioned why only 5% of RNs serve on hospital boards when nursing has the number one rank as the most trusted and ethical profession for the past 18 years (Gallup, 2021). She implemented an online public policy and advocacy toolkit to respect nursing as a profession (Houskova, 2019). An evaluation of the nurses' reaction to the online policy toolkit was to increase their knowledge of the nurses' role in policy development and advocacy by 36%.

In September 2020, Governor Newson signed California AB 890, which amends the Business and Professions Code to expand independent practice for nurses. There has never been a greater need for nursing involvement in policy making than the discussions about the nurse practitioner scope of practice at the California state level. The signing of this bill did not come easy. In 2015, the California legislature rejected SB 323 when it faced vocal opposition from the California Medical Association, claiming that nurse practitioner independent practice would cause patient harm due to lack of oversight. Twenty-two states already grant nurse practitioners full practice authority, and 40 others provide some level of independence. In California, support for AB 890 was the result of a compromise initiated when evidence showed a scarcity of primary care providers during the COVID pandemic. The bill provides two restricted routes for nurse practitioners to obtain independent practice. In 2021, nurse practitioners can take a route which does not require direct physician supervision. Still, nurse practitioner practice settings are limited to a location with a physician in that same practice for 3 years. By 2023, the Board of Registered Nursing will issue additional regulations regarding a genuinely independent nurse practitioner role. Routes 103 and 104 require nurse practitioners to have a minimum of 4,600 hours of clinical practicum experience.

CONCLUSIONS

DNPs are educated to be keenly aware of how to use the ethical principle of justice, beneficence, and stewardship of resources to deliver patient-centered care. The U.S. healthcare system is based on business principles and corporate interests, and these factors can distract focus from the need for patient-centered quality healthcare. Cost-effectiveness in healthcare is essential, and so is adherence to ethical and legal standards. Who is better equipped than the DNP to guide patient care through the healthcare system's complexities? DNPs have the ability to develop innovative solutions for patients in need. They are

visionaries who understand what makes good healthcare practice. DNPs have the ability to sustain focus on what is right and orchestrate others in support. Using the ANA (2015) Code *of Ethics for Nurses* and trained in the 10 AACN nursing domains, DNPs understand the complexities of the healthcare system, including how to influence healthcare policy, design aligned work environments, and keep a sustained focus on optimal patient care. Armed with a thorough understanding of current evidence, awareness of complex adaptive systems, and a deep understanding of ethics, DNPs help others see the value of patient-centered care delivered with fiscal accountability.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. You are the chief nurse executive at an organization that provides clinic services to Medicare patients; seven of the clinics are located in underserved areas. While visiting one of the clinics, you perform a routine audit. You notice that one physician, who has been excluded from the Medicare program due to a prior felony conviction for accepting kickbacks for referrals, has submitted bills for $165,000 for services rendered. You contact the physician and she refers you to her attorney. Her attorney says she thought she was following the law when she submitted bills for services her employee performed. The patients received the services and there have been no reported complaints.

   The physician speaks three languages fluently, and the patients at this clinic have nothing but praise for her care. You have had a great deal of difficulty locating a qualified physician who is willing to work in this crime-ridden area.

   a. What ethical dilemmas do you identify in this scenario?
   b. What legal issues do you identify in this scenario?
   c. What action do you recommend?
   d. How do you justify this action based on legal and ethical guidelines?

2. You are an NP who sees mostly posthead trauma patients and who refers many of these patients to physical and occupational services. On one routine follow-up visit, your patient claims that he has not received any of the services you suggested, even though you saw several bills from the consulting provider.

   You ask for an audit and discover that the owner of the service submitted $1.28 million in claims for occupational therapy services that were not provided. The owner used Medicaid provider numbers of licensed therapists without their consent to bill for the never-performed services.

   a. What ethical dilemmas do you identify in this scenario?
   b. What legal issues do you identify in this scenario?
   c. What action do you recommend?
   d. How do you justify this action based on legal and ethical guidelines?

3. You are the chief nursing executive for a small rural clinic that provides contraception services to low-income individuals. An insurer, providing care under the ACA, has rejected paying the claims, stating that they are a

not-for-profit religious organization and are not obliged to cover these services. You check your records and find that nonpayment for contraception places a significant financial burden on the clinic. These individuals do not have access to any other healthcare services in the region.

a. What ethical dilemmas do you identify in this scenario?
b. What legal issues do you identify in this scenario?
c. What action do you recommend?
d. How do you justify this action based on legal and ethical guidelines?

4. You are an NP in a small hospital and you are reviewing the chart of a patient who underwent a second abdominal surgery. Six months after his initial surgery, the patient had to return to surgery for removal of a retained surgical instrument, an 11-inch retractor. On his follow-up appointment, your review of his medical record reveals that the discharge diagnosis for his second surgery was abdominal adhesions and there is no mention of removing the retractor in the surgical report. As you review his chart, you question whether the incident was reported as a "never event." You practice in a state that has mandatory reporting of never events.

a. What ethical dilemmas do you identify in this scenario?
b. What legal issues do you identify in this scenario?
c. What action do you recommend?
d. How do you justify this action based on legal and ethical guidelines?

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 13

Project Management for Nurse Leaders

Elena Capella

We are what we repeatedly do. Excellence, then, is not an act; it is a habit.

—Aristotle (384–322 BCE)

Peter Drucker (2001) has long called for "systematic abandonment," claiming a product is virtually obsolete at the time of its launch. He stated that knowledge workers who are in the process of continuous learning would replace blue-collar workers. Decentralized organizations with spontaneous, ad hoc, flexible teams are better positioned to innovate because they are nearer to events at the microeconomic level (Drucker, 2001). Drucker's recommendations have been instilled in healthcare organizations, primarily through the Institute for Healthcare Improvement (IHI) and its focus on the diffusion of innovation through small tests of change. The reduction in product life cycles combined with the growing complexity of projects and the need to integrate divergent sectors makes project management a standard rather than a unique way of doing business (Larson & Gray, 2020). The torrent of continuous change in organizations and the demand to remain flexible has led to the evolution of high-performing, cross-functional teams working on "projects." Although hierarchical, mechanistic healthcare oligopolies had a measure of success in the past, they now struggle to provide quick turnaround on projects in the rapidly changing, complex environment of the 21st century. To meet the changing demand, organizations turn to project teams that have developed into ubiquitous hybrid, flat, organic teams led by skilled project managers. In this new model, subject matter experts collaborate to complete projects that range from single-process improvements to complex projects. Organizational management teams are leaner, as project managers replace middle managers to oversee internal and outsourced projects. Service organizations have replaced manufacturing models, creating a need for strong interpersonal skills. Modern project management calls for a balance of task-oriented and relationship-oriented competencies to meet on-time, zero-error customer service demands.

DEFINITION OF A *PROJECT*

The Project Management Institute (PMI), in its *A Guide to the Project Management Body of Knowledge*, defines a *project* as "a temporary endeavor undertaken to create a unique product, service or result" (PMI, 2017, p. 1). Ultimately, a project's goal is to fulfill a need,

usually an internal or external customer need (Larson & Gray, 2020). Larson and Gray explain that a project consists of a predetermined objective completed within a specified target date. In general, projects require several departments and professionals coordinating work that has never been done before and is due to be completed within specific time, cost, and performance parameters.

Larson and Gray (2020) describe the technical and sociocultural dimensions of the project management process. The technical side of project management refers to preparing a **work breakdown structure (WBS)**, preparing schedules and budgets, resource allocation, project mapping, and control. The mechanical or precise skills side of project management is static, guided by straightforward rules. In contrast, the sociocultural side requires interpersonal skills to meet project management demands in today's organizational environments. Goleman (1998) describes these interpersonal skills, particularly when used in organizations, as emotional intelligence, or the ability to manage feelings that support team processes and accomplish shared goals. Interpersonal skills are critical to building teams, negotiating, and traversing the organization's formal and informal politics with the customer's needs always at the forefront. This chapter further explores the spectrum of technical and sociocultural skills of project management and the DNP preparation to meet such demands.

THE DNP AS PROJECT MANAGER

Current initiatives to redesign healthcare delivery through innovation, such as the accountable care organization (ACO), are key drivers of demand for organizational change in healthcare deliverycurrent initiatives to redesign health care delivery through innovation, such as the accountable care organization (ACO). The DNP plays a critical role in change at the macrosystem, mesosystem, and microsystems level. The American Association of Colleges of Nursing (AACN), in *The Essentials: Core Competencies for Professional Nursing Education* (2021), delineates the 10 essential core competencies that prepare the DNP to be both a participant and leader in change and project management (AACN, 2021):

Domain 1: Knowledge for Nursing Practice

Domain 2: Person-Centered Care

Domain 3: Population Health

Domain 4: Scholarship for Nursing Practice

Domain 5: Quality and Safety

Domain 6: Interprofessional Partnerships

Domain 7: Systems-Based Practice

Domain 8: Information and Healthcare Technologies

Domain 9: Professionalism

Domain 10: Personal, Professional, and Leadership Development

Improvements in practice are neither sustainable nor measurable without corresponding changes in organizational structure, organizational and professional culture, and financial structures to support the changed practice (AACN, 2021). DNP graduates are prepared with leadership, assessment, and communication skills to perform **project** management at every healthcare organization level of the healthcare organization. As highly skilled project managers, they are knowledgeable in the "essential" competencies needed to be an effective project manager: applying evidence-based research; collaborating at the micro-, meso-, and macrosystem level; contributing to the financial

analyses; performing an organizational needs assessment; knowing when to utilize technology; and adding value through the balance of cost and quality at every phase of the project.

THE PHASES OF PROJECT PLANNING

Projects progress through these phases: **analysis/design**, planning, implementation, and **concluding phases**, with each phase overlapping the other at various times. The four phases are discussed in the following portions of this chapter to equip the DNP with the foundation for successful project planning and management.

The analysis/design phase explores the factors necessary to ensure the project goals and outcomes are aligned with the organization's strategic plan, delineates project specifications, performs financial analyses, and builds a team capable of completing tasks and accepting responsibilities. The next phase, the planning phase, is more extensive than the design phase. In the planning phase, schedules and budgets are prepared with accompanying resource allocations, including staffing. At this phase, risks are identified and mitigated when feasible. The implementation phase is typically the longest and most labor intensive of the four phases of project management. In this phase, the project is built, implemented, and monitored to verify costs and schedules meet baseline projections. The concluding phase consists of final testing and deployment, training the end-user, sign-off by appropriate parties, and transferring key documents related to the projects. For ease of discussion and clarity, the chapter is organized according to the project's four phases.

THE ANALYSIS/DESIGN PHASE

The project charter is generated at the executive level and authorizes the DNP project manager to initiate the project and access the organization's resources to complete the project. Three principal documents used in project management are the project charter, project scope statement, and project plan. The project scope statement describes the work to be accomplished, including **deliverables**, and the project management plan states how the work is to be completed (PMI, 2017).

The DNP project manager begins a project by performing an organizational need and readiness assessment within the organization (Larson & Gray, 2020). Key indicators are analyzed, such as aligning the stakeholders' expectations and leadership support for the project, including allocating resources to meet the project's cost and personnel demands. It is important to determine whether the project leader and team members have been given the appropriate authority to complete the project adequately. Evaluation of the organization's mission, vision, and culture is critical to the potential success of a project and the verification that the project manager and team members are a good match for the project and the organization. How the project goals fit with the strategic goals of the organization is another key consideration. Ultimately, a determination is needed that the project adds value to the organization and key stakeholders agree with this analysis. Projects in healthcare organizations are held to a high level of accountability because they affect health outcomes. There is an expectation that they are based on sound clinical evidence and measured against projected outcomes.

Early in the analysis/design phase, a review of organizational documents, including committee minutes and decision-making records, provides the DNP project manager with information to guide the planning process (Harris et al., 2018). These records shed light on how decisions are made, identify the key decision makers, and signal potential pitfalls. Suppose the DNP identifies troubling trends, such as a series of former projects that failed to be implemented. In that case, there is an opportunity to

discuss these failures, identify the factors that led to the failures, and adjust the project's plan accordingly.

Another way to gather more information about potential support is to discuss the project with various leaders involved in the project, as this will provide information on the leadership group's support as a whole. Suppose the organization leaders have similar expectations and are consistent in their approval of the project. In that case, the DNP will be more confident that the project has broad support sustained throughout the project's implementation. A particularly promising sign is when the organization leaders are skilled in articulating the project's goals, defining its benefits, and inspiring others to accept the project's worth. These emotionally intelligent leaders stimulate enthusiasm and motivation in others and help the project development. The DNP project manager builds continuing relationships with all allies who can provide support when the project stalls or requires additional resources. Building collegial interprofessional partnerships is an essential element of DNP practice in advocating projects that lead to better clinical outcomes (AACN, 2021).

The methods that DNP project managers use to confirm alignment with the strategic mission will vary but often include top and middle management interviews combined with a review of strategic planning documents. Developing a list of questions based on the DNP's expert understanding of the organization makes the interview discussion more productive. The DNP project manager uses advanced communication skills to explore the project's alignment with strategic plans, such as the Five Whys questioning method. Toyoda developed the **Five Whys** method to reduce the number of false assumptions made during service quality evaluation (Black, 2016). A project manager needs to understand a problem before trying to fix it. Yet, it is very common for project managers to implement a solution before fully understanding the problem. The practice of asking "why" five times helps project managers uncover the root cause of the problem. The technique was developed by Taiichi Ohno, who revolutionized automobile manufacturing at the Toyota Production System and developed many of the Lean concepts used today in quality improvement. When using the Five Why technique to evaluate a problem, the project manager asks, "Why did this happen?" Instead of accepting the first answer, the project manager asks "why?" repeatedly until a deeper understanding of the root cause emerges. This simple practice can help the project manager develop insight into the contributing causes of the problem and find lasting solutions. This communication technique delves deeper into the interviewee's perspectives to uncover a richer understanding of the reasons for their point of view. During the interviews, the DNP project manager may uncover disagreement among the top and middle management members on the organization's goals, called an **implementation gap** (Larson & Gray, 2020). Uncovering this gap early on in the project selection process can help the DNP project manager pick projects that are more likely to succeed. The interviews also provide the DNP with insight into the political environment and which leaders will be persuasive advocates for specific projects. This early exploration is an essential step in evaluating which projects have the greatest potential for successful completion and sustainability. Projects lay the foundation for the organization's development and are more likely to be successful when they add value, align with the overall strategic plan, and engender management support.

SMART Goals and Aim Statements

Before committing to a project that will significantly impact the organization, the DNP project manager develops specific goals for the potential project. A clear goal statement that accurately represents the project is essential in determining which projects are

implemented by the organization. Goal clarification is the process of communicating desired results clearly, which serves to guide project team members toward completing the project. Developing goals using the **SMART goals** framework is an effective way to ensure goals are properly formulated. In the SMART goals method, goals are developed that are **s**pecific, **m**easurable, **a**ttainable, **r**ealistic, and **t**ime-bound. Early drafts of a goal statement are reviewed and revised to verify they meet SMART goal standards. It is particularly important that the goals be free of jargon and written in a manner understood by all stakeholders involved in the project. The strongest goal statements are succinct and explicit to such a degree that they do not require readers to read attachments or addendums to understand the goals. This concise clarity makes goal statements useful to team members who periodically need to review the goal statement and redirect their activities.

The IHI's *Science of Improvement: Tips for Setting Aims* (2021a) provides specific recommendations for developing aim statements in healthcare organizations that are helpful for DNP project managers. The inclusion of numerical goals is recommended because projects with a specific numerical aim are more likely to be completed. According to the IHI, numerical goals support change by providing measurement that focuses on the project's progress. Another recommended practice is to develop stretch goals to challenge the status quo. DNP project managers must discuss the aim statement with stakeholders and provide regular feedback supporting the project's progress. This feedback is consistent with *Essentials* Domain 8: Information and Healthcare Technologies, in which the DNP project manager uses information to provide a feedback mechanism to improve patient care (AACN, 2021).

On occasion, the DNP may determine that the project team has experienced *aim drift*, the unconscious or deliberate backing away from a stretch goal that requires team discussion and corrective action. In this situation, it may be necessary to redirect the aim statement, perhaps to a smaller part of the goal. The process of redirection must be carefully analyzed to represent a deliberate decision based on sound decision-making. The DNP project manager has a significant set of communications skills and can persuade team members to practice in the direction of better clinical outcomes (AACN, 2021).

Integral to the DNP's successful project planning and management is a thorough understanding of **systems theory** and complexity science. Systems theory was first proposed in 1928 by biologist Ludwig von Bertalanffy. He questioned the prevailing idea that a system could be disassembled into its parts and laid out linearly to explain its interworkings. Von Bertalanffy (2008) proposed that the system's workings could only be explained by looking at its parts' interrelationship, particularly their cause-and-effect relationship. The DNP project manager is equipped with a deep understanding of systems theory; open systems predominate in healthcare. Open systems depend on external resources for survival and success, unlike closed systems, which depend on internal resources to be self-sustaining.

Healthcare systems depend on many external sources, such as regulatory agencies, third-party payers, and professional organizations that advance changes in protocols and standards. Using systems theory, organizations transform inputs to outputs by using feedback to maintain balance and homeostasis. Healthcare systems respond to change in the environment, such as adopting a new clinical protocol, with a conflict between the organization's parts and subsystems. A DNP project manager who takes on implementing an updated clinical protocol can use systems thinking to anticipate the resistance to change and provide support as nursing and medical staff. They adopt a new protocol and establish a new level of quality care. The nursing and medical staff resistance results in developing a state of **entropy,** or disorganization, which threatens

the organization's balance, or **homeostasis** (Alligood, 2017). To re-establish homeostasis, the DNP leads the project team by analyzing clinical evidence, obtaining agreement on the best-practice protocol, and developing a mutually agreed-upon protocol consistent with the stakeholders' shared values. Promoting communication, feedback, and agreement mechanisms is essential in the DNP project manager's effort to establish homeostasis and **equilibrium** (AACN, 2021). Using systems theory, the DNP project manager guides projects through a healthcare system characterized by a multitude of conflicting interdependent parts. Systems theory is a suitable model to guide project management because it describes interdependencies within a system and how they can be coordinated to act as a whole.

Project Selection

After clarifying project goals and conducting evaluations of potential projects, the DNP project manager begins the selection process. Selection is generally made based on predetermined criteria using a checklist or weighted scoring model. A common criterion for selecting business projects is the payback model, a measurement of the time it takes for the project to recover its investment (Larson & Gray, 2020). Many healthcare-setting projects follow the **payback model**, particularly those that involve new services such as the development of a new cardiac surgery center. The payback model's central feature is the analysis of return on investment (ROI), which quantifies the project's value by determining the ratio of dollars gained by completing the project divided by dollars invested. The payback model drives most projects conducted in healthcare organizations. However, some projects are driven by other factors, such as compliance with regulation or updates in clinical practice standards. Although the ROI may not be an important driving force in a project, there is still a need for the DNP project manager to plan, monitor, and control expenses. Essential to the DNP role is the ability to analyze the cost-effectiveness of projects, particularly those that improve healthcare outcomes (AACN, 2021).

The selection of an appropriate project management structure is another key decision in project management planning (Larson & Gray, 2020). Although multidisciplinary, cross-functional, and matrix teams may reflect the project's nature, they create dilemmas related to authority, responsibility, and setting priorities. Functional structures reflected in the organizational design are often associated with a reduction in coordination and project ownership. In contrast, a multidisciplinary team operating as a separate unit and under the leadership of a full-time project manager works well in organizations that do a significant number of projects. However, multidisciplinary teams with a dedicated project manager can be costly. Ultimately, the best structure for a project team is the one that meets the needs of the project and fits the culture of the organization.

THE PLANNING PHASE

During the **planning phase**, the DNP project manager maps the project to illustrate its direction and sequence of events. Two common mapping techniques used in project management are **activity on node (AON)** and **activity on arrow (AOA)**, which are diagrams that show the arrangement of activities, how they are sequenced, and interrelationships and dependencies of these activities to the project (Larson & Gray, 2020). An *activity* is a process that consumes time and is an essential part of the project's sequence of events. *Burst activity* refers to an activity that comes before one or more activities can begin. In contrast, merge activity is immediately preceded by more than one activity and is dependent on the completion of the preceding items. Connecting these activities is a line, called *the path*, which delineates the sequence of dependent activities.

After the project has been selected, aligned with organizational goals, and mapped, a project team is assembled, a needs assessment is completed, and potential risks are identified. An essential part of this phase is identifying resources and estimating costs to avert schedule delays and cost overruns. Two common factors in project execution are budgeting and scheduling constraints. When a project is behind schedule, costs are incurred to add resources and make up for the lost time. When money is short, and costs have exceeded expectations, an attempt is made to shorten the schedule and compensate for the shortages. Trade-offs are continually being made to offset quality, time, and cost while managing the project's scope. The healthcare sector's challenge is to implement projects that maintain clinical, ethical, regulatory, and social standards in light of the available resources. For the DNP project manager, projects are generally focused on improving access, cost, and quality of healthcare services consistent with the highest standards.

The Cost of Quality

In his book, *Thriving on Chaos*, Tom Peters (1991) states that poor quality costs (a) manufacturing firms 25% of their personnel and asset costs and (b) service organizations up to 40% of these costs. Healthcare organizations are primarily service organizations and are subject to the high-cost overruns that result from service-quality failure. Poor quality health services, such as preventable nosocomial infections, are costly and particularly impactful due to the unnecessary harm they cause patients. Preventing service-quality failure is a primary focus of healthcare organizations due to public, governmental, and payer concerns related to the prevalence of medical errors and high cost of care. Error prevention efforts, such as the as error cost escalation, focus on the 1-10-100 rule: $1 spent on prevention will save $10 on analysis and $100 on failure costs. Put another way, if a defect is caught in the design phase, it has a relative cost of $1; at beta test phase the cost is $10; and after the release phase, when the defective product goes to the customer, the cost is $100. Developing a well-designed prototype will save the exponential costs of a subsequent recall. Quality has become a key business differentiator in current times. It is no longer just desirable to keep regulatory and contractual relationships—it is required; this is why quality is continually measured, tracked, and managed (Black, 2016).

Value has a direct relationship to quality and an indirect relationship to cost. The DNP assumes the role of a good steward of limited resources with an overriding goal of improving quality. Originally written from an ecological perspective, Garret Hardin's (1968) article "The Tragedy of the Commons" illustrates the impact of resource overutilization on subsequent generations. Making decisions out of self-interest is often detrimental to the overall long-term goals and sustainability of an organization. When resources are finite, members of an organization are more likely to act out of self-interest, which requires the DNP project manager to be diligent in managing resources. Resourcefulness is a common theme of successful organizations. In the automakers' highly competitive environment, Japanese automakers obtained a competitive advantage over others by replacing four different bolts with one interchangeable bolt (Black, 2016). This example shows how diligent stewardship of resources, even on low-cost items, can have a significant overall impact on savings. In the healthcare setting, net savings from one project can be used for services that would otherwise be unfunded. A preoccupation with quick fixes and short-term solutions detracts from the organization's ability to find new solutions to resolve problems. Koloroutis and Abelson (2017) propose using reflection in combination with deep analytical and creative thinking skills to find novel solutions and balance the cost–quality equation. DNP project

managers, working in organizations challenged with limited resources, are prepared to develop innovative and creative solutions, particularly when working with project teams on solutions to healthcare service delivery problems.

Organizational Culture

A sound assessment of organizational culture is how DNP project managers identify and mitigate risk stemming from its culture and subcultures. **Organizational culture** is an abstract conception of an organization's values, beliefs, and assumptions. Although these basic values, beliefs, and assumptions are difficult to identify, they can strongly affect how a project is perceived and whether staff members are willing to collaborate on the project. Culture can be overtly apparent, such as when an organization displays a values statement in the hallway that it values employee input. However, culture can be more thoroughly understood by its more subtle manifestations, such as the observation that an employee hesitates to offer a viewpoint that differs from upper management. The tacit aspects of culture are difficult to understand, particularly when the overt and tacit cultures contradict each other. The DNP project manager has an essential understanding of how culture influences projects and is prepared to intervene to guide projects within various subcultures toward completion (AACN, 2021). It is the application of a how to assess and direct organizational culture that guides project implementation. The knowledge of how to manage and direct is the DNP project manager's hallmark (AACN, 2021).

Project Readiness

Once the risk reduction plan is determined, additional work is performed on the project plan to define it further in terms of the scope, priorities, work plan, and how the work plan will be integrated into organizational operations (Larson & Gray, 2020). The aim statement developed in the early stages of the project provides some information on its result. Still, more definition is done at this stage to specify the deliverables, milestones, technical requirements, limits and exclusions, and evaluation. Deliverables are the major products or results that must be finished before a project can progress to the next step. Some projects have stand-alone deliverables that are independent from other deliverables in the project. However, it is more common for deliverables to be dependent on the completion of other deliverables. Milestones are groups of deliverables that represent a significant event or accomplishment. Consider the project of a hospital goal to open a new stroke center by a given date. The project manager would be responsible for assigning policy and procedures to individuals within the organization. Each of these policies and procedures would be listed on the project plan as a deliverable, along with the name of the person responsible for the policy and the date the policy is due to be completed. The project manager would also assign someone deliverables associated with collecting the policies, verifying the policies are complete, and sending them to the state for approval. Once these deliverables are completed and the organization receives notice from the state, the organization then reaches its milestone of obtaining state approval for the service.

Forecasting approximates the time and costs required to complete project deliverables (Larson & Gray, 2020). Forecasting estimates are done to determine whether the project is worth doing and monitor the cash flow as the project progresses. When estimating costs, it is common practice to involve people familiar with the tasks, to obtain estimates from several people, and to base estimates on normal conditions. Determining the appropriate detail level is important because too much detail may create a nonproductive accounting process, and too little detail may impair the monitoring process.

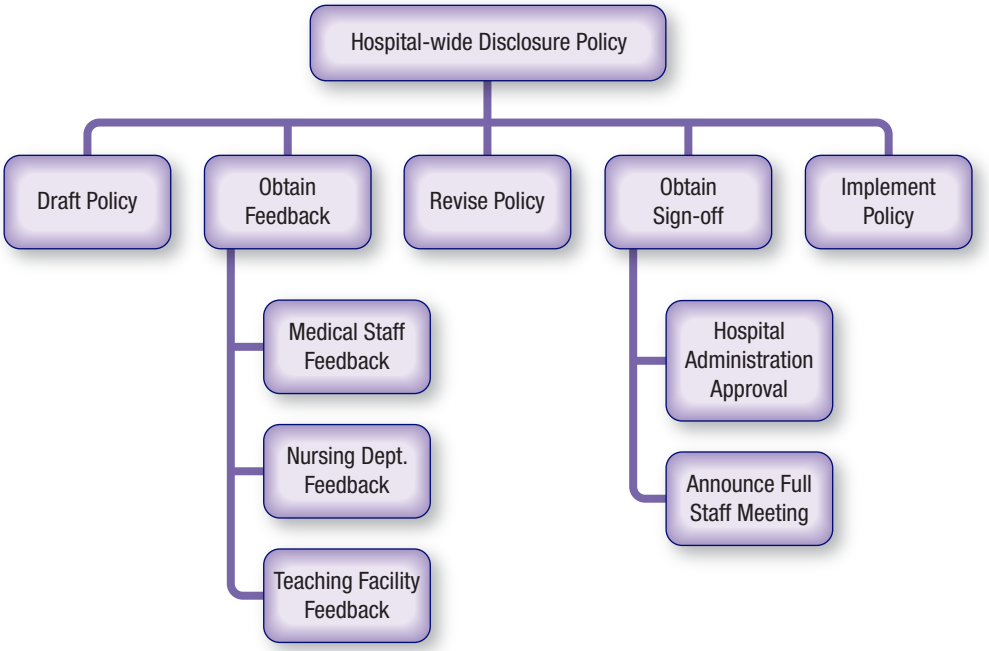

FIGURE 13.1 Work Breakdown Structure.

In determining costs, **direct costs** are connected to the project, such as labor, materials, and equipment. There are also **indirect costs** less clearly connected to the project that must be allocated, such as general administration and overhead costs.

A key element in this phase of the project is the Work Breakdown Structure (WBS), which is essentially an outline of the work divided into smaller tasks. The WBS, particularly if coded and entered into the information system, facilitates evaluation of the cost and time that will be spent on a project. The document is arranged in a hierarchical order to provide management with feedback on performance at each organizational level. The WBS helps the DNP project manager manage the plan, schedule, and budget for the project. The DNP's ability to apply this tool relates to *Essentials* Domain 5: Quality and Safety on cost-effective practices (AACN, 2021; Figure 13.1). A companion document to the WBS is the responsibility chart, which summarizes the tasks to be accomplished during the project and assigns each task to a person within the organization. During the project management meetings, time is allocated for team members to discuss the progress on deliverables based on the responsibilities and assignments.

Managing Risks

Anticipating and mitigating risk, which is a potential loss, is an important task of the DNP project manager during the planning phase. Risk management is performed to identify potential losses and resolve issues before they impact the organization. Although the DNP project manager can't avert every risk, anticipating risk and assembling a team qualified to manage such risk is imperative to a successful project outcome. Open communication without the threat of reprisal is an approach DNP project managers use to allow for forthright communication. One of the techniques used to facilitate innovative problem-solving is the brainstorming technique. Ideas are encouraged, without judgment or censorship, to allow team members to express their unique notions.

Failure modes and effects analysis (FMEA) is used to anticipate and prioritize risk. A value is determined through the FMEA process based on three variables: the probability of occurrence, the impact should it occur, and the likelihood the event would be detected (Larson & Gray, 2020). Risk severity is measured by calculating the risk value, a formula based on the impact, probability, and potential for detection. Determining a problem's risk value helps the DNP project manager prioritize projects based on comparing each potential project's risk values. Attention to every detail of the project, with special attention to the problem-prone areas of budgeting, scheduling, and resource allocation, are essential in project risk management.

The IHI encourages the use of plan–do–study–act (PDSA) and FMEA to mitigate risks that threaten projects designed to improve patient care (IHI, 2021b). Shewhart's model, which Deming subsequently modified, is called the PDSA cycle; it is, used to guide continual-improvement processes by tracking the process stages. In the planning stage, data is gathered on the problem and its history. Experimentation begins in the do stage, when trial improvement projects are tested on a small scale. Results of the trials are evaluated in the study stage to determine whether they were effective. Successful improvements are adopted in the act stage. The PDSA process does not stop after the act stage but begins again, focusing on another promising improvement to test and evaluate. Following the PDSA ensures sustained focus on activity that drives continual improvement.

FMEA proactively determines when and how a project is likely to undergo failure, the potential impact of the failure, and prioritizes which parts of a process are in greatest need of solutions. The IHI process assigns a risk value, or Risk Priority Number (RPN), based on a formula that includes the likelihood of occurrence, detection, and severity (occ × get × sev = RPN). A Likert scale is used to plot the elements of the formula for each project. The projects with the highest scores are determined to be priorities because working on these projects is likely to impact the quality of care positively.

DNP project managers attend to the risk management process's four steps: risk identification, risk assessment, risk response development, and risk response control (Larson & Gray, 2020). Through open communication and collaboration with key stakeholders, the DNP project manager identifies potential threats and analyzes threats in terms of severity, the likelihood of occurrence, and whether the risk can be controlled. The DNP project manager prepares contingency plans and implements the plan in the event a threat occurs. A common risk to healthcare projects is a staffing shortage during the holiday season. In anticipation of this staffing shortage, the DNP project manager prepares a risk assessment based on the likelihood and the severity of impact, prioritizes the development of a contingency plan, and implements the plan to get ready for the holiday and keep the project on time.

The ways DNP project managers mitigate the risks vary depending on the assessment of the situation. Suppose the risk is associated with a lack of sustained leadership support. In that case, the DNP project manager may elicit the support of board members and executive-level staff to shepherd the project to its completion. Also, enlisting the support of stakeholders skilled in communication and collaboration is another way to increase support and mitigate risk. The DNP project manager will need to maintain communication and build trust with those individuals to sustain their support throughout the project. Monitoring capital allocations and requirements is another way to reduce risks that might have a negative impact on the project. During the project selection and team member appointment, the DNP uses project risk management techniques that reflect an awareness of risk and how to mitigate it.

THE IMPLEMENTATION PHASE

During this phase, the project manager establishes a regular meeting that includes communication from project team members. Leadership is commonly used during the implementation phase to disseminate status and milestone reports throughout the organization. Also, these meetings can be used for communication aimed at solving problems with progress on deliverables and handling other action items (Larson & Gray, 2020). Communication among team members and leadership can occur in written or electronic form, but generally includes several scheduled meetings. Depending on the project's scope, communications may be handled in a previously existing operations meeting to ensure all the operations group members are apprised of the project's progress. It is common for team members to report their progress on deliverables and ask team members to resolve problems. The team discussion is focused on solving problems and moving the project toward completion. There is a high level of accountability when the meetings are regularly scheduled, particularly when they include the project team's leadership and members. The DNP project manager uses advanced communication skills during these meetings to ensure mutual understanding of progress on the project deliverables (AACN, 2021). Effective communication, in the form of clarifying the goals, deliverables, and responsibilities, facilitates collaboration and coordination to project completion.

Effective communication also depends on active listening to hear others' perspectives (Hoppe, 2018). Because people speak slower than listeners comprehend, it is natural for the listener to experience mind drift during conversations. An effective project manager willfully concentrates on what is being said and offers verbal feedback to confirm what information was received to avoid mind drift.

Communication regarding the status of the project is also accomplished through diagrams and graphic displays. The DNP is prepared to use information technology to support and improve patient care and healthcare systems (AACN, 2021). Diagrams of the rich networks of individuals affected by the project can help determine what input is needed to support a project. A stakeholder map can help the DNP project manager conceptualize the network of individuals who can potentially cooperate, approve, or oppose the project (Larson & Gray, 2020; Figure 13.2).

Using the brainstorming method to develop a map of dependencies is helpful because it is better to overestimate the number of individuals likely to be affected by the project than underestimate them. As the DNP project manager reviews the map of dependencies and considers the stakeholders and their perspectives, there is an opportunity to formulate strategies and build relationships to support the project.

It is essential that the DNP form a project team composed of the appropriate individuals. The determination of who to include on the team is critical to a successful implementation of the project. The determination begins with an examination of the aim statement to identify those who will be impacted by the project implementation. Also, some reflection is needed on the larger system to determine a broader view of those who will likely be affected by the project. It is essential to include team members who are familiar with the process, including physicians, nurses, ancillary staff and frontline workers. Managers, directors, and administrators also need to be involved with the project team to elicit support. In most project implementations there is an executive sponsor who takes the highest level of responsibility for the success of the project and works closely with the DNP project manager.

The power/interest grid is a technique used by project managers to determine appropriate strategies for communicating with stakeholders. The technique consists of three phases; identifying stakeholders, exploring the impact of the stakeholders, and



FIGURE 13.2 Stakeholder map.

determining the appropriate communication strategy. When identifying stakeholders and determining the communication plan, it is helpful for the project manager to understand the organization's complex adaptive systems and social networks. The project manager must focus on the dynamic relationships among stakeholders throughout the project implementation to predict potential responses and counter-responses as the project progresses toward completion. Completing a power/interest grid can help the project manager prioritize communication with stakeholders and ensure successful implementation.

To begin the power/interest grid, the project manager lists the names of stakeholders who will potentially impact the project. This process is generative, and the project manager periodically updates the stakeholder list as new information emerges regarding those likely to be affected by the project. The DNP project manager must recognize unique aspects of the organization's context and strategic goals during this process. Understanding these factors helps the project manager identify the key stakeholders and the significance of their support in the project's success.

The initial list of stakeholders is often extensive, which forces the project manager to prioritize those stakeholders with the most influence on the project's success. The project manager must consider the influence of each stakeholder within the context of the organizational dynamics. A useful tool to help with this process is the power/interest grid (Figure 13.3). The grid is a coordinate graph that visually shows each stakeholder's power (*y*-axis) and interest (*x*-axis). To complete the grid, the project manager plots each stakeholder according to the level of power and interest in the project. Once the plotting

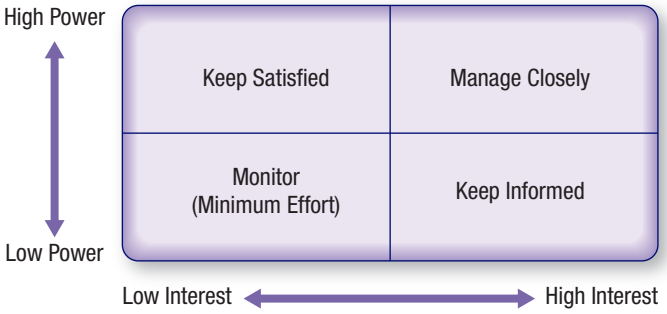

FIGURE 13.3 Power/interest grid.

is done, each stakeholder will fall into one of four quadrants labeled "keep satisfied," "monitor (minimum effort)," "keep informed," or "manage closely." Stakeholders with high power and high interest are plotted in the upper-right quadrant labeled "manage closely, whereas stakeholders with low power and low interest are plotted in the lower-left quadrant labeled "monitor (minimum effort)."

Plotting each stakeholder on the power/interest grid allows the project manager to develop communication strategies that match the stakeholder's potential influence on the project. As a method used to prioritize communications, the power/interest grid is an essential part of the project's communication plan. A DNP project manager can expect to regularly engage with stakeholders who have high power and high interest. The stakeholders with low power and low interest will not require such frequent contact. The information gathered in this grid can be used to develop a stakeholder analysis (Figure 13.4) that summarizes how to involve and communicate with stakeholders throughout the project implementation.

A **Gantt chart** is a bar chart used as a project scheduling tool during the project monitoring phase (Larson & Gray, 2020; Figure 13.5). It breaks the project down into activities with start and finish times. Gantt charts are most effective when the responsible party's name is displayed, and these members of the team report their progress

Stakeholder	Stakeholder's Interest in the Project	Assessment of Impact	Potential Strategies for Gaining Support or Reducing Barriers

FIGURE 13.4 Stakeholder analysis.

Deliverable	Responsible for Deliverable	Jan 9	Jan 16	Jan 23	Jan 30	Feb 6	Feb 13	Feb 20	Feb 27	Mar 4	Mar 11	Mar 18	Mar 25	Apr 2	Apr 19	Apr 16	Apr 23	Completion Date
Research Best Practices	Director of Quality Improvement																	
Draft Policy	Director of Quality Improvement																	
Obtain Medical Staff Feedback	Hospital Chief Medical Officer																	
Obtain Nursing Dept. Feedback	Hospital Chief Nursing Officer																	
Obtain Teaching Facility Feedback	Teaching Facility Medical Officer																	
Revise Policy	Director of Quality Improvement																	
Hospital Admin. Approval	Chief Operating Officer																	
Announce in Full Staff Meeting	Chief Operating Officer																	
Implement Policy	Chief Operating Officer																	

FIGURE 13.5 Gantt chart.

with the deliverables. Although the Gantt chart helps provide a visual display of time and scope, other tools may be used to monitor progress.

Additional tools are used to support project management, including the **project evaluation and review technique (PERT)**. PERT is a statistical analysis tool used to analyze and represent project tasks. It is designed to show the critical path, which is the longest possible continuous pathway from the initial event to the terminal event (Larson & Gray, 2020). A delay along the **critical path** will create a delay in reaching the project completion by the same amount. A series of delays along the critical path will have a cumulative effect on the delay. The PERT chart helps show the project team's progress along the critical path (Figure 13.6). Essential elements of the PERT chart are projections for the optimistic time (OT), which is the minimum time required to accomplish the task; the pessimistic time (PT), which is the maximum possible time required if everything goes wrong; and the most likely time (MT), which is the normal estimate of the time required to accomplish a task. Projections of the optimistic, pessimistic, and most likely time frames help the DNP project manager model potential project completion scenarios. The PERT chart gives the DNP project manager the ability to determine

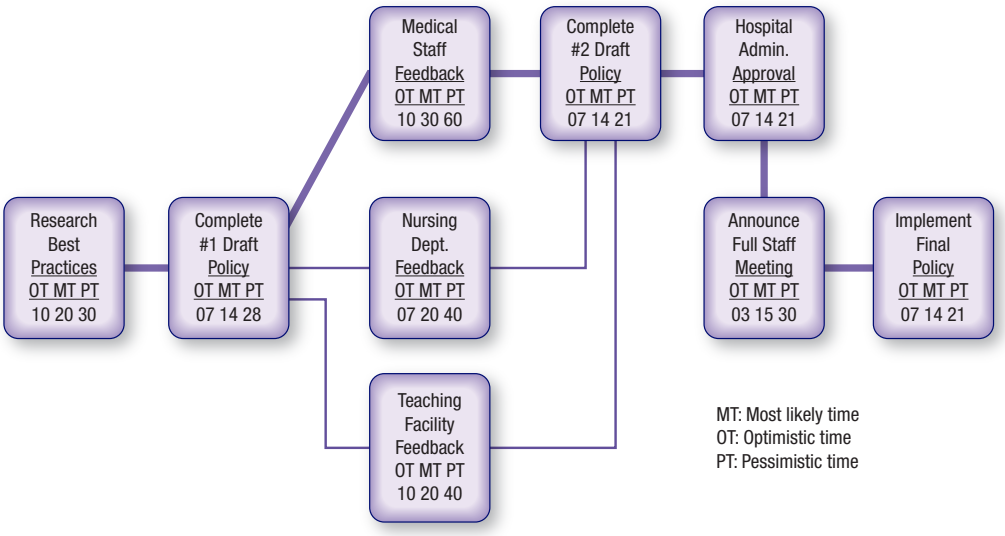

FIGURE 13.6 Project evaluation and review technique chart.

the float, or slack, which is the amount of time that a project task can be delayed without impeding subsequent tasks.

Larson and Gray (2020) recommend developing a **risk breakdown structure (RBS)** based on the WBS and the risk profile. An RBS not only identifies the general risk, such as personnel shortages, but answers why and when such shortages may occur to enable the development of contingency plans to adjust for the anticipated gaps. Structured questions are included in the risk profile designed to identify risk, actions to mitigate such risk, and the means of averting the subsequent costs. Risks are evaluated through the answers to questions such as: Are the customer and developer expectations aligned? Is the staff assigned just to this project, or is their time divided among other work responsibilities? Are the financial resources allocated specifically for this project or contingent on other variables out of the project manager's control? Ultimately, the DNP project manager uses the risk severity matrix diagram to display the impact and likelihood of risks related to the project.

Preparation for Changes in the Project Plan

Normal conditions are used in the forecasting process, but the project manager must be prepared for unusual conditions that require adjustment in the form of a contingency plan. One common change in project planning is a request to reduce the project's duration and bring it ahead of the normal schedule (Larson & Gray, 2020). Consider the situation of a DNP project manager who is working with a team to implement a new oncology drug protocol. The project has been scheduled to take 6 months. Still, the oncology department physicians have approved the protocol 2 months before the completion date and ask that it be implemented immediately. In this case, the DNP project manager would consider the need to compress the project schedule and its clinical and financial implications, including the cost of staff overtime. The project management term for the greatest time reduction possible under realistic conditions is called the project's *crash time* (Larson & Gray, 2020). DNP project managers prepare for contingencies, such as projecting crash times, by preparing the documentation in advance to demonstrate the implications of the change.

Team Dynamics

As stated earlier in this chapter, projects require collaboration among various individuals tobring a project to completion. These groups are essential to project management because the members' diverse experiences and backgrounds foster optimal decision-making. There is a **synergistic effect** in the group process in which the group produces more knowledge than each of the members working alone (Lasker & Weiss, 2003). Using a group process also increases the likelihood that the project will gain acceptance throughout the organization. There is an increase in the general awareness of the project's value and importance when more people are involved in the project.

Working in teams is not a naturally acquired skill but is essential for every project management team member, particularly for the project manager. Managing projects in a complex adaptive healthcare setting requires DNP project managers to have a good understanding of how teams develop and function. Of particular importance is the ability to distinguish dysfunctional from functional conflict, to identify when to intervene and restore function. **Functional conflict** supports the group's goals and is a productive part of the group process (Park et al., 2020). In contrast, **dysfunctional conflict** hinders group performance and requires the DNP project manager to intervene and get the group back on course. The DNP project manager may need to establish ground rules for the team and state that personal attacks are not allowed, and, if they occur,

they will be addressed immediately during the meeting. In this way, the DNP project manager is prepared to use a high level of interpersonal skills in assessing the organization and facilitating changes in practice delivery (AACN, 2021).

The **Five-Sage Model of Group Development** (Tuckman & Jensen, 2010) sheds light on group-activity phases and how DNPs can manage the process. In the forming stage, group members are unclear or disagree on the purpose of the project. When group members are unclear on purpose, the DNP can offer guidance and support and clarify project goals. In the next stage, the storming stage, members of the group struggle for power and experience conflict. Coaching members through the conflict is a way that DNPs keep the group moving toward the goals. Members experience role clarity in the norming stage, and the DNP project manager reinforces roles during this part of the group process. In the performing stage, group members focus on performing tasks associated with the goals, and the DNP project manager monitors group member performance. At the end of the group process, group members are satisfied with completing their tasks and meeting the goal. In this stage, the adjourning stage, the DNP project manager recognizes accomplishments and acknowledges member contributions.

There are problems for DNP project managers to solve as they work with the group on a project. Group work takes more time, and not all the decisions and tasks benefit from group discussion. The DNP project manager monitors group interactions and tasks and, when appropriate, asks group members to do work on their own or in subgroups and reportstheir findings to the full project team to expedite project completion.

Among the threats to the group process, groupthink is particularly formidable because it is difficult to identify, much less address. Groupthink is a phenomenon in which members of a group strive to agree with each other even though, in their private analysis of the problem, they do not agree (Janis, 1972). The team members experiencing groupthink appear to agree when in actuality, they do not. Groupthink limits the adequacy of the decision made by the group and puts the project in jeopardy. The most common contributing factors that lead to groupthink are a strong sense of group cohesiveness in the presence of high stress or recent failures, which make group members afraid to make incorrect decisions. Groupthink can be detrimental to completing a project because members fail to solve problems or select the best alternatives. To avoid groupthink, the DNP project manager can appoint someone to criticize and test group recommendations, called a *devil's advocate* (Holley, 2019). Suppose the DNP project manager is concerned that a leader's power-based presence is the source of the group's unwillingness to make decisions. In that case, the DNP can discuss the situation with the leader and suggest that the leader not attend critical decision-making meetings. The DNP project manager can also use nominal group techniques and ask members to anonymously document their opinions (Mullen et al., 2021). The ideas are then listed on the whiteboard for the group's discussion, free of influence due to judgments about the comments' source. When working with groups, the DNP project manager must facilitate positive team dynamics and intervene when there is potential risk to keep the group performing at an optimal level. Good team dynamics solves problems and produces deliverables.

When working with teams, understanding organizational culture and subculture helps the DNP project manager anticipate potential conflict and minimize its impact on the project. Schein (2017) described *culture* as patterns of shared assumptions that inform actions and beliefs of members of a group. Culture may arise from organizational values, beliefs, and assumptions or across the organization, as in occupational communities. Occupational communities have shared assumptions that come from outside the organization, based on common educational backgrounds, professional requirements, and interactions with colleagues from the same field. Nurses and physicians fall

into the occupational community called the *operator culture*, a culture composed of people who perform work, such as clinical work. The *executive culture* constitutes people who focus on efficiency and productivity, which has different values from operator culture. Schein's (2017) research suggests that when management and operator goals are aligned around a shared goal, projects, and innovations progress in support of organizational goals. When environmental conditions change, such as in a budget crisis or staffing shortage, these occupational communities experience conflict and impaired coordination that inhibits the progression on project goals. The DNP project manager monitors conflict within the group and determines when intervention is needed to realign members around a shared goal. If needed, realignment can be accomplished by reinforcing the team member's shared goals, communicating how these goals relate to the project, and emphasizing how they will benefit from the team's collaboration and coordination.

Appreciative inquiry is another method that can be used to realign member goals to the project goals (Harris et al., 2018). This inquiry process consists of four phases: discovery, dreaming, designing, and delivering the project. Because appreciative inquiry begins with a focus on the project's mutual goals and potential benefits, it confirms team member collaboration and alignment on the goal. This differs from routine business planning, which focuses on specific activities and tasks, but does not emphasize shared goals. DNP project managers use appreciative inquiry to align staff to core values and motivate team members to stretch to higher performance levels. Appreciative inquiry is an inspirational approach that is a good choice to use in healthcare settings. DNP project managers understand that staff members are professionals who share common goals for quality service delivery and patient safety who are well prepared to manage interprofessional teams to complete projects to improve patient care and organizational outcomes (AACN, 2021).

Projects bring together a collection of people from divergent skills, organizations, and, perhaps, countries. The DNP project manager uses leadership, collaboration, and negotiating skills to bridge the differences among and between divergent groups. The sociocultural dimension of project management, discussed in the first part of this chapter, reflects the dynamic nature of collaborating on projects. When working with divergent groups, the DNP project manager may use negotiating skills that promote the win–win approach. Successful negotiating rules encompass the technique of *principled negotiation*, the Harvard Mediation Project's product created by three of its founders (Fisher et al. 2011). Their guiding premise is to focus on shared interests and separate the people from the problem. The DNP project manager is prepared to invent mutual-gain options and use the best alternative to negotiated agreement (BATNA) technique when dealing with individuals hesitant to compromise.

The Change Process

Understanding the dynamics of the change process and how to intervene to facilitate acceptance of the project is essential for the DNP project manager (AACN, 2021). Lewin (1948) explained that the change process comprises three distinct phases: unfreezing, change, and refreezing. The first phase, unfreezing, is an essential precipitating factor for a change in established practice or status quo. Unfreezing an established practice requires a significant amount of disconfirming information delivered in an informed manner, particularly when working with healthcare professionals trained in evidence-based practice. In the project's planning phase, the DNP project manager must thoroughly evaluate evidence, both positive and negative. The application of knowledge from diverse sources and multiple disciplines is essential to DNP practice (AACN, 2021).

The DNP project manager discusses the evidence in a forthright, informed, and deliberate manner to establish trust, authority, and credibility with other team members.

An important element of the change process is to create a sense of **psychological safety** (Schein, 2017). Psychological safety occurs when individuals believe that change can be made without harming their values or integrity. Individuals are more likely to participate in change if they feel that they will not experience failure. An individual's sense of psychological safety is increased when discussing their concerns with empathetic and supportive peers who serve as role models. DNP project managers understand how to guide, mentor, and support others through the change process (AACN, 2021). When others feel safe enough to accept the need for change, they begin to incorporate the new attitudes or behaviors that align with their understanding of project expectations. Refreezing occurs when individuals involved in the change process have thoroughly incorporated new attitudes or behaviors into practice.

DNP project managers may elect to use force field analysis and SWOT (strengths, weaknesses, opportunities, and threats) analysis (one considering strengths, weaknesses, opportunities, and threats) to evaluate the conflicting factors involved in the change process (Harris et al., 2018). This type of analysis identifies the driving forces that direct behavior away from the project's goals and restraining forces that prevent movement toward the project's goals. **Force field analysis** is a tool used for weighing pros and cons, whereas SWOT analysis focuses on the internal strengths and weaknesses and the external opportunities and threats. Both methods provide the DNP project manager with insight into ways to reduce the opposing forces' impact and strengthen supporting forces. In general, change is more acceptable when driving forces outweigh the negative impact of restraining forces. Clarifying the project's forces helps the DNP project manager develop an effective project plan (AACN, 2021).

DNP project managers also keep the innovation process in mind as they interact with others to complete a project. Rogers's (2003) work on the decision innovation process describes how individuals' networks go through phases before adopting a practice change. According to Rogers, there are five stages through which individuals pass during the innovation process: knowledge, persuasion, decision, implementation, and confirmation. The DNP project manager promotes the project's adoption by spreading knowledge on the project's needs, goals, strengths, and limitations. As the DNP project manager discusses the project and its outcomes with others, the ideas are tested and evaluated. DNP project managers are in a good position to persuade others to accept the project and commit to the deliverables and time frames because they are skilled communicators (AACN, 2021). These skills of persuasion help others on the project team accept the project plan and agree to complete their assigned deliverables at the specified time. The stage in the change process called *implementation* occurs when the members of the team complete their deliverables on time. The last stage, the confirmation stage, is an important factor in sustaining the change. This stage in the change process begins when the DNP project manager confirms that team members completed all the project deliverables, usually during a team meeting, which reinforces accountability to complete projects on time. The DNP project manager's understanding of the **decision innovation process** guides the project team to recognize the importance of the project's deliverables and milestones.

When needed to make progress on the project, the DNP project manager acts as a change agent to drive behavior, attitudes, and, ultimately, practices. Change agents influence others' decisions to accept change in the direction deemed desirable by the change agent (Rogers, 2003). Change agents typically perform eight functions: (a) developing the need for change in others, (b) establishing a relationship to exchange information, (c) assessing problems with the exchange of information, (d) creating the intent to change in others, (e) establishing similarity, (f) building credibility, (g) working with the

influential, and (h) evaluating the change in practice. According to Harris et al., 2018, organizations expedite the adoption of new projects by assigning skilled change agents, such as DNP project managers, to lead the change process on new initiatives.

Rogers (2003) formulated a model to show how change agents use effective communication skills during the change process. Change agents communicate by establishing meaningful dialogue with people who can influence select social networks within the organizations. Because they mediate others' understanding of the change throughout the project, change agents play an important role in the diffusion of a change throughout an organization. Research on change agents shows they use communication, debate, and negotiated understanding as major tools in promoting the adoption of a new project or practice (Forrestal, 2016). Conversely, individuals who do not engage in negotiating understanding through communication and debate will not promote innovation. Communication is an essential element of the change process, and DNP project managers use their communication and collaborative skills to advocate for projects that improve healthcare practice (AACN, 2021).

THE CONCLUDING PHASE

After all, deliverables have been produced, and milestones met, the project has been completed, but not finished. In the concluding phase, the DNP project manager brings the team together to reflect on the project, performs an evaluation, and produces documentation to inform future projects (Larson & Gray, 2020). To begin the process, the DNP project manager determines whether the project delivered met the project's goal expectations. A review of the aim statement and feedback in interviews or surveys can help the project manager with this. Next, the project manager considers the efficacy of the management of the project. For this part of the process, the DNP project manager reviews deliverables and time frames to provide more information on how smoothly the management process went. Last, attention is given to how the project met expectations. Interviews or surveys can help the DNP project manager obtain feedback from stakeholders and customers. This part of the project aims to reflect on the process and determine what worked well and what could have been done better.

The DNP project manager develops an executive summary listing the project's history, activities, and learning opportunities (Larson & Gray, 2020). Effective executive summaries are succinct, clear, and forthright in discussing the project's strengths and weaknesses. The executive summary includes the project goals, how the goals were met, and quality and satisfaction with deliverables. A summary of the procedures and systems used, recommendations, and lessons learned is also included. Appendices are attached to the executive summary for those who want to review supportive information more thoroughly. The executive summary documentation provides a historical record of the project for use by others who lead future projects. Future project leaders will likely value the section that addresses lessons learned and use them to inform their projects.

Agile Project Management

Chris Argyris's (1993) conceptualization of **double-loop learning,** in which organizations shift paradigms by questioning the norm associated with linear thinking, provides the basis for many of the techniques organizations use, including project management. In contrast to the traditional model, agile project management does not progress in a linear direction (Larson & Gray, 2020). There are times when there is a need for a design with incremental phases in which the end product evolves through multiple iterations. Agile project management is ideal for phased testing of new ideas at the microsystem level. Traditional project management is premised on developing a

perfect prototype during the analysis and design phase. The project has a finite scope, with little or no change after the design phase, and minimizes stakeholder feedback during the project life cycle. Traditional project management relies on fixed deliverables and milestones during the project, with evaluations performed postimplementation. In the traditional method, the project is designed once and completed. In contrast, agile project management consists of multiple iterations that are designed and implemented as new information about the project evolves. **Agile project management** is based on flexibility, response to stakeholders' feedback, and concurrent development during the project's iteration phases. The DNP project manager using the agile project management technique can expect a short design phase with a broad scope and to work with teams of rotating stakeholders who are often the end-users.

The design phase of a traditional project often lasts several months, as opposed to taking weeks in agile project management for each iterative cycle's analysis and design, testing, and evaluation. The iterative cycles are analogous to the "small tests of change" promulgated by IHI as a process to stimulate innovation (IHI, 2021b). In 1986, Hirotaka Takeuchi and Ikujiro Nonaka coined the term **scrum** when describing commercial product development, using a rugby team's analogy of holding onto the ball while constantly changing its placement among team members (Larson & Gray, 2020). To demonstrate the scrum concept, consider a hospital setting with a cross-functional team representing each hospital department. They meet to brainstorm the development of a portable cart that can quickly be converted into an isolation bed anywhere in the hospital. The cart would be the first of its kind. An inexpensive prototype is developed based on team members' input and placed on a randomly chosen unit for 2 weeks. Each week the team convenes to evaluate the cart, encouraging input from the end-user. Every week a new iteration of the product is developed and moved to a new department for its use. Several iterations are created until every department has given feedback on its design. The finished agile project is generally completed for less cost than traditional projects and is more likely to be successful in meeting the project specifications.

SUSTAINABILITY

Project implementation can take a significantly long time, perhaps months to a year before roles are defined; staff, including administrative staff, are trained; technology is put in place, or other resources are acquired. It is natural for the team to experience implementation fatigue and lose interest in supporting the project. Once a project is implemented, members of the organization consider the project completed and believe there is no need for continued support. However, projects require ongoing care and maintenance even after they are implemented, so any sense of complacency is a threat to the project's ongoing sustainability. To control this threat, the DNP project manager includes a sustainability plan in the initial project plan.

A useful framework for understanding sustainability was developed by Lennox et al. (2020). They describe sustainability as a project's ongoing viability once the development is done. It is essentially the process of locking the project into routine operations. In their model, three aspects of the project are considered for sustainability: project design, factors within the organization, and factors outside the organization.

PROJECT DESIGN

In the project design phase, DNPs promote project sustainability by involving stakeholders to secure their commitment to the project's value and success, ultimately laying the foundation for lasting support for the project. Ensuring that project designs allow

for modification makes those projects more likely to have lasting viability than those that cannot be adjusted for changing needs and conditions. Another design feature that supports sustainability is developing a monitoring plan to demonstrate the project's continued value. The DNP's attention to these design elements during the early phases of the project will positively affect the project's long-term viability.

FACTORS WITHIN THE ORGANIZATIONAL SETTING

DNPs also assess factors within the organizational setting to determine the potential sustainability of the project. One important task DNPs perform is to identify program champions early in the development phase because they can make adjustments to ensure the project is effective and foster continuation. Also, DNPs verify that the project is aligned with the organization's goals and changes operating procedures to ensure that projects have ongoing relevance. It is also critical that the DNP understand the organization's underlying capacity and its willingness and ability to standardize operations because these factors will support a project's sustainability.

FACTORS OUTSIDE THE ORGANIZATION

External factors are outside the organization's control, but it is worthwhile for DNPs to analyze external factors likely to affect the project's viability. These external factors include the favorability of external economic factors, the effect of market forces, the constraints of legislation, and reimbursement availability that might influence the project.

The DNP has a strong commitment to the project's sustainability, and this is a consideration from the beginning of the project. The DNP needs to select projects that are (a) strongly related to the organization's mission and culture and (b) supported by upper management. The task workload should be reasonable and fit within staff members' responsibilities. Thoughtful modifications may be necessary to make the project more effective, and the modifications should not impair the project's core components. It is essential to (a) identify and support a program champion and (b) to take a leadership role in both initial program development and planning for sustainability. When designing and implementing the project, it is critical to emphasize the project's benefits for involved stakeholders. The goal is for the DNP to "routinize" the project and make it part of its core operations.

SPREAD

The IHI defines *spread* as the dissemination of a successful project, practice, or knowledge to a different care setting (IHI, 2021b). DNPs seek opportunities to implement best practices and distribute knowledge within their organizations, including the knowledge gained from project implementation. The following information on spread is useful in guiding the DNP on how to disseminate projects throughout the organization.

Developing a plan for spread starts at the beginning of the initial project and continues throughout the project (Massoud et al., 2006). Many of the design features previously discussed in this chapter have already set the groundwork for the spread plan. This section of the chapter highlights those elements to show how developing a plan for spread can help the DNP's project reach additional units or departments. When the organization has made great strides in testing and implementing the project, it is time to consider replicating the gains from the initial work and initiating a spread plan.

The IHI describes a three-part plan for spread that includes the following steps: laying the foundation for spread, developing an initial plan for spread, and refining the plan. The following section of the chapter explains how the DNP develops the plan and begins a course of action for distributing the project across the organization.

LAYING THE FOUNDATION FOR SPREAD

The spread plan will be most successful with the support of leadership in the form of an **executive sponsor** accountable to the CEO and board of directors. As in the original project's design, it is important to involve the stakeholders affected by the implementation. The appointment of a spread leader within the project team can be useful to manage the spread process. The spread leader must have project management expertise and the skills required to effectively communicate, motivate, and coordinate resources to support the spread effort. This individual is responsible for ensuring a clear message about the importance of moving the project from a single department to other units within the facility.

Sharing the results of the successful project is important in the initial spread plan. Discussing the results will attract attention to the value of the interventions and their positive impact on patient care outcomes. Sharing a successful project's experience also helps make a case for wider implementation, particularly when it is a first-hand example from the organization. This information sharing is an opportunity to take advantage of the project team's experience and expertise and learn from their successes and challenges. It is beneficial for experts who are considered trustworthy and credible by their peers to provide examples to help new teams implement the interventions.

DEVELOPING THE INITIAL PLAN FOR SPREAD

In developing the plan for spread, the team works with senior leadership to put together the spread plan and monitor the goal's progress. The first step in developing the spread plan is formulating an aim statement. The aim statement may modify the original project's aim and address the intent, target level of performance, target population, and time required for the project. It serves as the guiding document to direct the deliberate actions of the spread team.

Spread occurs more rapidly when the pilot project has a direct link to the other units. The plan should account for opportunities to use unit or department reporting relationships, medical staff committees, and other structures to engage clinicians and staff in the spread process. It is essential that the plan account for differences in the new unit that might impact how the intervention is implemented.

Some attention should be given to how the project design should be adjusted for the new setting such as changing the information system, use of data-collection methods, or templates to facilitate spread from one unit to another. It is essential to make the process as acceptable as possible to facilitate adoption. The goal is to have the project perceived as part of routine service improvement rather than a special project. Maintaining a focus on the value that the project has already added to operations will help increase acceptance as the project is expanded across the system.

The communication plan is an essential part of the spread plan. The communication channels used in the initial project are a starting point to increase awareness about the project. Hospital-wide meetings, newsletters, media coverage, and special events can build interest and motivation. The use of stories and results from prior successes will educate staff and promote collaboration. In any communication plan, it is important to identify the target audience and the messages that will be most effective for the audience. This focus on messages that are authentic and credible will increase support and appreciation for what was learned during the initial project.

Feedback is a critical element of the communication plan because it establishes accountability for results and provides encouragement and support from leaders. This communication can be done in regular meetings with staff and leaders by reviewing staff meeting results and linking leadership and management performance review results. The executive sponsor plays an important role in the communication plan by conveying the importance of the interventions and listening for issues, stories, and success from those involved in the implementation.

During the plan's development, establishing a measurement system to track the adoption of the project over time is critical to success. For this to be beneficial, it is important to identify how to measure the rate of adoption. It helps to provide regular feedback on progress toward target goals. These updates focus on the work on the progress and can be a source of information about emerging issues that need to be addressed by either the leadership or the frontline teams to accelerate spread.

REFINING THE PLAN

Adjustments in the spread plan may be necessary to accelerate the adoption of the project. By monitoring reports, the spread team can identify the need for adjustments. Additional data can be obtained from the frontline units and departments through formal reports, regular surveys, informal conversations, or other methods.

Many of the evidence-based projects developed in healthcare settings are implemented in just one location (Berwick, 2003). Although a project may be successful, it is uncommon for a project to be disseminated to relevant units, often because staff members have limited knowledge and skill in the dissemination of innovation and its spread. The DNP who is knowledgeable about project management and spread is in an ideal position to provide high value to the organization by implementing projects to improve patient care outcomes and replicating these projects throughout the organization.

CONCLUSIONS

As DNP project managers lead projects through the progressive phases of analysis and design, planning, implementation, and conclusion, they evaluate problems for cause-and-effect relationships, explore interrelationships across systems, and advance the projects in collaboration with others. In the analysis and design phase, the DNP project manager ensures that the project is aligned with the organization's strategic plan, defines project specifications, and assembles the project team according to the assigned responsibilities. During the planning phase, project tools are implemented, such as the Gantt chart, WBS, and stakeholder analysis, to define the project schedule, budget, and associated staff. This phase also requires the DNP project manager to identify and mitigate risks as feasible. In the **implementation phase**, the DNP project manager performs ongoing risk identification using the FMEA or PERT tools; monitors; and adjusts resources, staff, and costs as necessary. Training, final testing, exchange of documentation, and sign-off are completed during the concluding phase. The testament of the DNP project manager's commitment and expertise is the executive summary, which documents an evaluation of the goals, performance, and lessons learned from the project. This document adds to the organization's body of knowledge and sets the stage for future projects.

Project management is no longer delegated to one or two departments in an organization; rather, it is now integrated into every important aspect of organizational operations. The need for innovation, continuous learning, rapid response to change, and operations complexities requires a skilled project manager's expertise and discipline.

Complex adaptive systems often require agile project management managed through feedback and multiple design iterations toward the desired outcome. The DNP project manager is prepared with the "essential" core competencies as defined by the AACN (2021): a practitioner, skilled in leadership, financial and organizational analyses, collaboration, communication, critical and creative thinking, team building, evidence-based research, negotiating, and informatics skills. To meet the challenge of advocating for best clinical practice, the DNP uses high level project management skills, such as the development of product specifications, network maps, deliverables, milestones, budgets, and schedules. Ultimately, through the expert application of organizational and project management skills, the DNP effectively manages projects in collaboration with others at the microsystem, mesosystem, and macrosystem levels.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Scenario-Based Discussion of AIM Statement

The scenario: You are a DNP clinical coordinator in an urban teaching hospital that includes medical school students and a physician residency program. After an unexpected interruption, a medical resident inadvertently injected air into a patient's central line, which resulted in the patient experiencing an air embolism. The patient was subsequently treated in the ICU and has made a full recovery. After much discussion among nursing staff, medical residents, and supervising physicians, the resident and supervising physician disclosed the error and apologized to the patient.

You are troubled by the delay in the disclosure and the lack of coordination among the nurses, supervising physician, and residents. You discuss your concern with the chief nursing officer (CNO) and ask to lead a project to develop a hospital-wide disclosure policy that includes the medical staff and teaching facilities and places more emphasis on appropriate elements of an apology The CNO supports your plan and announces her support during a nursing leadership meeting. You review hospital policies and find that the hospital has a nursing policy for disclosing medical errors. Still, the policy does not address medical students, residents, or supervising or attending physicians. You conduct interviews with key hospital staff and medical staff to reveal that there has been no collaborative discussion regarding medical error disclosure between the hospital and medical staff, much less with the affiliated teaching facilities.

Working with the CNO, you have selected a project team that includes administration, staff nurses, medical staff members; faculty and students from the medical school; members of the medical ethics, quality-improvement, and risk management committees, as well as a former patient. Initially, you begin by drafting an aim statement to present to team members at the first meeting. Patterned on the SMART goals method, the aim statement reflects specific, measurable, attainable, realistic, and time-bound goals, but you also review IHI recommendations for aim statements for guidance. The IHI information regarding aim statements can be gotten from the following website:

www.ihi.org/knowledge/Pages/HowtoImprove/ScienceofImprovement TipsforSettin-gAims.aspx

Exercise: Develop an aim statement that reflects both SMART goals and IHI recommendations that you plan to present to the project team. What are some of the most important considerations in writing the aim statement? What type of comments do you anticipate from the various team members? How will you respond to their comments?

2. Scenario-Based Discussion of SWOT Analysis
Members of the team agree on the aim statement that you, as the DNP project manager, developed in Exercise 1, and they are ready to start developing the hospital-wide policy. Before starting the policy, you ask team members to participate in a SWOT analysis to explore potential risks and drivers for the project.

SWOT analysis is used in the planning stage of project management to identify the internal strengths and weaknesses and the external opportunities and threats related to a project. In a SWOT analysis, the first step is to clarify the project's goal and verify that all team members understand the goal. The next step is to systematically evaluate favorable and unfavorable factors related to the goal of the project. Using SWOT analysis provides the project team with an organized framework for analyzing factors that will most likely contribute or detract from the project.

Project managers often do a SWOT analysis with project teams by documenting it on a whiteboard as group members generate their comments and ideas. For this exercise, draw a line on a blank piece of paper halfway across the page lengthwise and then draw another line halfway crosswise, so four quadrants are marked on the page. Then place an *S* (for internal strengths) in the left upper quadrant, a *W* (for internal weaknesses) in the right upper quadrant, an *O* (for external opportunities) in the left lower quadrant, and a *T* (for external threats) in the right lower quadrant.

Consider your team members' different perspectives and generate the comments that you anticipate from team members as they complete the SWOT analysis. Make sure to document anticipated comments on the corresponding SWOT analysis quadrant. What comments do you expect team members to offer during the SWOT analysis? Once you have completed documenting the four quadrants of the SWOT analysis, review the document. How has the SWOT analysis changed your impression of the project and its driving and restraining forces?

3. Scenario-Based Discussion of Stakeholder Analysis
The CNO has asked to meet with you to discuss your stakeholder analysis. Prepare a stakeholder map, power/interest grid, and stakeholder analysis in advance of the meeting. Also include a one-page executive summary that describes the approach you took and rationale for selecting the stakeholders. Highlight the value that each stakeholder will add to the implementation of the project.

4. Scenario-Based Discussion of Change in Leadership
The team is halfway through the project when you receive word that the chief medical officer (CMO) plans to retire in a month. You are concerned about the project because the CMO was a strong supporter of the hospital-wide disclosure policy. According to your Gantt chart, it will be 2 months before the project is ready for presentation to the full medical staff. The CMO was a trusted member of the medical staff who had a high authority and credibility level. What steps will you take to ensure that the project continues to progress toward completion? How will you identify additional individuals who can help guide this project toward completion?

5. Scenario-Based Discussion of Concluding Process
The procedure was presented to the full medical staff and approved after a lively discussion regarding the risks and benefits of having a hospital-wide disclosure policy. You worked with several key physicians who voiced their support and presented evidence from medical journals to reduce the physicians' concerns that disclosing medical errors would increase lawsuits. A few suggestions were made to make some minor changes in wording. The wording changes have been completed, and you are ready to bring the project to a close. What are your next steps? How will you ensure that an effective evaluation is performed? Describe the important elements of the project conclusion process and explain why these elements are important.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 14

Healthcare Grant Writing in Acute, Ambulatory, Academic, and Community Settings

Mary Lynne Knighten

To give away money is an easy matter and in any man's power. But to decide to whom to give it and how large and when, and for what purpose and how, is neither in every man's power nor an easy matter.

—Maya Angelou

As healthcare evolves in the United States, nurses play a unique and valuable role in meeting growing demand for cost-effective, high- quality healthcare. The aging nursing workforce, the changing face of the Affordable Care Act and other health policies, nursing and physician shortages, population health, social determinants of health, and racial and economic disparities all contribute to the forecasted need for more healthcare professionals—professionals who will need to have financial and economic skills. These professionals need to be informed, skilled, and savvy in accomplishing more with less. The face of advanced nursing practice has experienced sweeping changes related, in large part, to several landmark reports and position statements produced in the last 2 decades. In *Health Professions Education: A Bridge to Quality* (Institute of Medicine [IOM], 2003)—a follow-up report to the IOM Committee report, *Crossing the Quality Chasm*, published in 2001—the IOM Committee on the Health Professions Education states, "All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice (EBP), quality improvement (QI) approaches, and informatics" (IOM, 2003, p. 3).

According to the sentinel American Association of Colleges of Nursing (AACN) *Position Statement on the Practice Doctorate in Nursing*, the need is great for doctoral-prepared administrative and advanced practice leaders with stronger preparation in systems-based practice improvement and translational research (AACN, 2004). This vision is consistent with the IOM's *Future of Nursing: Leading Change, Advancing Health* report released in October 2010, with recommendations to "re-conceptualize the role of nurses in the context of the nursing workforce, . . .examine innovative solutions related to care delivery and health professional education by focusing on nursing and the delivery of nursing services," and—as we all know—to double the number of nurses with a doctorate by 2020 (IOM, 2010, p. xiii).

In 2007, the American Organization for Nursing Leadership (AONL) published a position paper that supports the DNP as a terminal degree option for practice-focused nursing, while not eliminating nursing master's degree programs in both specialty and generalist courses of study (American Organization of Nurse Executives [AONE], 2007). Likewise, the American Association of Nurse Anesthetists (AANA) supports doctoral education as the entry level for nurse anesthesia practice by 2025 (AANA, 2017), and the National Association of Clinical Nurse Specialists (NACNS) endorses the DNP degree for entry level of practice for clinical nurse specialists by 2030 (NACNS, 2015).

According to Cronenwett and colleagues, studies evaluating impact and effectiveness demonstrate that APRNs make important contributions to access, quality, and cost of health services. The DNP was developed with the intent to prepare nurses with the core competencies required to improve healthcare systems through administrative leadership and advanced practice roles (Cronenwett et al., 2011, p. 10). It is imperative that DNPs, whether they practice in hospitals, communities, or academic institutions, or work as staff nurses, educators, APRNs, chief nursing executives, or board members and chairs, are prepared educationally, intellectually, economically, and clinically to affect the types of broad system changes needed for nursing practice and healthcare to survive and thrive in an ongoing era of radical healthcare reform.

EXHIBIT 14.1

Essentials (2021) Advanced-Level Domains, Competencies, and Sub-competencies That Support Grant Writing

Domain 3: Population Health

Competency 3.3: Consider the socioeconomic impact of the delivery of health care.

3.3c Analyze cost-benefits of key population-based interventions.
3.3d Collaborate with partners to secure and leverage resources necessary for effective, sustainable interventions.
3.3e Advocate for interventions that maximize cost-effective, accessible, and equitable resources for populations.
3.3f Incorporate ethical principles to guide resource allocation and achieve equitable health.

The advanced-level sub-competencies build on these entry-level sub-competencies:

3.3a Describe access and equity implications of proposed intervention(s).
3.3b Prioritize patient-focused and/or community action plans that are safe, effective, and efficient within the context of available resources.

Domain 5: Quality and Safety

Competency 5.1: Apply quality improvement principles in care delivery.

5.1m Lead the development of a business plan for quality improvement initiatives.
5.1n Advocate for change related to financial policies that impact the relationship between economics and quality care delivery.

Domain 8: Informatics and Health Care Technology

Competency 8.1 Describe the various information and communication technology tools used in the care of patients, communities, and populations.

8.1j Explore the fiscal impact of information and communication technologies on health care.

Note: Excerpted from American Association of Colleges of Nursing. (2021). The Essentials: Core competencies for professional nursing education (pp. 34–50) [Educational Standards]. Author.

Cronenwett et al.'s work further proposes that nursing is a public good, and at this particular time, the public good is defined with respect to health in the context of healthcare reform (2011). For this reason, nurses with a DNP degree possess the specific skills needed to address the issues and achieve the goals related to better access, reduced health disparities, balanced quality and cost, improved health literacy, enhanced practice, and sustainability of healthcare and healthcare systems.

Finally, *The Essentials: Core Competencies for Professional Nursing Education* (AACN, 2021) (which revised and elevated the previously approved *Essentials of Baccalaureate Education for Professional Nursing Practice (2008), Essentials of Master's Education for Advanced Practice Nursing (2011), and Essentials of Doctoral Education for Advanced Nursing Practice (2006)* focus on entry-level and advanced-level competency-based education and four spheres of care.

The focus of DNP abilities and proficiencies for the purposes of this chapter is on population health, quality and safety, informatics, and healthcare technology, Essentials Domains 3, 5 and 8 (Exhibit 14.1), and will be concentrated specifically on grant writing for health care programs in acute, ambulatory, academic, and community settings.

GRANT WRITING FOR HEALTHCARE PROGRAMS

Nurses in general choose the nursing profession based on numerous personal variables: They had a nursing role model who influenced their choice, they wanted to help people, they wanted to influence health, or they had a first career that was not fulfilling or ended and nursing looked like a stable and/or financially rewarding second career. Nurses do not generally enter the profession so they can focus on finance, numbers, budgets, economics, funding sources, or healthcare dollars.

So why on earth do DNP students and subsequently, DNP graduates, need grant-writing knowledge and skills, and how do they go about building this bench strength? This question is fundamental to understanding the full scope and role of the DNP regardless of the practice setting, and goes back to the competencies needed to effect systemic change. As healthcare moves toward more evidence-based practice (EBP), nurses and healthcare practitioners are faced with the challenge of validating current practices and implementing EBP without the organizational, personnel, or financial resources to do so (Hess & Steffes, 2011).

Grant-writing skills, generally uncommon in nurses, can be thoughtfully and intentionally developed and polished by anyone with the desire to make change, improve processes, or achieve outcomes in healthcare. Grants can be regarded as a written road map or plan with which to achieve financial support for clinical dreams (Lindquist & Hadidi, 2013). DNPs should develop grant-writing skills for several reasons:

- Resources for grant writing may not be immediately available to them.
- Professional grant writers, while experts at format and fund mining, usually need content experts to identify appropriate practice tactics, develop the clinical portions of a grant, and define meaningful metrics.
- The DNP's educational process prepares them for all aspects of grant writing; *The Essentials* provide the scientific foundation, analytic methods, and competencies for EBP; organizational leadership skills for quality improvement and systems thinking; epidemiological principles of population health; knowledge of healthcare policy and advocacy; interprofessional collaboration; economics; informational technology systems; and risk assessment/mitigation skills (AACN, 2021).

- Critical thinking skills possessed by DNPs can ensure that the scholarly rigor, scientific quality, practice relevance, and value for return on investment (ROI) are infused onto the grant proposal.

Personal experience can ensure the DNPs' time is carved, or "bought" out in the grant to leverage additional resources and/or focus on implementing practice initiatives within the context of grant deliverables above and beyond the everyday role.

[Clinical] researchers need to articulate the progressive nature of their research agenda, demonstrate ability to build cumulatively upon the literature and their own preliminary studies, and navigate the complex field of implementation science (Proctor et al., 2012). DNP-prepared nurses need to overcome the challenges of preparing a high-quality grant proposal and demonstrate capacity to implement the proposed project. Proctor et al. (2012) propose 10 key ingredients with typical grant-review criteria for a successful implementation proposal, along with key questions. The questions can be used as a checklist to ensure completeness (Table 14.1).

Still, many nurses may be intimidated by the thought of grant writing, feel inadequate to pursue grant funding, and perceive the process as overwhelming when they are expected to write grants and obtain funding in many different settings. Compounding this, the review of literature has revealed a dearth of information published on how a nurse would first begin and complete the process of writing for a grant, with a

TABLE 14.1 Ten Ingredients for Implementation Research Proposals

Proposal ingredient	Key question
1. The care gap or quality gap	The proposal has clear evidence that a gap in quality exists?
2. The evidence-based treatment to be implemented	Is the evidence for the program, treatment, or set of services to be implemented demonstrated?
3. Conceptual model and theoretical justification	The proposal delineates a clear conceptual framework/theory/model that informs the design and variables being tested?
4. Stakeholder priorities, engagement in change	Is there a process in place for clear engagement of the stakeholders?
5. Setting's readiness to adopt new services/treatments/ programs	Is there clear information that reflects the setting's readiness, capacity, or appetite for change, specifically around adoption of the proposed evidence-based treatment?
6. Implementation strategy/process	Are the strategies to implement the intervention clearly defined, and justified conceptually?
7. Team experience with the setting, treatment, implementation process	Does the proposal detail the team's experience with the study setting, the treatment whose implementation is being studied, and implementation processes?
8. Feasibility of proposed research design and methods	Does the Methods section contain as much detail as possible, as well as lay out possible choice junctures and contingencies, should methods not work as planned?
9. Measurement and analysis section	Does the proposal clarify the key constructs to be measured, corresponding to the overarching conceptual model or theory?
10. Policy/funding environment; leverage or support for sustaining change	Does the proposal address how the implementation initiative aligns with policy trends?

Source: Adapted from Proctor, E. K., Powell, B. J., Baumann, A. A., Hamilton, A. M., & Santens, R. L. (2012). Writing implementation research grant proposals: Ten key ingredients. Implementation Science, 7, 96. https://doi.org/10.1186/1748-5908-7-96

significant gap and few resources for nurses who are novice grant writers (Hess & Steffes, 2011, pp. 12, 13), although there may be appropriate resources available from other disciplines. *The Nurse's Grant Writing Advantage: How Grant Writing Can Advance Your Nursing Career* by Rebecca Bowers-Lanier explains the process and gives practical advice on how to be successful. The book has 10 chapters explaining how to view grants from the eyes of a philanthropist, write the proposal, create a budget, go for the "ask," and excel at a site visit (Bowers-Lanier, 2012). Another book, *Grant Writing Handbook for Nurses and Health Professionals* (3rd ed.), by Holtzclaw, Kenner, and Walden (2018), is a reader-friendly primer that follows a logical path and recognizes that grant writing is an essential skill for today's nurse. Of particular importance are the topics that address ethical dilemmas related to grants, life after grants, newer grant mechanisms, electronic submissions, and web resources. Finally, Proposal Writing: Effective Grantsmanship (5th ed.) written by Coley and Scheinberg in 2017 is recommended by academic grant writers for its ease of reading and helpful tips on what to include in the Methods section.

A national research study was conducted that surveyed health education faculty about their grant-writing activities. Two barriers were identified among faculty for grant writing: heavy teaching loads and administrative or committee assignments. The study concluded that most faculty do not feel prepared to write grants; however, many faculty were of the opinion that grant writing should be a formal part of graduate student learning (Kleinfelder et al., 2003). In the increasingly competitive funding environment, it is apparent that doctoral students should have basic grant-writing skills upon graduation from their program to enhance the likelihood of future success (Kulage et al., 2020). As cited in Kulage et al. (2020, p. 29) "in a survey exploring barriers and facilitators for PhD nursing students to pursue nurse faculty careers, less than half of participants who planned to seek academic careers after graduation, including those at research-intensive institutions, felt confident about their ability to write a grant proposal" (Fang et al., 2016). Although the focus of Kulage and colleagues (2020) was on developing an academic zero-unit 3-day grant-writing workshop for PhD students, it is also advisable for DNP programs to include exercises to develop grant-writing skills, and some programs may require submission of a grant to a funding agency as part of the qualifications to progress to doctoral candidacy. The focus for DNPs is not on writing grants for original research, but instead on translational research or implementation projects.

DNPs are in a unique position to use principles of economics and finance to redesign effective and realistic care delivery strategies in order to conceptualize and implement new care delivery models based on contemporary nursing science. The development and monitoring of budgets and finances are key subsets of financial skills. Generally, contemporary operating budgets in the acute hospital, ambulatory, academic, or community settings are based on historic operating expenses and revenues, or increasingly are **zero based**. This leaves the DNP with little to no margin for changes related to redesigning care delivery models, implementing quality initiatives, initiating performance improvement strategies, or creating new service lines—except, of course, to become leaner. With keen eyes on financial stewardship, productivity, and budget variances, it is likely unbudgeted initiatives would be difficult to implement, regardless of their merit, unless funding is found. Obtaining funding through philanthropic and grant sources in a tight financial and economic situation could be the answer to the difference between system improvement and organizational inertia.

An important motivation for grant writing is to meet the needs of patients and families and continuously improve the processes of care through systematic inquiry (Lindquist & Hadidi, 2013). In addition, grant-funding resources may support translating research evidence or implementing and testing a promising practice change. Formative and summative evaluation should demonstrate improvement in the processes of implementation and outcome of the work.

According to an interview with Darlene Curley, MS, RN, "People who are philanthropists, who want to support their community and do good work, are interested in nursing. The nursing profession needs to tell the important story of their impact on patient care and improving health in our country" (Curley, 2011, p. 335). Who better than DNPs to tell the story of the nursing profession, precisely because of their knowledge, expertise, and role in redesigning healthcare delivery, improving population health outcomes, and shaping public policy.

FINDING FUNDING SOURCES FOR HEALTHCARE GRANTS

To get started, The Grantsmanship Center recommends thinking about the problems or issues your organization is addressing and brainstorming key words and phrases to use in the research for grant funding (Hasselbring & Wiberg, 2016). For example, if you are looking to fund a new diabetes program, you might use *diabetes, diabetes treatment, diabetes prevention, prevention of complications from diabetes*, or *diabetes self-management* as key search words or phrases.

One of the most critical tactics in seeking grants is to know as much as possible about the grantor or funding agency before approaching them. Important characteristics with which to evaluate funding agencies are (Bauer, 2015, Kindle location 4221):

- alignment of mission, vision, values, and goals;
- area(s) of interest, including areas in which they will not fund;
- previous activities funded;
- geographical funding preferences;
- process for and people involved in the funding decision process;
- requirements for metrics and reporting.

As you explore information on grantmakers, ask yourself these additional questions:

- What is the typical grant award amount for an organization such as yours?
- Does the granting agency accept unsolicited applications? (If the answer is no, do you have a relationship you can leverage?)

Does the foundation have staff? If so, this creates a level of approachability (Hasselbring & Wiberg, 2016).

If the characteristics of the funding agency do not match those of the project for which funding is being sought, it is advisable to keep on looking. Or, if the grant criteria force the DNP to design projects or programs that do not align with the primary mission, reflect the primary purpose of the work, or exceed the capacity of the organization, this grant would not be a good fit. It may be helpful to create a spreadsheet to list potential funding sources, as this will help focus the search, not just for the immediate project needs, but also for the future. One funding source may not fully cover an entire project; often it is helpful to break down the project and seek funding from multiple sources, especially if a large amount of funding is needed.

Numerous resources may be used to find the appropriate grant funding for DNP-led projects. Grant search engines require little to moderate effort to yield potentially large funding opportunities. Many of these searchable databases offer training and tools for grant writers. Such resources include, but are not limited to:

- the *Grantsmanship Center* (https://www.tgci.com/), which maintains a list of current grantors, accessible through a paid subscription;

- *Candid.org*—a merger between the *Foundation Center* (www.foundationcenter.org) *and GuideStar*;
- the National Institutes of Health (NIH) RePORT or Research Portfolio OnLine Reporting Tools (http://projectreporter.nih/gov/reporter.cfm) and, GrantWatch.com;
- Grant Vine, LLC (https://www.grantvine.net);
- GrantForward (www.grantforward.com).

Grant listservs require little effort beyond initial sign-up to deliver potential grant-funding opportunities to your email inbox daily. Some prominent listservs that target healthcare initiatives include Grants.gov, RWJF Funding Alerts (fundingalert@rwjf-mail.org) from the Robert Wood Johnson Foundation, and the California Health Care Foundation (info@chcf.org).

Many grant providers will offer funding for organizations but not individuals. According to the Gates Foundation website, some grant-seeking resources for individuals are:

- United Way (www.unitedway.org), which serves individuals and organizations through training, resources, and technical assistance;
- Idealist.org (www.idealist.org), an interactive site where people and organizations can exchange resources and ideas and locate opportunities and supporters; grant resources can be found using the search function;
- GuideStar (www.guidestar.org/Home.aspx), an online database of nonprofit organizations that includes their mission, programs, leaders, goals, accomplishments, and needs (Bill and Melinda Gates Foundation, 2017a), also provides access to the Form 990s of foundations and other nonprofits.

The NonProfit Times, the leading business publication for nonprofit management, provides a classic article on "Finding Grants in Online Databases" by Jaclyn P. Boice (2007). It is also a source of "breaking news" on the nonprofit front. Another unique resource may be your hospital librarian. Blobaum (2007) identified a new role for hospital librarians that emerged in Illinois. Hospital librarians attending a continuing-education course on grant writing focused on medical library programs and services expressed growing interest from their hospitals for grant writing to support research and scholarship—particularly in rural and community hospitals.

TYPES OF GRANTS

There are numerous types of grants available from private, public, personal/family, and government (federal, state, and county) funders. Grants may be programmatic, project oriented, pilots for replication, research-oriented, or educational (for training or fellowship) in nature. Rarely do grantors provide funding for overhead or "usual and customary" operating expenses. In DNP practice, grants will most likely be sought for purposes of translational research, application of EBP to improve population health, or implement strategies to effect system change. Because the premise for the DNP role is practice oriented and not research oriented, DNPs may pursue research grants, not so much as to perform original research, but to replicate studies, review secondary data, or perform outcomes research. It is helpful to understand how to find the right funding source and types of grants in order to determine if a grant is the right fit for the purpose.

Private Foundation Grants

Foundations often fund projects and proposals that other funders will not. The application process is generally easier and shorter than the process required for research or

government-funded grants, and the funding is usually more flexible. Private foundations generally were formed by wealthy benefactors who wished to reduce their tax burden and fund projects and organizations that further their interests, values, beliefs, and life works. This is an important concept for grant seekers to understand, and the mission, vision, and values of the proposal should be synched with the mission, vision, and values of the funder. Within the private foundation genre, there are four subsets of private foundations that may further focus your fund-seeking proposal. These are *national general-purpose, special-purpose, community*, or *family foundations* (Bauer, 2015, Kindle location 4042).

- **National general-purpose grants** generally are made on the basis of their broad scope and impact across the nation and even the world. These foundations may use professional consultants as reviewers; like to create change; and generally prefer creative, innovative, or model projects that others can replicate. Recently though, they have also funded operating expenses in nonprofits whose work furthers their vision. There were fewer than 300 national general foundations in the United States in 2012, including well-known foundations such as the Rockefeller and Ford Foundations (Bauer, 2015, Kindle location 4050).
- **Special-purpose foundations** are different than general-purpose foundation grants, as they define the area of concern quite specifically. The way to successfully procure this type of grant is to match your project with the foundation's specific area(s) of interest and demonstrate how your project will impact it (Bauer, 2015, Kindle location 4059).
  - The Robert Wood Johnson Foundation, for example, is a special-purpose foundation associated with healthcare funding; the Bill and Melinda Gates Foundation provides domestic and international funding through its four primary divisions—Global Health, Global Development, U.S. Division, and Global Policy and Advocacy (Bill and Melinda Gates Foundation, 2017b); and the California **endowment's** most recent focus is building healthy communities, addressing health disparities, and serving vulnerable populations in California. Although the funding results may be quite large, grant seekers should be aware that emphasis is placed on breakthrough contributions.
- **Community foundations** represent approximately 750 of the total private foundations in the United States currently. Their names usually refer to the area they serve (e.g., Glendale Community Foundation), and they desire their community members to be served in the scope of the grants funded. Community-foundation grants generally support replication projects rather than ground-breaking research or experimental approaches.
- **Family-foundation grants** reflect the values of the family members whose interests have been memorialized through creation of the foundation. This creates significant variability in funding purposes, criteria, and patterns among family foundations. Although family foundations represent the largest subset of private foundations, their asset base and subsequent funding amounts are generally quite small, and they typically fund on a local level (Bauer, 2015, Kindle location 4083).

Private community or family foundations make good choices for DNPs to submit requests for proposals (RFPs) and applications. Application of EBP may be appealing to the general nature of the funders' focus for local or regional models, replication, and outcomes-oriented projects. Bauer (2015) also identifies a grant-funding resource in healthcare foundations created from the conversion or sale of nonprofit hospitals and

health maintenance organizations to for-profit entities or that resulted from healthcare system mergers and acquisitions. Two such healthcare foundations, located in Los Angeles (LA), are focused on funding community and organizational health-related projects:

- The Unihealth Foundation (created from the sale of eight hospitals, home health services, and senior care services) has three funding strategies that align with its mission to advance the health and well-being of communities: population and community health, healthcare delivery systems, and healthcare workforce (Unihealth Foundation, n.d.).
- QueensCare (a healthcare foundation formed from the sale of a local hospital) supports several healthcare programs, including a health and faith partnership, pastoral care, hospitalization and specialty care, grants and scholarships, mobile health clinics, and QueensCare [federally qualified] Health Centers (FQHCs). It provided nearly $3 million in charitable grants in 2020 and strive to provide, directly and with others, accessible healthcare for uninsured and low-income individuals and families residing in Los Angeles County. In March 2020, QueensCare received approval by the Superior Court for its proposed revisions to the Articles of Incorporation, such that effective July 1, 2020, it was able to expand its primary service area by 15 additional zip codes, and increase the population of LA County residents who qualify for philanthropically funded assistance by adding those whose income is between 200% and 300% of the federal poverty level (QueensCare, 2020).

Professional Organization Grants

In addition to the types of private foundation grants mentioned previously, some professional or membership organizations may provide funding in the form of grants or scholarships. These are usually in the area of professional interest; for example, the Association of California Nurse Leaders (ACNL) and AONL offer scholarships annually to nurses enrolled in advanced educational programs; the American Psychiatric Nurses Association (APNA) funds both research and EBP projects; Sigma Theta Tau International (STTI) typically funds research, but some chapters also offer EBP grants; and the Daisy Foundation, Inc. [U.S.] offers small research, EBP, and health- equity grants or scholarships. The Oncology Nursing Society (ONS) not only funds grants to its members, but the ONS Foundation also provides an eLearning program, "Keys to Writing a Successful Research Grant Proposal," as well as nurse scientist mentoring (ACNL, 2021; APNA, 2021; Daisy Foundation, 2021; ONS, 2021; STTI, 2020). These are just a few organizations to which DNPs may belong and can access grant or scholarship resources.

Government Grants

Government grants may be funded as federal, state, or local (county or city) grants. In the 1970s, a movement grew to allocate federal dollars, based on federalism, or the belief that the federal government should give funds back to the state and local governments to set their own agendas (Bauer, 2015, Kindle location 1842). This concept is still relevant today, except in the arenas of research or demonstration grants, where tighter control is needed. For a variety of reasons, government grants are probably among the toughest funding sources to pursue and from which to achieve a successful awardfor a variety of reasons:

- Applications are long, complicated, and both time- and resource-intensive.
- Requirements vary from governmental agency to agency and program to program.
- There is usually a short (45- to 60-day) request turnaround time frame, but a longer (3- to 6-month) review process.

- Grantees are required to submit frequent reports, keep accurate project records, and agree to audits and site visits by government personnel (Bauer, 2015, Kindle location 1874).
- Applicants run the risk of writing proposals that require more than the person or organization can support in order to meet rigorous grant requirements.
- Funding is often very competitive, requiring grants to be dismissed with little provocation.

Government grant opportunities can be found in the *Catalog of Federal Domestic Assistance* and on Grants.gov, whereas contracts are advertised in Federal Business Opportunities (Bauer, 2015, Kindle location 1945).

An excellent resource to organize the ideas DNPs have about funding sources and pinpoint potential grantors is Bauer's grant seekers' private foundation decision matrix (see Table 14.2). The table summarizes the principal types of private foundation funding sources, as well as their major funding characteristics and preferences, similarities, and differences (Bauer, 2015, Kindle location 4028).

Astute DNPs who may have relationships with local government entities may recognize when the federal government creates a funding "pass-through" to state agencies or programs, and then the state can fund projects or programs its constituents or elected officials find valuable. Examples of monies that may pass through from the federal government to the states are Centers for Medicare and Medicaid Services (CMS) or Department of Homeland Security funds. Examples of state-appropriated funds are dollars from the tobacco company settlement created funding for the Department of Mental Health to develop mental health services. One DNP student, who is director of a simulation lab in a California community college, saw the opportunity to use some of the significant funding awarded to the school through the CARES Act. Officially titled the American Rescue Plan Act of 2021, institutions of higher education collectively received $40 million in March 2021, providing the largest funding boost to colleges and universities since the pandemic started. Last spring, colleges received $14 billion from the CARES Act, and in December 2020, they received another $22.7 billion from the Coronavirus Response and Relief Supplemental Appropriations Act (Osborne, 2021). The DNP student wrote a proposal and was granted $75,000 to design, pilot, and determine the feasibility for using immersive clinical decision Virtual Reality for psych tech students. The aims of this project are to: (1) develop a 3D immersive clinical decision scenario using VR platform; (2) assess acceptance of new technology; and (3) measure communication skills in a 3D VR environment. The following PICOT question will guide the project: For community college psych tech students (P) does clinical decision virtual reality software (I), versus current practice (C), affect technology acceptance for purposes of learning communication skills (O) during the second semester (T)? (Personal communication, Constance Kunkler, June 29, 2021). She worked closely with the Psychiatric Technician department and grant office to address key concepts, specify intent for use of funding. Resources used were Grant writing tips for simulation from CAE Healthcare's grant-writing assistant "How to guide to writing an applying for grants for the medical education community" (CAEhealthcare.com) and Laeradal's "Tips on how to successfully write a grant: Grant writing 101" (Laerdal.com).

Ultimately, government grants are awarded to the person or organization whose proposal most clearly aligns with the publicized grant guidelines. Helpful tips from insightful foundation directors are:

TABLE 14.2 Grant Seekers' Private Foundation Decision Matrix

Type of foundation	Geographical need	Type of project	Grant award size for field of interest	Image	Credentials of PI/PD	Preproposal contact	Application	Review system	Grants admin. (Rules)
National general purpose	National need—local regional population	Model Innovative	Medium to large	National image	National	Write, phone, email	Short concept paper—longer form if interested	Staff and peer review	Few audits and rules
Special purpose	Need in area of interest	Model Innovative Research	Small to large	Image not as critical as solution	Strong image in field of interest	Write, phone, email	Short concept paper—longer form if interested	Board review (some staff)	Few audits and rules
Family	Varies—but geographic concern for need	Innovative Replication Building/ Equipment Some Research	Small to medium	Regional image	Local, regional	Write, phone, email	Short letter proposal	Board review	Very few audits and rules
Nonprofits, service clubs, and others	Local	Replication Building/ Equipment Scholarship	Small	Local image and member involvement	Local	Write, phone, email, present to committee or member	Short letter proposal	Committee review and/or member vote	Few audits and rules

Source: Reprinted from Bauer, D. G. (2015). The "how to" grants manual: Successful grantseeking techniques for obtaining public and private grants (8th ed.). Rowman & Littlefield. (Kindle version).

- Know what is coming and be "proposal-ready." Network to develop relationships with key agencies, such as local Workforce Investment Boards (WIBs) and program offices in the state or nation's capital.
- Look for demonstration projects to package creative ideas that will result in a large impact; assume a project management approach to successfully write and execute government grants.
- Ask for feedback and be prepared to accept criticism from experts; "it is better to hear it from an expert now, rather than a review later" (Schilling, 2003, p. 150).
- Use an advocate or lobbyist (but be cautious when using consultants as it may be illegal or immoral to pay consultants on contingency).
- Sign up for regular notifications from grant listservs and use search engines.
- Consider using private foundations or community funding for small parts of a project, and use the results of that project to leverage a government grant application for the larger project.

Research Grants

Conducting health research that is of good quality can be extremely costly. Securing funds for research can be time-consuming, with numerous individuals and groups competing for a limited amount of funding. The competition for these funds is only likely to increase. The process of converting a good idea into a research project with potential for funding requires time and expertise. It is important that the research project provides relevance, scientific quality, value for the money awarded, (Bogg et al., 2010, p. 549), and ultimately includes scalability.

Some practical considerations to keep in mind when applying for research funds are recommended by Bogg et al. (2010). The preparatory work to be completed prior to writing and submitting a research grant application requires a significant amount of intellectual, methodological, and practical work, which may not be sequential (Flynn et al., 2010). At the same time as research ideas are beginning to evolve, the current state of knowledge and evidence is being appraised, and a methodological plan is being formed; a suitable grant-awarding body should also be identified (Bogg et al., 2010). At the point a funding agency is identified, it is imperative that the goals of the research are well matched with the purpose and mission of the grantor.

Anthony H. Mann (1998), professor of epidemiological psychiatry at De Crespigny Park's Institute of Psychiatry in London, in his classic seminal 1998 article, "Preparing a Grant Proposal: Some Points for Guidance," recommends following a blueprint for biomedical research grants. The six critical sections of a typical research grant, which are often weighted, are: (a) aims and objectives, (b) hypothesis, (c) introduction and background, (d) methodology, (e) justification of support being requested, and (f) budget.

Most research funding agencies use a structured application form, employ a method of electronic submission, and require clear concise writing by imposing word and/or page limits. A simple checklist can make a difference in the quality of the research grant proposal (Bogg et al., 2010), such as the checklist offered in Exhibit 14.2.

Some contemporary funding sources for nursing or patient care research grants, in addition to those previously mentioned, are Patient-Centered Outcomes Research Institute (PCORI) and NIH. The NIH is known for scoring promising research grant applications and returning them to the author for revision and resubmission.

Additionally, best practice guidelines for "Writing a Scientific Paper (WASP), offer practical advice in a series of articles designed to provide step-by step instructions (with

EXHIBIT 14.2

Checklist for Research Grant Application

- Is the research question clearly stated?
- Have you identified why this work is important and relevant and what it will add to our knowledge of health?
- Does it demonstrate that you have knowledge of previous research in this area?
- Are your study aims and objectives clearly stated?
- Is the method of investigation relevant to what you want to find out?
- Will your method of investigation enable you to deliver the research aims?
- Does the proposal show how you have conceptualized the whole project?
- Is the study well planned with no obvious omissions?
- Does it explain how the results will be evaluated or how you will measure project success?
- Is the proposed length of the study realistic in terms of what you plan to achieve?
- Have you identified key dates or milestones in the life of the project?
- Have you identified any ethical considerations and outlined the mechanisms in place to ensure good research governance?
- Have you clarified any patient and public involvement in the research?
- Have you provided a clear and comprehensible lay summary of your project?
- Is the knowledge and experience of your research team appropriate and relevant for delivering the project?
- Have you clarified what each team member will contribute to the project?
- Have the estimated project finances been realistically costed out?
- Are the funds requested within any financial limits set by the fund awarding body?
- Have you included your reference list?
- Have you completed the monitoring information required by government or regulatory agencies (if applicable)?
- Have you had your proposal peer reviewed?
- Have you followed any instructions and/or guidelines for application?

Source: Reprinted from Bogg, J., Flynn, M., & Prescott, J. (2010). Applying for research funds. *British Journal of Cardiac Nursing, 5*, 549–553.

images) on how to find funding sources, apply for funding, and write sections of the proposal (Cuschieri et al., 2018; Schembri-Wismayer et al., 2018). A classic faculty favorite is Inouye & Fiellin's (2005) "An Evidence-based Guide to Writing Grant Proposals for Clinical Research," which outlines the entire research proposal in one manuscript.

Private Industry Grants

Another type of funding that may be very attractive to DNPs comes from private industry. The thing to remember is that the guiding principle of corporate philanthropy is the concept of self-interest; however, the basis for corporate giving is the Internal Revenue Act of 1935. This made it legal for corporations to deduct up to 5% of pretax revenues for charitable contributions. Furthermore, in 1953, in *A.P Smith Manufacturing Co. v. Barlow et al.*, the New Jersey Supreme Court ruled that corporate contributions for purposes other than a direct benefit to the business are legal (Bauer, 2015, Kindle location 5005).

Pharmaceutical companies and other industries may support investigations that test or evaluate their products (Berger & Moore, 2011, p. 168). These companies have a long history of partnering with private or public agencies to support community-health initiatives and to further the health of the community. In one such partnership, Pfizer, Inc. partnered with the Union for International Cancer Control (UICC) and funded the

Seeding Progress and Resources for the Cancer Community (SPARC): Metastatic Breast Cancer (MBC) Challenge, which was designed to support the implementation of projects that address the specific needs of women with metastatic breast cancer globally in 2015. Pfizer accepted proposals again for 2017 to expand the program (Pfizer, 2017). In another such collaborative, Pfizer Independent Grants for Learning and Change (IGLC) partnered with the Smoking Cessation Leadership Center (SCLC) at the University of California, San Francisco, to provide $4.3 million in funding for community outreach projects to increase education to clinicians and physicians for healthcare professionals to better educate their patients about smoking cessation (Jensen et al., 2017; SCLC, 2016). Supply chain collaboratives, such as CardinalHealth, offer grant opportunities not related to their products or vendors but that create impact to improve health. The CardinalHealth E3 Grant Program has committed over $8.6 million to initiatives that improve the effectiveness, efficiency, and excellence of healthcare, with a focus on accelerating the rate of change with two goals: improved patient outcomes and reduced healthcare costs; they also identifygrant resources on their website (Cardinal-Health, 2016).

A creative twist in the private industry grant-funding genre is social media grant giving, which heavily favors communities and organizations that are digitally sophisticated, but do not necessarily create accountability for outcomes, as much as they create popularity and mass advertising goodwill. Social media is an effective marketing tool for a nonprofit organization, and some favored social media fundraising sites include Facebook, Google, Instagram, and Tik Tok. The key benefits include the following:

- Social media significantly increases an organization's reach (billions of people use social media).
- Social media spreads the word about an organization's mission.
- Social media postings are free.
- Social media attracts new donors and keeps existing donors engaged.
- Social media assists in growing a network of volunteers.
- Each social media posting can include a link to the organization's donor page.

Interactive content posted to social media allows the audience to participate and feel more engaged (Tabas, 2021).

Although not a grant resource from a purist standpoint, it would be remiss not to mention crowdfunding, otherwise known as peer-to-peer fundraising campaigns, as an "out-of-the-box" funding mechanism. According to Chance Barnett, CEO of Crowdfunder (Barnett, 2013), crowd-funding, or collaborative funding via the web, is one of the standouts for exponential growth in this evolving collaborative economy. Some investment companies, such as Thrivent™ Financial and FIDELITY Charitable™, provide grant opportunities to their investors as part of their financial portfolios. These charitable donor-advised fund grants do not come from the institutions themselves, but from investors who wish to make charitable gifts from their investment portfolios. One nurse investor applied for and received a $500 grant to help support education for nurses on end-of-life care, as part of a bigger EBP project.

Many grantors provide tutorials, webinars to discuss RFP processes, proposal writing courses, or guides for grant applications. DNPs would be wise to partake in these helpful tactics, especially as novice grant writers. One such resource from the NIH, whose helpful tactics are of excellent quality, is the NIH's *Central Resource for Grants and Funding Information* (NIH, 2020), which gives step-by-step instructions on how to successfully complete major sections of all research grants, although these are general and geared toward the NIH Research Project (R01). Nonprofit Ready

(https://www.nonprofitready.org/grant-writing-classes) offers a number of online grant- and proposal-writing courses, with some free resources that may be helpful for novice grant writers.

THE GRANT-WRITING PROCESS

The grant-writing process involves executing several steps, including locating funding sources (discussed previously), understanding project guidelines, establishing an action plan, addressing grant components, soliciting letters of support, building credibility, justifying budget requests, and "wrapping the package" (Hester, 2000, p. 22). The Writing Center at the University of North Carolina, Chapel Hill, has one of the best grant process schematics, depicted in Figure 14.1, which demonstrates the circular sequence of the grant-writing process.

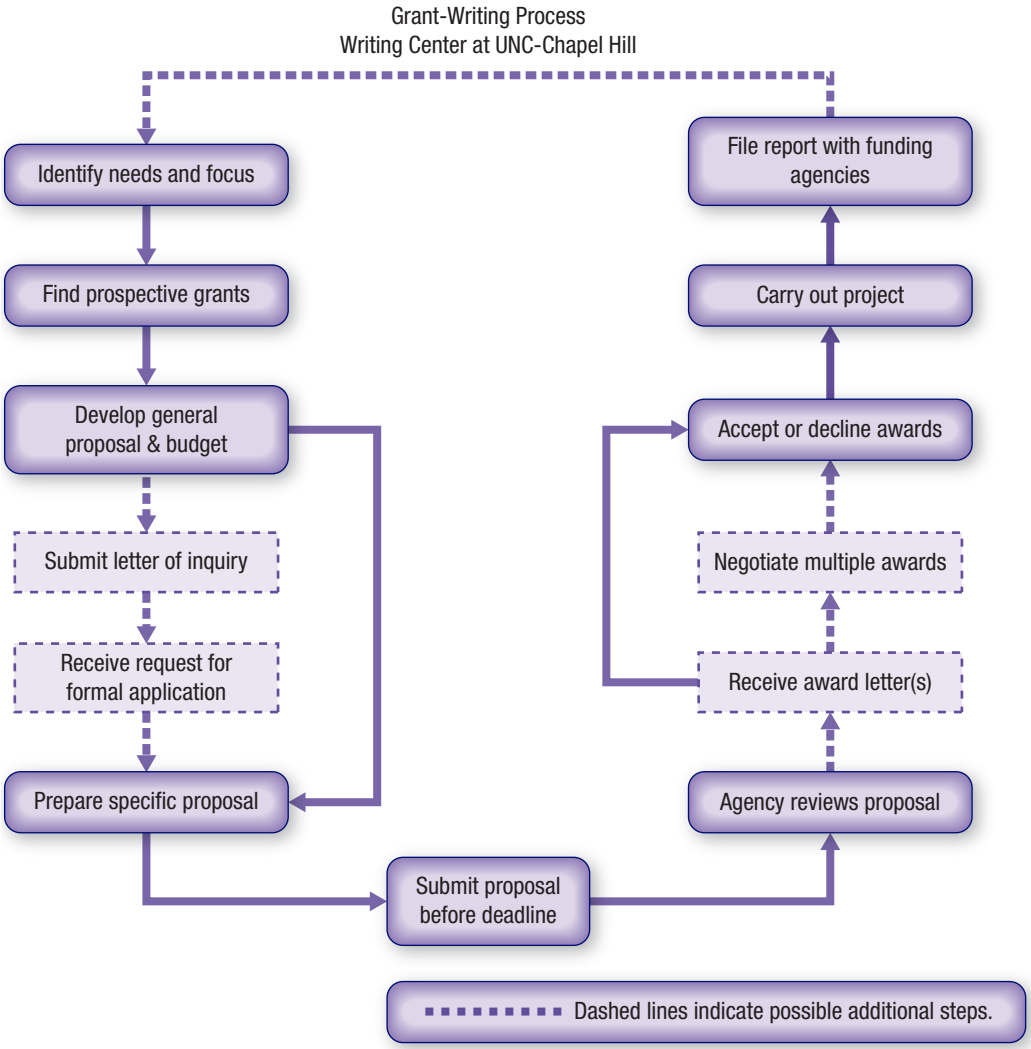

FIGURE 14.1 Grant-writing process.

Source: The Writing Center. (2011, December 28). *Grant proposals (or give me the money!)* [Technical guidelines]. https://writingcenter.unc.edu/tips-and-tools/grant-proposals-or-give-me-the-money/.

The Writing Center (2011) offers 10 simple, but compelling, tips:

1. Begin early.
2. Apply early and often.
3. Always include a cover letter with your application.
4. Answer all questions and preempt all unspoken questions.
5. If rejected, revise your proposal and apply again.
6. Give them what they want. Follow the application guidelines exactly.
7. Be explicit and specific.
8. Be realistic in designing the project.
9. Make explicit the connections between your research questions and objectives, your objectives and methods, your methods and results, and your results and dissemination plan.
10. Follow the application guidelines exactly. (This tip is repeated because it is very, very important.)

Many other universities have grant-writing resources available for their students, so if the university the DNP student attends does not, do a little exploring. Some universities with grant-writing resources include California State University, Los Angeles (http://web.calstatela.edu); University of Tennessee (www.utc.edu); California State University, Dominguez Hills (www.csudh.edu); San Diego State University (www.sandiego.edu/soles/gateways/faculty-and-staff/resources-for-researchers); and Harvard University School of Public Health (hsph.harvard.edu and search for grant writing)—to name a few.

GRANT STYLE AND FORMAT

There appear to be numerous styles and formats for grant applications and proposals, and many grantors now have easy-to-follow online application processes. Ideally, the DNP grant seeker should rigorously follow the format and style required by the grantor; failure to do so could result in the proposal or application not making it past the initial screening. However, sometimes the format is left open. A letter of request or intent followed by a proposal narrative or proposal letter is requested. In these cases, Table 14.3 depicts several acceptable formats suggested by some notable funders.

In reality, every successful grant began with a really good idea. And, even if the grant was not funded, it does not mean that the idea was not a good one; it may mean that it was not the right time or the right funder wasn't asked. Turning a really good practice, research, or project idea into a well-written grant proposal takes planning and commitment, may be long and daunting, and—yes—can even be fun. Projects that significantly advance science, match the interests of the funding source, and provide rapid transitions from research to practice are projects that are attractive to funding organizations (Gitlin & Lyons, 2008). Writing an effective grant application combines scientific and scholarly rigor with innovation and creativity (Berger & Moore, 2011). The writing should be clear, organized, parsimonious, and flow well throughout the document. Berger and Moore (2011) further identify characteristics of well-written grants, including the following:

- Avoid use of redundant phrases, words that are too big, and long, rambling sentences.
- Avert misunderstanding by leaving out jargon, trendy phrases, acronyms, and abbreviations.

TABLE 14.3 Notable Funders Required Components of a Proposal

Foundation Center (Foundation Center, 2017)	Minnesota Council on Foundations (Davis, 2005)	Writing Center at University of North Carolina, Chapel Hill (The Writing Center, 2011)
		Title page: Brief, yet explicit title of the project, names of grant team/principal investigators, institutional affiliation, name and address of granting agency, project dates, amount of funding requested, and signatures of personnel authorizing the proposal
Executive summary: Umbrella statement of your case and summary of the entire proposal (1 page)	*Summary:* Summary of the proposal; purpose is to assist the reader to follow your argument in the proposal itself (2–3 sentences)	*Abstract:* This may be required in addition to an executive summary; gives the first impression of the project; most abstracts state the general purpose, specific goals, research design, methods, and significance (contribution and rationale)
	Organization information: Tells the funder about your organization and why it should be trusted to use funds effectively (2–3 paragraphs)	
Statement of need: Why the project is necessary (2 pages)	*Problem/need/situation description:* This is where the convincing argument appears to demonstrate the need, project importance, and your organization's expertise to handle it; do not assume the funder knows much about your subject area	*Introduction:* Covers the key elements of the proposal, including problem statement, purpose, goals or objectives, and significance of the project
		Literature review: Reviewers want to know whether there is evidence to support the project; seen more often in research grants, literature reviews should be selective, critical, not exhaustive
Project description: Details of how the project will be implemented and evaluated; includes objectives and goals; methods, staffing/ administration, evaluation, and sustainability (3 pages)	*Work plan/specific activities:* Organizational overall goals of the project and plan to solve the problem	*Project narrative:* The "meat" of the proposal; includes a detailed statement of the problem, objectives or goals, hypotheses, methods, procedures, outcomes or deliverables, evaluation, and results dissemination; should preempt and/or answer all reviewer questions

(continued)

TABLE 14.3 Notable Funders Required Components of a Proposal (*continued*)

Foundation Center (Foundation Center, 2017)	Minnesota Council on Foundations (Davis, 2005)	Writing Center at University of North Carolina, Chapel Hill (The Writing Center, 2011)
	Outcomes/impact of activities: Describe the impact and what will change as a result of the project;impact is difficult but necessary to define	
		Personnel: Explains staffing requirements in detail, including current staff (include CVs) and recruitment of additional staff
Budget: Financial description of the project plus explanatory notes (1 page)	*Budget:* Shows expenses and income for the project; include other funding and future funding (1–2 pages); divide the expense side into three sections: personnel expenses, direct project expenses, administrative or overhead expenses	*Budget:* Itemizes project costs; generally includes a spreadsheet and narrative (or justification); suggests including narrative even when one is not specifically requested to explain the budget
Organization information: History and governing structure of the nonprofit; its primary activities, audiences, and services (1 page)		
	Evaluation: Tells how you will know you have achieved the desired impact(s)	
Conclusion: Summary of the proposal's main points (2 paragraphs)		
		Time frame: Explain in detail and include a visual version
	Supplementary materials: May include such materials as IRS tax-exempt letter, list of board members and affiliations, financial statements, organization's budget for current and next fiscal year	
Letterproposal: Format requested occasionally instead of full scope of proposal; includes the "ask," description of need, what you propose to do, agency data, budget data, the "close," and any additional information		

CV, curriculum vitae; IRS, Internal Revenue Service.

- Keep sentences to fewer than 12 words and paragraphs to fewer than six sentences in length.
- Be truthful; do not exaggerate, inflate ideas, or use excessive adjectives.
- Use an active voice, and check grammar, punctuation, and spelling; consider using a style manual.
- Define key terms when first introduced in the grant.
- Deliver a clear and precise message.
- Ensure sources are credited properly, prepare a reference list, and include key evidence supporting your proposal.

GRANT PROJECT PLANNING AND EXECUTION

Once you have decided to submit an application, you should establish a work plan to develop the project design, write the proposal, and construct the final application. Critical tasks during this planning phase include completing a thorough review and scrutiny of the RFP; confirming the resources and staff to write and produce the application; engaging senior leadership, staff, and potential stakeholders outside the program to communicate your intent to submit an application; and holding meetings with team members and partners to determine the feasibility of the project. Project plans are strong tools used to keep grant-funded projects on track for the outcomes promised. Exhibit 14.3 depicts a detailed grant project action plan with key activities and deliverables defined to meet the grant-funded goals.

Project Planning Tools

Once the idea takes root and the proper funding source has been identified, it is advisable to create a timeline and/or use a project planning tool. An excellent project planning tool can be found in *The "How To" Grants Manual: Successful Grantseeking Techniques for Obtaining Public and Private Grants* (8th Ed.), which is downloadable from the Akribos Group (https://akribosgroup.schoolinsites.com/davidsupplementalmaterials). The Project Planner (Bauer, 2015, Kindle location 3108 and 3111 of 5856) includes categories for key grant project objectives and methods, outcomes, times, personnel, resources, costs, activities, and milestones.

Figure 14.2 shows an example of a simple timeline created by this author using an Excel spreadsheet to create a Gantt-type chart for project milestones. Obviously, any acronyms included would be explained in the grant narrative.

A number of technical resources are available for project planning and Gantt chart development. One of the prominent products is Tom's Planner (www.tomsplanner.com), created by a former project manager in the Netherlands who was frustrated with trying to make a Gantt chart in a spreadsheet. Thomas Ummels, the CEO and founder of Tom's Planner, provides an easy-to-use-and-share web-based Gantt chart and project management product with drag-and-drop simplicity. It is free for individuals, with price points at professional and unlimited levels (Figure 14.3), and can be easily exported to a spreadsheet. Project Plan 365 Online (www.projectplan365.com/projectplan/projectplanfree.html) in a purchased version or a free version (copyright, Housatonic Inc. 2002–2017) opens and creates files up to 2MB, and includes templates for Gantt charts, task management, resource sheets, graphs, and usage-monitoring tools. Another useful product is Mavenlink (http://start.mavenlink.com/project-management-software-premier), a cloud-based application that was voted the most popular project management software in 2016. Others are QuickBase.com,SmartSheet.com and Simple Gantt Chart

EXHIBIT 14.3

Vida Sana QUITS (QUality Interventions to Transition Smokers) Project Work Plan

Goal	Key Activities and Deliverables	Time Frame
Infrastructure build	1. Project is funded. 2. Primary investigator will schedule an initial team meeting with the program manager, the director of Vida Sana, and other personnel to outline action plan activities, grant objectives and reporting requirements. 3. Initiate curriculum modification to include discipline- and population-specific training modules and create materials that are appropriate for all disciplines and populations/audiences—creating a tailored Vida Sana QUITS curriculum. 4. Incorporate MI into the curriculum to help strengthen motivation for change in the target population. 5. Determine how to address the cultural and other barriers that contribute to significant underreporting in underserved communities and incorporate strategies to address the issue. 6. Develop a refresher/review course for the newly trained healthcare workers designed to provide follow-up support and additional learning. 7. Create a comprehensive guide to area resources for smoking cessation and create bilingual and online editions of the guide. 8. Create evaluation/feedback surveys for dissemination to trainees and community members to collect baseline data for future evaluation. 9. Provide Project TRUST and MI techniques as part of the Vida Sana QUITS curriculum to all program staff in preparation for training healthcare personnel.	December 2012–May 2013
Training	1. Recruit healthcare personnel, including physicians, direct-care nurses, parish nurses, *promotoras*, patient family advisors, respiratory therapists, and mental health professionals (social workers, PET team members) to participate in the training. 2. Schedule and conduct 10 training sessions for 80 to 120 healthcare personnel over the grant period and collect evaluation and feedback data.	April 2013–May 2013
Implementation	1. Trained personnel will use MI techniques outlined in the training to elicit accurate information about smoking activities from community members. 2. Personnel will use discipline and demographic specific interventions to address tobacco use among hospital patients and community members by offering pharmacological intervention, education, information, and referrals to classes and support groups.	June 2013–December 2014

EXHIBIT 14.3

Vida Sana QUITS (QUality Interventions to Transition Smokers) Project Work Plan (continued)

	3. Provide a minimum of 65 support group/smoking-cessation classes with an average attendance of five to 10 individuals. 4. Provide 2,000 community members with smoking-cessation messaging and information offered in community sites and through the Vida Sana mobile health van in Southeast Los Angeles. 5. Healthcare personnel trained through Vida Sana QUITS will provide a minimum of 1,000 hospital inpatients with educational information and/or smoking cessation messages at the hospital.	
Evaluation	1. Evaluate the effectiveness of the infrastructure development process by conducting a 360 degree type of review processes for personnel, collecting feedback from attendees in the trainings, and the completion of key deliverables including the discipline and demographic specific Vida Sana QUITS curriculum, the comprehensive resource guide, the refresher/review curriculum, and feedback collection and service tracking instruments. 2. Track number of healthcare professionals participating in the training classes and use their feedback and pre-and post-test surveys to assess the effectiveness of the curriculum and areas for improvement. 3. Track number of classes and/or support groups provided to the community and how many participants attend; use feedback from participants to assess the effectiveness of the curriculum and areas for improvement—particularly in terms of improvements in the accuracy of reporting of smoking activity. 4. Track the number of community members receiving smoking cessation interventions, the type and intensity of the intervention utilized and the effectiveness of each based on pre-and post-test survey instruments and monitoring individual carbon-monoxide levels.	September 2013–December 2014
Identify dissemination strategies	1. The principal investigator and program manager will identify appropriate avenues and time frame for the dissemination of the lessons learned in the proposed program to various entities possibly including (but not limited to) hospitals within the Daughters of Charity System, Ascension Health System, and via partnership with L.A. County Pioneers agencies, ACNL, Hospital Association of Southern California, and other key stakeholders.	January 2014–December 2014
Final grant progress report	2. Using data amassed through the evaluation procedures, create a final grant report outlining the project methods, success, challenges and outcomes.	December 2014

Source: Courtesy of Knighten, M. L. (2012). Grant project work plan. Grant ID 044920/St. Francis Medical Center/Vida Sana QUITS. St. Francis Medical Center.

	Q1CY11	Q2CY12	Q2CY12			Q2CY12			Q2CY12			Q2CY13		
	Dec-11	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13
Cardinal E3 Grant submission 12/2/11														
IRB approval (12/2/11 anticipated date)														
Grant awards announced														
Design HF curriculum and Teach-Back Protocol														
Curriculum/protocol approval (PFAC, PCT, ED Council)														
Curriculum/protocol approval (QACIB, QPS, PFAC)														
Train initial cohort of nurses, pharmacists, & PFA														
Implement Teach-Back: HF/ med management														
Implement Pharmacist Post Disch Phone Calls														
Governing Board approval curriculum/protocol														
Develop monitoring forms														
Train second cohort of nurses, pharmacists, & PFA														
Data collection/data analysis														
Data reporting at QACIB/QPS (quarterly)														
Incorporate Teach-Back in new hire orientation														
Final grant progress report														

FIGURE 14.2 Sample chart depicting project milestones.

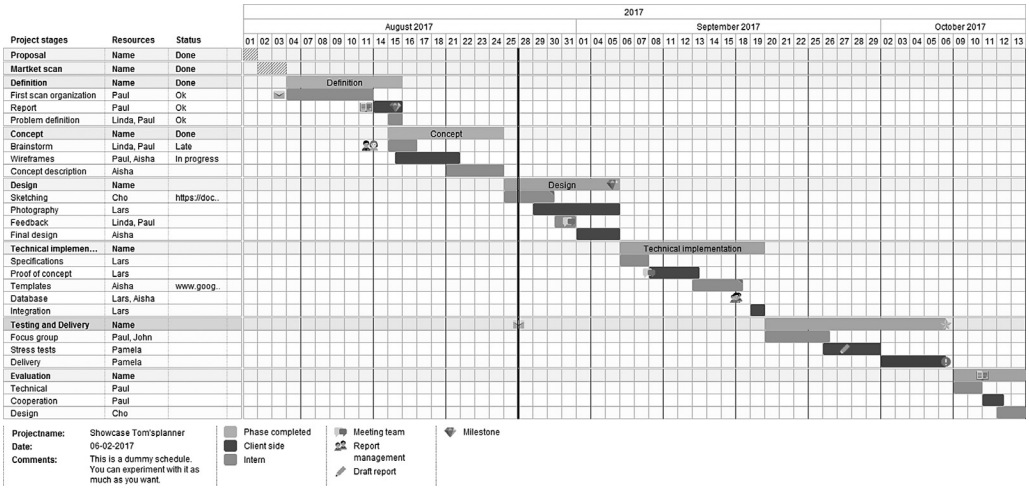

FIGURE 14.3 Tom's Planner.

Source: Reprinted with permission from Tom's Planner N.V.

by Vertex42. The various print versions of project planning tools are always available at Amazon.com or Staples.

Grant writing may require a team effort, and although grant writing can be a successful team-building exercise (Siemens, 2010); DNPs need the right people with the right expertise and credibility on the team to plan, write, execute, and evaluate the grant project. According to Berger and Moore (2011), some critical grant-writing roles to include on your team include:

- **Principal investigator (PI)**: Responsible for all aspects of grants involving research projects.

- **Co-investigator (Co-I)**: Works with the PI to identify and prepare drafts; provides formative and summative reviews in specific sections; and does the footwork of the grant, which may include preparing for institutional revew board (IRB) presentation, designing tools to be used in the project, troubleshooting problems, and so forth.
- **Statistician**: Works with the PI and Co-I to develop the specific aims and metrics, determines the plan of analysis, assists in developing the database, and supervises the analysis.
- **Consultant**: Provides expertise and experience in one or more focus areas. This is a role that can add credibility to the project.
- **Coordinator**: Assists with the grant application and coordinates all required sections and materials to be included in the application. The coordinator manages and coordinates personnel and procedures of the funded grant and may be synonymous with the position of grant manager.
- **Budget coordinator**: Identifies all costs related to the project, determines what funding mechanism will provide the right resources, and tracks responsible spending of the funds. This may also be a member of the organization's foundation.
- **Editor/proofreader**: An expert in the use of the English language and effective grantsmanship, who polishes the application before submission (Berger & Moore, 2011).
- **Research assistant**: Assists the PI and Co-I.
- **Project manager**: Writes and submits the grant, manages the execution and deliverables, and submits final reports. This may be a member of the organization's foundation.
- **Professional grant writer**: Serves as the technical writer in situations in which the project manager plays more of a clinical expert role or has little grant-writing experience. Often, the cost of a professional grant writer can be included in the funding request.
- **Executive sponsor**: Lends administrative support, expertise, or credibility to the project. For example, some funders will not accept a project application without the CEO writing a letter of support.

The most important step, which is mentioned exhaustively in the literature, is to explicitly follow the instructions and guidelines as presented by the funding agency. It is a good idea to write the proposal and then put it aside, review it later to ensure the directions have been followed, and then review it again at the eleventh hour before submission. Schilling (2003) recommends getting input from others and then giving your "finished" grant to a designated person in your organization who assembles the whole package a full week before it is due (although this may be you, foundation staff who are good at this are most willing to help). They look at the proposal with fresh eyes and can catch subtle and glaring errors or identify omissions.

Executing the Grant-Funded Project

Once funded, the real work needed to execute the project and achieve its aims, outcomes, and/or deliverables begins. Again, the timeline or project planning tool is helpful to keep the project on track. In most cases, DNPs cannot and should not add the project and grant deliverables onto already full professional plates; however, sometimes the

funding augments projects and programs that already exist. Requesting resources during the course of the budget planning to assist the DNP in executing the project is advised. It is wise to try to plan for unexpected circumstances, such as staff attrition and/or changes in organizational priorities, which can broadside the grant project quickly. For example, in one organization, when a department was closed and the project manager resigned, the executive sponsor, who was also the PI, had to assume the project manager's functions to fulfill the grant obligations. If the targeted outcomes or deliverables are not achieved, most grantors will request that the funding be returned, although some are willing to work with the grantee if unanticipated events occur that interfere with the execution. It is wise to determine up front how the grantor will respond if funds are not used or if there is interference in the execution of the project as designed.

The aspiring grant seeker will necessarily deal with failure along the way. Not all grant letters result in requests for proposal, and not all proposals or applications are funded. Savvy grant writers are always looking for the next funding opportunity, and many sections of the grant may be "recycled" and used in a new grant. While submitting the same proposal to multiple funders is not ethical, DNPs can, based on education and practice, realistically identify opportunities in systems of care that may be rewritten and submitted to different funders. As an alternative, the proposal can be revised and resubmitted to the same funder in another funding cycle.

CONCLUSIONS

DNP education and practice lends itself to the ability and need to write grants to obtain funding for EBP changes, redesign care delivery systems or programs of care, and positively influence population health. With the economic environment and the need for healthcare reform today, grant-writing skills are not just nice to have; they are imperative DNP skills.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. "Smoke-Free SFMC" Project, St. Francis Medical Center, Lynwood, CA

Established in 1945, St. Francis Medical Center was the only comprehensive, nonprofit healthcare institution serving Southeast Los Angeles. The medical center operates a 384-bed acute care hospital, busy private emergency and Level II trauma centers, family life center with state-of-the-art neonatal intensive care, health benefits resource center, and children's counseling center. In addition, SFMC sponsors a behavioral health service line with a 40-bed locked acute behavioral health unit (BHU), outpatient psychiatric services (OPS), and a psychiatric evaluation team (PET) for psychiatric crises. Over $10,000 per year was spent by the medical center to purchase cigarettes for psychiatric inpatients.

SFMC provides quality medical care, educational programs, school-linked health services, and support services to the 1,000,000 residents of communities in Southeast Los Angeles County. Within service planning areas (SPAs) 6, 7, and 8, which encompass the major communities within SFMC's service area, Hispanics are the largest [growing] ethnic group at 56.8%, followed by Whites at 16.3%, and

African Americans at 13.0%, according to U.S. Census Bureau and American Community Survey 2010 statistics (https://www.census.gov/quickfacts/fact/table/US/PST045221).

Based on the most recent data from the Los Angeles County Department of Public Health, from 2000 to 2009, the leading causes of mortality in Los Angeles County were coronary heart disease, stroke, lung cancer, emphysema, and Alzheimer's. In SPAs 6, 7, and 8, coronary heart disease was also the leading cause of death. Compared to the other SPAs and the county, SPA 6 has the highest percentages of adults living with one or more chronic health conditions. Overall, Southeast Los Angeles residents suffer from significant risk factors associated with cardiovascular disease, such as hypertension, diabetes, high cholesterol, and smoking.

Smoking is a controllable risk factor, and EBP shows that smoking cessation is effective in lowering risk, reducing complications of chronic illness, and improving quality of life. According to the report, "Cigarette Smoking in Los Angeles County: Local Data to Inform Tobacco Policy" (Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology, 2010) produced by the Office of Health Assessment and Epidemiology at the County of Los Angeles Public Health Department, all the communities served by SFMC are at the third or fourth quartile for prevalence of smokers (Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology, 2009). This equates to nearly 115,000 estimated smokers in the communities located in SFMC's primary service area. According to the Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology (2015), 13.3% of adults smoke cigarettes. Tobacco use in the county is lower than the national average of 19%, but remains slightly above the *Healthy People 2020* target of 12% or fewer adults using tobacco (HealthyPeople.gov, n.d.).

- Approximately 8,600 lives and $4.3 billion are lost due to medical care and lost productivity costs associated with smoking and smoking-related diseases in Los Angeles County each year.
- The leading causes of smoking-related death are lung cancer, coronary heart disease, and chronic obstructive pulmonary disease (COPD).
- Of households with children, 17% report tobacco smoke exposure in their homes (Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology, 2015).

The medical center, situated on a 121-acre campus, including the medical office building, progressive care unit (housing the behavioral health service line), and children's counseling center (two sites), decided to go completely smoke-free for patients, visitors, employees, medical staff, and volunteers within 6 months of starting a health and wellness journey. This unbudgeted initiative to improve the health outcomes of the community required a massive culture and systems change. A grant was available from Los Angeles County for $5,000 per site to implement smoke-free policies and practices. The deliverables specified by the grantor were:

- Develop a smoke-free policy and achieve a smoke-free campus.
- Develop and implement smoking-cessation protocols.
- Purchase signage.
- Participate in educational webinars and monthly conference calls (two people per site).
- Consent to technical site visits by government officials.

The hospital foundation did not have a grant writer available for a small grant; however, a DNP student working at the medical center needed to write a grant project for class. The grant application was due 30 days from the time the DNP student became aware of its existence.

a. What steps does the DNP student need to take to leverage this grant opportunity in a short submission time frame?
b. What grant components should be included in the grant framework?
c. What resources may exist from the grantor; medical center; community, state, and/or nation to maximize the economics for the unbudgeted "Smoke-Free SFMC" initiative?
d. How can the numerous departments and service lines on the campus be leveraged to increase the grant award?
e. Who does the DNP student need on the grant planning, writing, and executing team?
f. How will outcomes be measured for the various populations (patients, visitors, employees, medical staff, and community) impacted by the grant tactics?

2. A local Southern California hospital serving 5.5% of Los Angeles County's population recently conducted a triennial community needs assessment and some of the significant community health needs identified were:

- obesity/overweight,
- diabetes,
- cardiovascular disease,
- hypertension, and
- cholesterol.

Hospital leadership identified an opportunity to better serve the community, particularly patients with chronic illnesses, and prevent medical readmissions. A private foundation was approached about funding a project to improve patient and family decision-making about health issues and medical crises. The primary grant deliverable was to increase the number of patients (over baseline) who completed advance care planning. The ultimate goal was to reduce unnecessary readmissions for persons with chronic illness by leveraging 24-hour community support for them at home.

The DNP-prepared nurse practitioner (NP) hired to the palliative care team is having successful advance care planning conversations with patients about their chronic conditions, setting goals for overall wellness, and teaching them how to manage a declining chronic disease trajectory. The patients and families are responsive and express gratitude that someone is talking with them about quality of life.

However, the NP is worried that he may not be able to meet the grant deliverables. After the multiyear grant was awarded, some unanticipated issues arose during the project execution phase, including turnover of key hospital personnel who were grant team members, delays in onboarding additional NPs, difficulty obtaining patient-level and aggregate data from the hospital's data systems, conflict over patient care goals between attending physicians and the project medical staff, and lack of willing/able 24-hour–response community resources, such as home health agencies to respond to the patient's home rather than using an on-call phone-triage service.

The first-year grant report is due in a few months, and the DNP is unable to tell whether efforts have been successful in reducing readmissions; he is concerned about the resistance of the medical staff and lack of 24-hour response community resources. He makes an appointment to discuss this with the grant project manager and hospital administrator, who is the project's executive sponsor.

a. In your opinion as a DNP, is this grant-funded project salvageable?

b. What steps should the DNP take to get the project on track and what resources at the hospital can he employ to assist with this project?

c. Who are the key stakeholders that the DNP needs to engage, what should be expected of them, and what does the DNP need from his executive sponsor and the project manager?

3. A university professor who has conducted research for many years submitted a grant to the NIH to request funding to integrate a Spanish-language video about hospice care in the discharge planning processes for a number of hospitals surrounding the university. The grant application, which was very prescriptive, detailed, and time-consuming, was scored and returned (not funded).

The professor, who is the principal investigator, saw the value of conducting a small-scale feasibility study in one hospital with the intent to use those results to leverage another NIH grant application. The Spanish-language hospice video would be incorporated into the palliative care process, whereby Latino patients with palliative care and end-of-life needs would be triaged to watch the video with their family before discharge and prior to an order being written for hospice services. Data would be gathered before and after the video is watched, the results analyzed, and a feasibility index calculated. He engages a DNP as Co-I who will assist with the feasibility project design and execution, prepare the project for presentation to the IRB, guide the palliative care NP and social worker, and, in general, act as liaison to the hospital.

a. What types of data should be gathered before and after the video intervention?

b. What types of considerations should be given to the patient and/or family regarding participation in the study?

c. As the Co-I, you have never participated in a feasibility study; how does this align with the DNP scope of practice and Essentials?

d. You are asked as the Co-I to calculate the feasibility index. What do you need in order to complete this task?

e. What quantitative and qualitative data will be important to take away from this study to assist the professor in rewriting the NIH grant application?

4. The health ministry in your faith community provides ongoing health-promotion and disease-prevention outreach to congregants within the context of their faith tradition, and to the community. As the director of health ministry, you are a DNP with many years of experience in acute care, faith community nursing, and community health.

The DNP also participates in a regional health ministry organization that often collaborates on projects. The other faith community nurses feel there is not enough being done to prevent bacterial pneumonia, and the mortality associated with pneumonia and influenza, and want to pursue a grant to provide vaccinations in each of their faith communities.

The DNP educational program instilled rigor for EBP, so the DNP knows more than a "feeling" is required before embarking on a journey to address influenza and pneumonia prevention using EBP with the goal of reducing mortality.

a. Which of the four spheres of care (Essentials; AACN, 2021) play a role in utilizing the DNP's skills to advance this project?
b. What databases or resources would the DNP need to investigate to validate the incidence and prevalence of bacterial pneumonia in the local community?
c. What type(s) of grantors should be considered for this project?
d. Using Exhibit 14.3 as an example, what project planning tactics would the DNP need to apply?
e. What would the DNP need to include in the budget for this annual multiorganization project?
f. What considerations need to be accounted for when operating vaccination clinics in the community?

5. Funding Case Study for Nursing Education

Thanks to Dr. Sharon Anne Goldfarb for her contribution.

You are the newly appointed dean of health sciences at a small community college in a mixed-income community and oversee dental assistant, medical assistant, EMT, licensed vocational nurse (LVN), and associate degree RN programs. The school currently has a limited budget, with college-based funding amounting to $6,000 annually for each of these programs. College-wide, there are many students in need and an initial survey showed that 60% of the student body had inadequate or no insurance. The lack of insurance resulted in many students dropping out of courses during the flu season. The campus itself had no resources for students, no student health center, no food bank, limited counseling, and no room for nursing or breast-pumping parents.

There is a critical nursing shortage. Many local healthcare facilities are requesting new grads, and you realize you need to increase the capacity of your program and develop pipeline programs for their allied health workforce. The nursing program currently accepts 32 students for the first-year cohort, and increases this number to 40 students in the second year for an LVN/LPN-to-RN transition program. The school has over 700 applicants for the first-year program and over 80 applicants for the second-year transition program, so finding applicants is not aproblem. The school has a 27% attrition rate and a 79% NCLEX pass rate.

There is also an ongoing faculty shortage. There are only four full-time faculty: one full-time LVN faculty/program coordinator, one med-surg faculty for first-year content, one med-surg faculty who covers second-year content, and a psychiatric-mental health faculty member who is a department chair, teaches didactic courses, and covers 50% of the clinicals. Two of the faculty will be retiring in a year. You need to recruit a maternal–child health specialist and have seven additional clinical adjunct faculty to continue the program. The salary for adjunct faculty is about $60 an hour and the local hospital is paying nurses $100 an hour. To be considered for employment the faculty recruited must hold a master's degree or higher. The last five job searches resulted in no qualified applicants.

In addition to your critical faculty needs, you learn that your community hospital is currently employing 70% of its nurses from a traveling company; consequently, they do not have a stable nursing workforce that can accept students for clinical rotations. Community health programs are also desperate for nurses but there has been no engagement with the school. Currently, all clinical rotations are done in three local

hospitals, and often preference is given to the bachelor of science in nursing (BSN) programs for the specialty rotations—maternal health, pediatrics and psychiatry.

a. Based on the information given, how would you prioritize solving the following problems (list them in order of priority) and why?

- Improve resources to the college student community.
- Iimprove the community's public health needs.
- Decrease attrition rates.
- Increase admittance capacity.
- Increase faculty.
- Increase NCLEX pass rates.
- Increase the number of clinical sites and/or existing clinical site capacity.

b. Given the preceding information, describe how you use the school and workforce data to create a plan for your nursing program, the larger community college, and your community.

- Identify possible funding sources to develop identified projects.
- What community funds, educational funds, local and national grants, and private donors would you consider?

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 15

Entrepreneurship and Innovation for Nurse Leaders: Developing a Business Case

KT Waxman, A. Christine Delucas, and Marjorie Barter

This chapter focuses on leadership knowledge and skills to navigate the healthcare macrosystem. The future will require innovative approaches and business applications designed by nurse leaders. *The Essentials: Core Competencies for Professional Nursing Education* (American Association of Colleges of Nursing [AACN], 2021) provides an interesting road map for DNP-prepared nurses wishing to engage in entrepreneurial activity. The leadership and management skills needed to lead these redesign efforts are embedded in the *The Essentials* domains. DNPs not only need to be able to speak the language of finance and business, but also need to market themselves both internally and externally. The Domains discussed in this chapter are Domain 5: Quality and Safety, Domain 9: Professionalism, and Domain 10: Personal, Professional, and Leadership Development. This chapter also presents some key issues that have socialized nurse leaders and discusses roles for DNPs in future healthcare organizations. First, we focus on innovation and entrepreneurship, and then on business acumen, planning, and building a solid business case.

INNOVATION AND ENTREPRENEURSHIP

Entrepreneurship

The concept of *entrepreneurship* is not new. A leader is someone who rules, guides, and inspires others. An entrepreneur is someone who organizes, operates, and assumes risk for a venture (Ramsey, 2011). The root of the word *entrepreneur* is the French word *entreprendre*, meaning, "one who takes a risk." Successful leaders engage in entrepreneurial activities and assume the risk and accountability for their endeavors.

For centuries, enterprising people developed new inventions and better ways to deliver goods and services. They were entrepreneurs. Entrepreneurial skills can be learned, and with mindful practice will promote creative ways of thinking about your organization. The pace of innovation has increased, creating a need for faster response time from nursing leaders who must evaluate and implement new technology and care-delivery models. Every business, and healthcare is a business, requires leadership that can be entrepreneurial and innovative. The rising cost of healthcare and the many issues related to access and reimbursement for performance create an opportunity for nurses to design innovative products and services.

A term that has emerged in recent years is *entreleadership* (Ramsey, 2011, p. 11). This is defined as "the process of leading to cause a venture to grow and prosper." Qualities of an entreleader include (a) passion, (b) integrity, (c) risk taking, (d) courage and humility, (e) vision, (f) drive and loyalty, as well as being an (g) influential learner (Ramsey, 2011).

Intrapreneurs and Entrepreneurs

Intrapreneurs are employees within an established system that champions, manages, and embeds new products and services within an organization. They have similar characteristics to entrepreneurs: commitment, motivation, and skills to take a risk and develop something new. Nurse leaders have an exceptional vantage point regarding the healthcare delivery system and are positioned to be successful intrapreneurs.

The practice of systematic and purposeful innovation creates successful change in economic or social endeavors. Entrepreneurs who learn the principles and understand the sources of innovative opportunity can create a new product or service of value. The foremost characteristic required is leadership. Successful entrepreneurs must have the ability to lead productive teams and inspire others to take a risk in developing new things (Meyer & Crane, 2015). Organizational structures can be developed through the strategic acquisition of people, processes, and technology that support innovation (Healthcare Financial Management Association, 2016).

Drucker (1985) identified information and events (Exhibit 15.1) that are reliable indicators of innovative opportunity. Analysis of these items can yield new insight that will lead to purposeful innovation. Examine the reasons for unexpected success or failure of a program or process improvement, then determine what caused the result. Could a different, more innovative approach have created another result? Is there incongruity between what you know should occur and what actually happened? If so, what is the cause? Can you identify demographic changes or new knowledge that creates an opportunity to innovate?

The Centers for Medicare & Medicaid Services (CMS) developed the Center for Medicare and Medicaid Innovation (The CMS Innovation Center, 2021) to encourage the rapid testing and implementation of best practice models to deliver healthcare. This creates a perfect opportunity for entrepreneurial nurses to design and implement creative changes to improve patient care. Nurses are providing telehealth virtual home visits, teaching and mentoring lay health coaches using web-based tools, and virtually coaching new nurses in inpatient settings to improve retention (Sanford, 2011). The opportunity for nurses to be innovative and to develop new programs or systems has never been greater.

Skills and Knowledge Necessary for Innovators

Cianelli et al. (2016) developed a road map to assist nurse leaders who wish to foster innovative thinking and behavior. Activities to promote innovative thinking and action to build a culture of innovation should be deliberate and inclusive. The characteristics

EXHIBIT 15.1

Indicators for Innovative Opportunity

- Unexpected success or failure
- Incongruity between what is and what should be
- Innovation based on process need
- Changes that catch everyone unaware
- Demographic changes
- Changes in perception, mood, and meaning
- New knowledge—scientific and nonscientific

EXHIBIT 15.2

Aspects of Innovation Needed in Healthcare Systems

Characteristics of Innovation

- Divergent thinking
- Risk taking
- Failure tolerance
- Agility and flexibility
- Autonomy and freedom

Components of Innovation

- Employee feedback
- Role filling
- Role modeling
- Employee engagement
- Education
- Protected time
- Technological support
- Rewards
- IDEO methodology (designer methodology)
- Budgeting
- Leadership

Team Collaboration

- Unlikely and diverse team members
- Productive interaction
- Play
- Pauses and breaks
- Skill-set development

EXHIBIT 15.3

Knowledge and Skills for Entrepreneurs

Scan the environment.
Incorporate what you know.
Determine what you do not know.
Develop analytical thinking.
Embrace ambiguity.
Know when to take a risk.
Manage change.
Learn from failure.

and components of innovation described by Cianelli et al. (2016) that are needed to embed innovation in our healthcare organizations are listed in Exhibit 15.2. Nurses are well positioned within our healthcare delivery system to lead interprofessional teams that design innovative products and services.

A mix of skills and knowledge is necessary to move your entrepreneurial career forward. The ability to innovate by inventing new products, services, or processes is a learned ability. Exhibit 15.3 lists eight habits that will help you expand innovator knowledge and incorporate new skills into your leadership practice.

Scan the Environment

Establish the practice of scanning the environment regularly. Social, economic, technological, competitive, and regulatory trends and changes (Meyer & Crane, 2015) all provide information that will inform your analysis. Pay attention to news sources, professional journals, and what you see and hear in your workplace and your community. Talk to the early adopters. Expand your scope and time horizon and review successes and failures in other industries. Use trending to make predictions about the future. Consider things that do not fit or cannot easily be classified. These might be indicators of opportunity. Saffo (2007) outlined a process for forecasting that can be used by innovators or anyone wishing to take advantage of changes. Watch for things that do not fit and examine interesting failures or good ideas that did not "take off." Remember that change starts slowly and may move slowly and incrementally for a time. Watch for patterns and build that information into your environmental scan. It also important in this era of cultural diversity to scan the environment keeping in mind the differences in culture and the impact of your change (Fatehi, 2016). As indicated by Fatehi, cultural differences impact perceptions; strategies; and acceptance of new ideas, change, and interpretation. For instance, "The American cognitive model is logical, sequential, and it is based on an abstract concept of universal reality. Japanese cognition is based on concrete perception that relies in senses data, emphasizes the particular rather than the universal" (Fatehi, 2016, p. 33).

Successful entrepreneurs are always scanning the horizon for new information, new perception, and changes in the environment. And they do it on a regular basis. Steve Jobs, one of the most successful innovators of our time, was constantly assessing the way people used Apple products to predict the best innovations (Isaacson, 2010).

One example of innovation and being able to learn from other industries is healthcare simulation. The success of the airline industry regarding simulation inspired and was a model for simulation in healthcare. Crew management and debriefing became key in the airline industry, and subsequently, in healthcare.

Incorporate What You Know

Your clinical background, coupled with your ability to incorporate knowledge of patient conditions and to use the nursing process to assess and determine an appropriate course of action is invaluable. Nurses are trained to work in complex systems where multitasking abilities are crucial to success. Your skill set and competency in managing these systems and your ability to problem solve give you unique insight into needs for improvement. Nurses have learned to communicate in chaotic and stressful situations. Think about how you can translate that expertise into opportunity. In order to innovate, first you need to identify constraints, challenge the assumptions, and acknowledge the common limiting beliefs (Fisher, 2016). The American Hospital Association (AHA) conducts an environmental scan each year and identifies current political and market forces that will affect the delivery of healthcare. New products and services that deliver the highest value will be in demand. The 2021 Environmental Scan (AHA, 2021) examined shifting priorities to focus on the COVID-19 pandemic. Nurses are in an excellent position to identify unmet needs and work with healthcare consumers to meet those needs.

Determine What You Do Not Know

Healthcare is a knowledge-intensive industry. Currency requires a lifelong learning approach in which the individual practitioner assumes responsibility for knowing—or knowing how to acquire—the latest in evidence-based practice information. If you do not know how to conduct electronic searches or do not have access to electronic library databases, remedial consultation is available. The reference librarian in your hospital or public library can help you get started.

Business, finance, and statistical knowledge are other areas that beginning nurse entrepreneurs may lack experience in. Again, most health systems have experts in these areas who, given the right projects, would be willing to partner with clinical nurses. You must have a clear idea of your project with specific goals and measurable objectives before you meet with potential partners. Federally funded small-business development centers, community colleges, and the many foundations that fund healthcare development are potential sources of monetary support.

Develop Analytical Thinking

The ability to organize and analyze data is an important attribute in the entrepreneurial world. Identifying essential from nonessential data is a more important and difficult task. Analysis of trends using demographic, economic, and social-change data will point the way toward needs for innovation (Ryrie, 2011). Statistical and financial data must be presented in an acceptable fashion to funders, evaluators, and sometimes clients. Chapter 10 reviewed the essentials of analyzing financial data, a required skill of a DNP entrepreneur.

You need to use data in a number of ways: to demonstrate the need for your product or service, to define your population or customer base, to quantify the value of your business, or to define and measure outcomes. If you lack the skills to collect, manage, and display data, then you should consider hiring, partnering, or otherwise securing someone to assist in this critical area.

Embrace Ambiguity

There are no clear road maps into the future. When moving into a new arena, clarity may not be possible, whereas uncertainty is definite. If you are particularly uncomfortable functioning in the "gray areas" while adopting and championing new things, entrepreneurship may not be for you. Healthcare is in an era of unprecedented uncertainty. Reimbursement and resource issues, new technology, and workforce changes create areas of ambiguity and a need to function when penalties and rewards are not certain. The idea of disruptive technology and the ability to reconfigure business models in the healthcare industry by using new technology is rapidly changing the work of nurses and other professionals (Christensen, 2009).

Now, more than ever, we need to embrace ambiguity. You can adopt strategies to deal with ambiguity. Feedback loops, concept mapping, root cause analysis, use of forecasting techniques, and peer support are useful tools when moving into an uncertain future. Be aware, however, that the search for "perfect information" can doom a project to failure.

Know When to Take a Risk

All new ventures involve some element of risk. It is important to determine your ability to embrace risk. How risk averse are you? Are you able to determine the nature of the risk and quantify how it might affect your new venture? Can you develop strategies to mitigate the risk? Should you avoid it altogether (Macko & Tyszka, 2009)? If you decide to accept the risk, you must develop a plan to control it or to manage the effects of the risk.

Risks can come from internal or external forces. Risk drivers, such as budgetary constraints, time compression, facilities, workforce pressures, and system failures, must all be managed so that you are promoting the best use of the project and controlling the risks (Taleb et al., 2009). Methods for measuring risk by quantifying the frequency and severity of events can help you understand and manage the risks in your business. You will have to recognize two types of risk: risk financing, which deals with the uncertainty of revenue and capital; and risk control, which deals with the need to control the possibility of loss (Gaamangwe et al, 2008).

Manage Change

The nature of innovation or new concept/business development requires that change happens in a fashion that is acceptable to your organization, your clients, and your colleagues. Successful change is frequently a matter of perception; therefore, your ability to facilitate the process will determine the outcome. Building trusting relationships, neutralizing resistance, and influencing the power base are necessary steps to achieve change in any system. Your ability to achieve these steps is dependent upon your formal authority. If your position allows access to decision makers needed to operationalize your ideas, develop a strategy to best communicate the need for your product or service. Change is a natural state and managing change is a continual process. In the current healthcare environment, the DNP needs to embrace change and question the status quo. Change is part of your world.

Learn From Failure

The most successful business models are based on the philosophy that we learn from failure. Don Hewlett and Bill Packard, founders of Hewlett-Packard, were famous for promoting the idea that failure should be encouraged because we learn from it (Malone, 2009). Their philosophy was that failure is a sign that you are willing to try new things, to innovate. Many of the disruptive technological advances were outcomes of failed endeavors. The Newton was a tablet device conceived by Steve Jobs that did not resonate with consumers and was considered a failed product. It is the direct predecessor of other tablet devices. Sometimes, a good idea fails because it is ahead of its time, the technology, or the perceived need. Watch for those failed ideas and determine whether you can recycle them into innovations that will succeed. DNPs can be innovative and disruptive!

Overcome Barriers

There are barriers to all new ideas. Before you embark on your innovation journey, it is wise to evaluate and prioritize its barriers. Gather all the data you have available and perform a SWOT (strengths, weaknesses, opportunities, and threats) analysis (Exhibit 15.4). (Read more about the SWOT in Chapter 13.) What internal and external factors can impact your idea? How important are these factors—taken individually and as a whole? Once you have identified strengths and opportunities as well as weaknesses and threats, you must rank them in terms of their potential impact. Match strengths to weaknesses and opportunities to threats and develop a conversion strategy to maximize success and minimize failure. Common barriers are legal and regulatory issues, financial constraints, lack of infrastructure, and lack of special knowledge or skills.

EXHIBIT 15.4

SWOT Analysis Example

Strengths

What features make your idea marketable? Why is it a good idea?

Weaknesses

Do you have the resources? Do you lack institutional support?

Opportunities

Any time of rapid change presents opportunities for innovation. This certainly is that time.

Threats

Are there copyright or trademark considerations? Is there stiff competition?

Legal and regulatory barriers include scope-of-practice issues, copyright or trademark laws, licensing regulations, and the need for contractual agreements that specify what your rights and obligations are with regard to your innovation. The healthcare industry is a highly regulated and competitive one, requiring legal advice to navigate many of these barriers.

Financial barriers generally are caused by a lack of access to capital. You will need to have a business plan (addressed in the second part of this chapter). A market analysis will provide data to calculate start-up costs and construct a budget that allows sufficient time to develop, market, and embed your product or service. Financial statements that project your expectations for profitability within an accepted time frame must be prepared (Jones et al. 2019). It is not uncommon to read about entrepreneurs who have used credit cards, bank loans, home mortgages, and other personal debt to finance a start-up; however, this is not recommended. Consider writing a grant proposal, seeking a small business loan, partnering with a larger company, or approaching a venture capital company to get the necessary funding (see Chapter 14 for more detail about grant writing).

The concept of "makerspace" can be instrumental in overcoming barriers to innovation. Administrative support to provide time, materials, and designated space for nurses and other healthcare workers to develop solutions and prototypes that address products and materials to improve care can be developed (Marshall & McGrew, 2017). Hospitals and healthcare systems that have distinct innovation laboratories for front-line workers to experiment with tools and support to explore and develop solutions will benefit. The MakerNurse website features tools, support, and ideas for creating these innovative spaces (www.makernurse.com).

AMERICAN ORGANIZATION FOR NURSING LEADERSHIP GUIDING PRINCIPLES

Innovators and successful entrepreneurs are connected. They acquire information and ideas from professional colleagues and organizations. Membership in your national and local leadership organizations will provide a wealth of support for your career. The American Organization for Nursing Leadership (AONL; 2010) developed a document that projects five major assumptions about the care delivery system of the future, with guiding principles and an action plan provided for each assumption. Although written in 2010, the guiding principles hold true today. These assumptions (Exhibit 15.5) can

EXHIBIT 15.5

AONL: Guiding Principles for Future Patient Care Delivery

Assumption 1: The role of nurse leaders in future patient care delivery systems will continue to require a systems approach with all disciplines involved in the process and outcome models.

Assumption 2: Accountable care organizations will emerge and expand as key to defining and differentiating healthcare reform provisions that will impact differing care delivery venues.

Assumption 3: Patient safety, experience improvement, and quality outcomes will remain a public, payer, and regulatory focus driving workflow process and care delivery system changes as demanded by the increasingly informed public.

Assumption 4: Healthcare leaders will have knowledge of funding sources and will be able to strategically and operationally deploy those funds to achieve desired outcomes of improved quality, efficiency, and transparency.

Assumption 5: The joint education of nurses, physicians, and other health professionals will become the norm in academia and practice, promoting shared knowledge that enables safer patient care and enhancing the opportunity for pass-through dollars to apply toAPRN)residencies and/or related clinical education.

help guide innovation in all areas of the healthcare system. Nurse leaders will need to understand healthcare and economic systems at a macro level. They will work within new structures and use new methods of providing care and educating staff such as telehealth, artificial intelligence, and simulation. The leader of the future will have strategic responsibilities related to internal and external forces driving cost, quality, and efficiency. Interdisciplinary initiatives that partner with the healthcare consumer will create an increased need for transparency and a better educated workforce.

Incremental changes to the healthcare system are a thing of the past. Newly developed care delivery models and services will reflect emerging technologies and economic realities. Increasingly diverse populations and settings offer interesting possibilities for nurses with advanced practice and leadership skills to design innovative solutions. Key skills include relationship building, communication, listening, and financial savvy.

BUSINESS ACUMEN, PLANNING, AND BUILDING A SOLID BUSINESS CASE

Business Skills

So you have a great idea for a project to save the organization money, to increase revenue, or enhance the overall quality of patient care. As a DNP, having good business skills will enable you to not only negotiate for what you want for your patients and the organization, but for yourself and your career. Business planning is a process that DNPs will increasingly use as the business of providing healthcare expands to meet the demands of healthcare reform. One must build a compelling business case to obtain the funding and support necessary to move forward.

Talking the Talk

In nursing school, students are taught a vocabulary specific to the profession. To the untrained ear, this nursing language can seem confusing. It is the same with finance and accounting professionals; they use their own terminology to communicate. As a DNP, learning the language of finance will make your job easier and help you gain the respect of the financial team (Waxman, 2018).

Business-planning skills, as well as proper business acumen, are essential. A business plan is a written argument intended to convince a decision maker to approve some kind of decision. The plan will outline what the team or organization will gain and the steps it must follow to actually benefit from the opportunity. Whether you are writing a business plan for your own business or pitching a product or program within the organization, there are specific components of a business plan that need to be addressed. Depending on which model you use (and there are several), the components may be named differently but the basic framework is the same.

Many organizations are requiring a business plan or a business case be written and presented for any proposed change in staffing, equipment, program, or service line. For purposes of this text, we outline seven key elements of a business plan. Each of the elements is described and a brief sample provided at the end of each section.

BUILDING A BUSINESS CASE AND CONSTRUCTING THE BUSINESS PLAN

Executive Summary

The executive summary is a one- to two-page document that summarizes the opportunity and its importance. Similar to writing an abstract for a publishable manuscript, the executive summary is usually written after the business plan or business case has been written.

This section should include a summary of the present situation or problem, your idea/solution/plan, timeline, and most important, the financial impact and return on investment. What is in it for the organization? This section should be no more than two pages, as busy executives need a document they can review quickly to understand the proposal and the cost–benefit. The components and description of each section follow.

1. **Description of the present situation and summary of existing conditions**: Your description of the current status and why change is needed goes here. Be thorough in your summary and explanation of the existing conditions. The executives need to know why they should adopt your suggestion, so you need to describe in detail what is not working. This can also be described as a *gap analysis*, whereby the difference between the present state and the future stateis considered the gap. Your proposal will, theoretically, close that gap.
2. **Description of the new program or proposed solution**: This section is designed to explain your solution to the existing problem or gap. Considerations in this section include ensuring that the solution is in line with the organization's goals and objectives, mission, vision, and values. If there is a gap in compliance or if it relates to patient safety, indicate that in this section and make sure to include it in the executive summary.
3. **Presentation of options**: This section provides the opportunity for you to present your proposed solution and other options to consider. Starting with the status quo enables the executive to understand what the ramifications will be if nothing is done. Will the organization lose money? Will patient safety be impacted?
    a. The second option should be your proposed solution. You should summarize what you wrote in section 2.
    b. The final option should be a compromise—your backup plan. Because it is your second proposed solution, fully explain why it is not your first option and why you feel your original solution would be better. Do this by listing the pros and cons of each (Waxman, 2015). For example, you might indicate that your secondary solution is to hire a 0.5 FTE (full-time equivalent) rather than a 1.0. You would then need to include the advantages and disadvantages of adopting this solution.
4. **Market analysis (optional):** If you are proposing a new program or service, this section is important. However, it may not be needed for business cases such as an additional FTE. This section is where the SWOT analysis takes place. As you recall from Chapter 13, the SWOT is a review of the program's strengths, weaknesses, opportunities, and threats. The administrative or executive team will appreciate the fact that you have a well-thought-out plan and a SWOT analysis can help. This section should also include the data you gathered to back your analysis. Data, such as physician practice patterns, volume projections, competitor information, and patient satisfaction scores and revenue projections, are examples.
5. **Implementation plan, timeline, and schedule:** This section is where you explain how you or your team will implement the program into practice. Using project management tools, such as a Gantt chart, can be very useful depending on the amount of detail you wish to show. This section can be combined with section 6 or separated depending on the detail and complexity of the business case. This is where you will describe whether job descriptions need to be written, ads need to be placed, informational meetings need to be held, supplies need to be purchased, and so forth. Identify why these tasks are important and who is going to take the lead on each. As the author of the business plan documents, this does not imply that you

will be doing the bulk of the work. Your first task in this section may be to create a team and describe roles and responsibilities.

Developing a clear, realistic timeline is critical. From a macrosystem perspective, what other changes have been implemented organizationally in the recent past? Is your project going to interfere with others that are in progress? Consider seasonality, scheduling, vacations, holidays, and budget cycles. These can impact your schedule, so be realistic. The timeline can be placed in a Gantt chart as mentioned earlier and combined with the assignment of tasks, milestones, and key deliverables.

6. **Evaluation plan:** Once your program is implemented, how will you know it is effective? What metrics will you use to evaluate it? This section reviews how you and your team are going to measure the effectiveness. The administrative team or executive will expect that you have thought this out and have provided an evaluation plan that best measures the return on investment (ROI) for the organization. Ways to measure this include patient satisfaction surveys, employee satisfaction surveys, cost, revenue, length of stay, readmission rate, cost-avoidance, and so on
7. **Financials:** The final section is dedicated to the financial impact of the program. Is this a revenue-producing program or an expense-reducing program? Will this program help avoid costs? Many projects in hospitals are actually cost-avoidance projects rather that revenue enhancing. Perhaps it is actually a budget-neutral program, but patient satisfaction is expected to increase. This section includes the budget and **pro forma** of when the program will actually make money or bring in revenue to the organization. It may also include a cost–benefit or cost-avoidance analysis. The narrative piece is included in the written document, and the budget, ROI, and pro forma are usually attached as appendices.

Sample Executive Summary

Patient injuries from falls are an all-too-common and unfortunate occurrence within today's hospital environments. One frequently employed fall-prevention strategy is the use of sitters for continuous patient observation. Statistics from the Centers for Disease Control and Prevention (CDC, 2021) for U.S. nonfatal fall costs in 2020 was $50 billion. Current literature reveals a growing body of applied evidence demonstrating how sitters can be effectively replaced by alternative fall-safety strategies. An engaged nursing team supported by necessary education, tools, and resources is the foundation to an effective sitter reduction and patient safety improvement effort (Lang, 2015).

The proposed sitter reduction program will coordinate the implementation of policy training, monitoring technology, and safety equipment to provide a new and broad inventory of alternative patient safety options for staff. The program targets nonpsychiatric sitter usage within the organization's adult acute care inpatient environments and will monitor sitter use, fall reports, and alternative strategy effectiveness in real time as a feedback loop for continual process improvement. Goals of the program are to reduce nonpsychiatric sitter use by 75% and decrease patient fall rates and harm from fall events by 25%. The labor savings achieved by this sitter reduction program, in conjunction with the initiative's supply cost savings, targets a cumulative 5-year positive net contribution to the organization of $943,656 (Bock, 2016).

Sample Description of the Present Situation and Summary of Existing Conditions

We currently are experiencing high overtime on many of our nursing units due to the use of sitters. Becausee sitters were not budgeted, we use our nursing assistants to sit with patients, and many of them work double shifts to cover this need. A growing concern for

the organization is that although the internal rate of falls is below the national average, the rate remains essentially unchanged over the past 3 years despite a nearly fourfold increase in nonpsychiatric sitter usage over the same time frame. The trajectory in sitter utilization is driving a significant increase in costs without producing value for patient safety. Assuming a standard wage rate of $18.68/hour, these five units have increased spending on patient care sitters from $76,252 in federal year (FY)13 to $249,616 in FY16 without a corresponding improvement in fall outcomes. However, considerations of overtime dramatically increase the budgetary impact of using sitters for fall prevention. Although the organization does not currently capture overtime hours used in the job code for patient care sitters, an assessment among frontline managers and the staffing department indicates overtime utilization for sitters is as high as 30% or more. When considering overtime, system-wide nonpsychiatric sitter costs for the organization likely exceed $500,000 annually (Bock, 2016).

Sample Program Description

The dimensions of the proposed sitter reduction plan include aligning best evidence with current practice, implementation of patient monitoring technology, and an expansion of new patient safety supplies for staff. The specific safety alternatives are based on the results of a gap analysis comparing current practices with best evidence identified by a literature review. Although a single policy guides patient safety practices for the organization, there is significant discrepancy across departments as to actual practice. In discussions with staff and unit leaders, the most significant contributors to patient fall safety are lack of visibility into a patient room and insufficient time to respond to unstable patients attempting to get out of bed. As a result, staff use patient sitters for continuous observation of high-fall- risk patients. To reduce the reliance on sitter usage, this program will engage select vendor partners to provide alternative safety measures that address the visibility and time-deficiency concerns identified by the nursing departments. Working in collaboration with frontline staff, combining best practice with new patient safety equipment and technology will achieve the goals of the improvement project.

Recognizing the rationale behind sitter utilization and the need to effectively address these concerns, the improvement project will provide revised practice recommendations based on current evidence and top performers in the organization. Particular best practices identified by the gap analysis include an active fall-safety huddle at the beginning of each shift that identifies all high-risk patients and the current efforts employed to maintain their safety. Another high-yield intervention is inclusion of a scripted safety education discussion with patients during a bedside shift report. Although other practices produce strong results, these two efforts appear to work consistently within the organization wherever they are employed.

The project will deploy a new patient monitoring technology for the organization. Utilizing an in-room camera mounted in the ceiling, the closed-circuit monitoring system is either actively or passively viewed from a central station to provide direct visibility into a patient room. Beyond simple visibility, the system employs a superimposed virtual rail system that in combination with a proprietary algorithm detects egress activity around a patient. This image, viewable only from the central station, is targeted on either a bed, chair, or other configurable location and serves as an invisible safety border around the patient. If the patient attempts to exit this zone, the camera system detects this motion and alarms the central monitoring station accordingly, thus providing staff with time to intervene before a fall occurs.

The final element of the program includes provision of a new formulary of patient safety equipment for staff. The new vendor provides an expanded set of tools and resources staff can use in managing patient safety in lieu of continuous observation.

Particularly notable is the availability of a patient body belt. This nonrestraint device is designed to remind patients to call for help when assistance is required as opposed to impulsively exiting the chair or bed. The tool is easily removable by the patient; however, the time delay and tactile action required provide an opportunity to identify patient egress movements and to remind the patient to call for assistance (Bock, 2016).

Sample Presentation of Options

Option 1: Do nothing. If we choose not to move forward with this proposal, costs will continue to rise related to sitters. (In this section, you can note the current costs in terms of dollars and that if you continue, the costs will continue to be incurred or rise).

Option 2: Implement the nonrestraint device program hospital-wide, which will avoid costs incurred with sitters and overtime, and will increase productivity.

Option 3: Implement on one unit and evaluate after 90 days to determine whether we want to roll it out throughout the hospital.

Sample Market Analysis (Optional)

Comparing current evidence to best practice and the results of the gap analysis indicate several opportunities in which the organization can reduce utilization of patient sitters for fall prevention. When combined with staff education and a comprehensive approach to fall safety, video monitoring technology has shown to reduce sitters by 50% without a negative impact on patient fall outcomes (Burtson & Vento, 2015). Other contemporary studies of continuous video monitoring technology show that both a reduction in patient care sitter usage and a decrease in patient fall events are achievable when specifically combined with staff training as well as patient and family education on fall prevention (Jeffers et al., 2013; Sand-Jecklin et al., 2015). Though promising, a likely contributor to the reduction in patient falls observed with deployment of video monitoring is the increased attention realized by comprehensive efforts around fall prevention and patient safety (Hardin et al., 2013). (In this section, you can also indicate whether you know other hospitals that have implemented the program in your region to show a competitive edge.)

Sample Implementation Plan, Timeline, and Schedule

This could take the form of a Gantt chart created in Excel and supplied as an appendix.

January: Meet with CFO to gain buy-in; establish committee, hold meeting. Committee should include managers, staff representatives, risk management, physicians, physical therapists, nursing assistant.

February: Meet with vendors to determine best products. Gather financial data, hold committee meeting.

March: Establish outcome metrics, committee meeting, order products (Table 15.1).

April: Roll out program on one unit, followed by house-wide rollout after 30 days.

May–August: Continue to monitor program outcomes, which include financial data to show ROI.

Ongoing: Complete plan–do–check–act (PDCA) or plan–do–study–act (PDSA) model of continuous quality improvement.

Sample Evaluation Plan

The evaluation plan could be expressed in tabular form (Table 15.2).

TABLE 15.1 Performance Outcome Metrics

Metric	Organizational definitions	Collection source
Patient care sitter utilization in hours used	• Patient care sitter: Any job class assigned to the direct and constant observation of a patient • Sitter utilization: The number of hours recorded by the organization's staffing office for which personnel are assigned by a patient care unit to the role of patient sitter	• The central staffing office is responsible for tracking assigned patient care sitter hours for the organization. • Full-month data are available within 10 business days of the end of each month.
Rate of patient falls	• Patient fall: Any unplanned, assisted, or unassisted descent to the floor by a patient • Fall rate: The number of documented fall events per 1,000 patient days	• All fall events, regardless of the level of harm, are recorded in the organization's incident report system. • Fall-event data are available within 30 days of the end of each month. • The organization's finance department is solely responsible for tracking inpatient census. • Audited census data are available the next business day.
Rate of falls with injury	• Fall injury: Diagnosed as moderate (sprain, deep laceration) or severe (fracture, change in mental status) harm or death resulting from a fall • Fall injury rate: The number of qualifying fall-injury events per 1,000 patient days.	• Fall-injury data are recorded in the organization's incident reporting system. • The quality management team is responsible for identifying all qualifying fall-injury events. • Audited fall-injury event data are available within 30 days of the end of each month. • The same census data collection and auditing processes apply as previously noted (rate of patient falls).

TABLE 15.2 Overtime Reduction Model and Resulting Net Contribution to Organization

50% sitter reduction						
Overtime %	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Total**
Base (no OT)	$106,845	$115,549	$119,355	$121,089	$125,089	$587,927
15% OT	$176,783	$187,410	$193,192	$196,939	$203,043	$957,367
75% sitter reduction						
Overtime %	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Total**
Base (no OT)	$174,783	$184,743	$190,452	$194,123	$200,150	$944,251
15% OT	$279,094	$292,535	$301,208	$307,925	$317,081	$1,497,843

OT, overtime.

TABLE 15.3 Financial Details (90-Day Evaluation Budget[1])

Item	Cost/(Savings)	Evaluation quantity	90-Day cost/ (Savings)	Assumptions
Staff training	$35/hour	1 hour/FTE	$4,200	60 FTE per department
IS project time	$100/hour	8 hours	$800	Time required validated by IS
Patient safety supplies	(20%)	90-day supply	($1,200)	Savings based on historical usage of $1,000/month per unit
Patient monitoring technology	$70/camera/ month $130/monitor station/month	29 cameras 2 stations	$6,090 $780	Install in one third of patient care rooms, one monitor per central station
Sitter reduction	($18.68/hour)	Unit 1 = 630 hours Unit 2 = 550 hours	($22,042)[2]	Based off of 50% reduction in FY16 average monthly sitter usage
	90-day evaluation total		($11,372)[2]	Savings

[1] 90-day evaluation budget based on a two-unit deployment as described at two hospitals.
[2] Conservative estimate of 50% reduction in sitter hours. Program targets a 75% reduction in sitter utilization. If target is achieved, sitter reduction savings would increase to $33,063, resulting in a net 90-day savings of $22,393 for the organization.
FTE, full-time equivalent; IS, information services; OT, overtime.

Sample Financials

The financial details could be expressed in tabular form (Table 15.3).

BUSINESS PLAN SUMMARY

Although the components of a business plan are essentially the same in all organizations, the templates may vary. The process of writing a business plan, or building a solid business case, coupled with the DNP's knowledge of the macrosystem of healthcare can easily result in ensuring success in initiating and operating successful programs.

Potential programs that DNPs could be involved with or that they may lead include helping a nurse manager justify the need for a unit-based clinical educator, creating an outpatient program to increase revenue, creating a short-stay program to decrease unit expenses, and developing an organization-wide back-safety program to reduce employee injuries.

SAMPLE SUMMARY OF COMPLETED PROJECT WITH ROI

Project title: A Program to Reduce Opioid Reliance in a Veteran Population Using Shared Medical Appointments (SMAs).

Summary: The significance of the opioid crisis facing our nation today cannot be overstated. Current estimates from the CDC reflect an estimated $78.5 billion-a-year economic burden from the opioid crisis, which includes the costs of healthcare,

productivity losses, treatment for addiction, and criminal justice involvement (National Institute on Drug Abuse, 2019). Veterans are twice as likely to die from an opioid overdose as the average American, making this epidemic a priority for the Veterans Health Administration (Wilkie, 2018). The purpose of this project was to provide financial justification for implementing opioid-safety SMAs throughout USA Primary Care clinics.

Background: SMAs have shown to be beneficial in addressing various chronic medical conditions, including chronic pain (Romanelli et al., 2017). The 9-week SMA curriculum included the use of a whole-health conceptual framework that introduced complementary integrative modalities for pain management such as meditation, acupuncture, tai chi, mindfulness, and imagery.

Financial Outcomes: An opioid safety SMA program with a health-coaching component has been shown to be a cost-benefit venture. Opioid safety education was provided to 20 veterans in a group setting over 90 minutes at a cost to the organization of $342.00, versus the standard option in which 20 veterans received opioid safety education via routine office visits at $250.00 per visit for a cost of $5,000.00. Working closely with our CFO, we have calculated a cost avoidance of $4,658.00 by providing group education, versus standardized in-office education. In addition to the financial savings associated with conducting a 9-week SMA on opioid safety, the intangible potential benefits veterans may realize in achieving lifelong, healthy behavior changes by decreasing their opioid reliance must be considered.

The proposed budget for this project included the following staff salaries needed to conduct a 90-minute SMA: $154.00 for the primary care physician, $45.00 for the RN, $31.00 for the LPN, $27.00 for the SMA, and $85.00 for the pharmacist, thus totaling $342.00 in personal costs. Additional capital costs are included in the salaries. Although no additional revenue will be directly placed back into the budget, in the end, these healthy behavior changes could eventually impact veterans' lives and result in less drain on the American healthcare system.

In conclusion, this program is a cost-effective approach for providing opioid-safety education. An opioid safety SMA with health coaching is an innovative approach to assist veterans in reducing their opioid reliance and has the potential to change lives, decrease the risk of opioid addiction, and influence future practice guidelines for addressing our nation's opioid crisis.

(*Thanks to Dr. Sherry Cox for her contribution.*)

CONCLUSIONS

Nurse leaders moving into roles that require a DNP must demonstrate knowledge and skills that will help them be successful in advanced practice. This chapter presented several topics related to business acumen. The ability to innovate as well as develop entrepreneurial proposals and solid business plans prepares nurses to have a strong voice in the C-suite and the boardroom.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Successful entrepreneurs are "made," not born. They have acquired a skill set that promotes the identification and development of new ideas. Rate yourself, using the following criteria, to determine where your ability to function in an entrepreneurial role can be improved.

   a. I have a low level of comfort with uncertainty.
   b. I find it difficult to "sell" my ideas.
   c. My inexperience with business procedures makes me unsure.

   An answer of yes to the previous questions should not be viewed as a barrier to your entrepreneurial effort. Instead, use this exercise as a tool to help you develop new skills. List five things that you can do to boost your chances of success in each of the previous areas.

2. As our country ages, the impact of baby boomers turning 65 every 7 seconds is significant. What does this mean to the DNP? How can the DNP help the organization develop a plan for succession planning?
3. Writing an executive summary should occur after the business plan is written. Think about a project or proposal that will either increase revenue or decrease expenses. Write a two-page concise executive summary outlining your proposal and its benefits.
4. In a small group, build a business case to add clinical nurse specialists (CNSs) to a nursing unit. What are the costs? What are the benefits? How would you build a case to add this additional FTE? How would you measure the ROI?
5. During the COVID pandemic, what lessons did you learn related to your organization's capability/inability to respond quickly, efficiently, and effectively to the influx of critically ill patients. As a DNP-prepared nurse, what steps would you take to better prepare your organization should another pandemic occur? How would this affect patient care and safety, staff safety and morale, and the financial viability of the organization?

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 16

CNO–CFO Dyad: An Essential Relationship

Colleen A. Chapp and Kimberly A. Nagy

When the trust account is high, communication is easy, instant, and effective.

—Stephen R. Covey

In today's rapidly evolving healthcare environment, healthcare executives are faced with increasing challenges in addressing both planned and unplanned disruptions, competing priorities, ever-increasing complexity, and persistent uncertainty within an environment dependent on human caring. DNP graduates are prepared to lead in a variety of roles; *The Essentials of Doctoral Education for Advanced Nursing Practice (American Association of Colleges of Nursing [AACN], 2006)* previously provided the framework for preparing members of the discipline of nursing to develop critical competencies in the *Essentials.2006)* Now, *The Essentials: Core Competencies for Professional Nursing Education* (AACN, 2021) introduces 10 domains that represent the essence of professional practice and the expected competencies for each domain. The future will require synergistic executive alignment to design, disseminate, and optimize organizational imperatives that will demonstrate value for all healthcare stakeholders. The leadership skills and knowledge needed to lead in establishing and developing essential relationships are embedded in the DNP standards. DNPs not only need to understand the business of healthcare, but they also need to professionally brand themselves as key executive members of the team. The Advanced Level Nursing Domains discussed in this chapter are Domain 6: Interprofessional Partnerships; Domain 7: Systems-Based Practice; Domain 9: Professionalism, and Domain 10: Personal, Professional, and Leadership Development. The focus of this chapter is to organize the complexity surrounding nurse executive relationships through awareness of critical skills and the Future Smart skills and mindset necessary for successful essential executive relationships.

HEALTHCARE LANDSCAPE

Strong chief nursing officer (CNO) and nonclinical executive leadership is critical for highly successful healthcare organizations. The shift of healthcare delivery toward value-based care requires essential, collaborative, and synergistic relationships involving clinical and administrative expertise to ensure alignment and execution of organizational clinical and administrative imperatives among executive members. This has

led to the proliferation of the dyad leadership models (Chazel & Montgomery, 2017). The patient safety movement and financial challenges continue to drive the development of interprofessional teams where in which the clinical expertise and healthcare business acumen of nurse executives are paramount in ensuring alignment with their nonclinical executive partners. To effectively lead exemplary teams in our volatile and highly complex healthcare environment, strategic leveraging of synergy through executive partnerships is essential. Leading in this way requires a capacity for mutuality, connection, shared decision-making, crucial conversations, emotional intelligence (EI), resiliency, and an openness to continue to develop professionally. The current and future state of healthcare delivery depends on the DNP's ability to value, develop, and master an essential relationship with the CFO.

DEFINITION OF A DYAD

Research suggests that dyads offer a powerful solution in facilitating the transfer of critical knowledge and executive relationship building, both of which are essential in leading, maintaining, and achieving organizational imperatives (American Hospital Association [AHA], 2018). "Dyads are mini-teams of two people who work together as co-leaders of a specific system, division, clinical service line or project" (Sanford & Moore, 2015, p. 7). The development and advancement of a dyad relationship is intentional and strategic. It is not a temporary or assigned structure or role. Dyad leadership extends further than the traditional collaborative spirit or an understanding of collegiality and respect. The dyad members intentionally align to become a synergistic partnership in a highly organized and thoughtful manner. The organizational culture values the dyad and further supports the interprofessional team development to operationalize the planned dyad initiatives during both planned and unplanned disruption.

CNO–CFO RELATIONSHIP

As senior management team members, CNOs and CFOs work together to provide and manage care clinically and financially (Figure 16.1). Today's most successful nurse executives clearly understand how the CNO areas of responsibility impact the organization's business goals and strategic agenda. Establishing or strengthening synergistic relationships between nursing and finance leaders in all healthcare settings is an important prerequisite to achieving optimal allocation of nursing resources (Healthcare Financial Management Association [HFMA], 2020). Intentional collaboration among the CNO and CFO is the key to delivering high-value healthcare. Interprofessional collaboration is predicated on relationship building, which, in turn, is facilitated by *committing to partner* with the CFO in securing valuable nursing resources to achieve exemplary nursing outcomes.

CNO CHALLENGES

CNOs have long been challenged with multiple competing priorities and broad accountabilities that require immediate resolution and the innate ability to prioritize accordingly. In 2016, The Advisory Board's Nursing Executive Center conducted a CNO poll (n = 96) (The Advisory Board, 2016). The focus was to identify the top 10 topical interests of CNOs. In 2021, the *top 10* continue to remain CNO top challenges. The *relationship* with the CFO partner, however, is changing. Several stressors have been unique to CNOs, such as the need to improve quality while reducing costs, and the need to provide care through frequent introduction of quality and safety initiatives—all while managing the *churn*—the constant admission/discharge movement process creates a dynamic environment. In recent years, changes in payment models, regulatory requirements, cost-containment pressures, and disruptive competition have emerged as stressors for the CFO (HFMA, 2020).

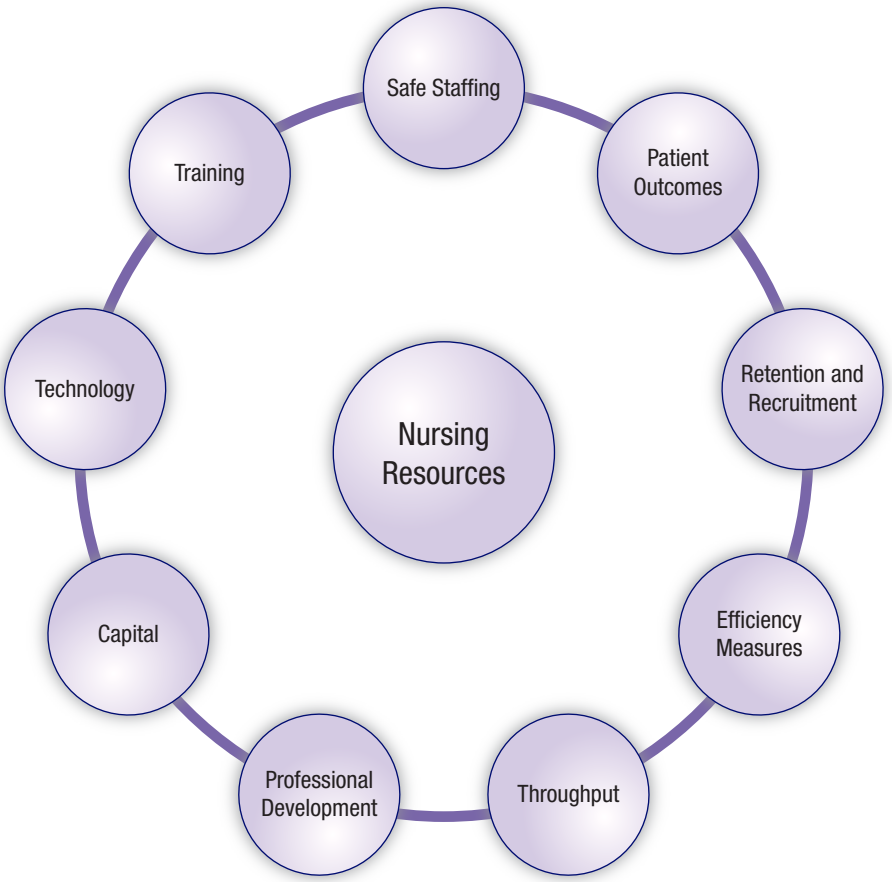


FIGURE 16.1 CNO Nursing resources.
Source: Chapp, C., & Nagy, K. (2021). *CNO-CFO relationship: An essential partnership, survey*. Kirby Bates and Associates.

Not long ago, finance and nursing executives were often at odds with each other when it came to agreeing on the annual nursing budget. Planning conversations were infrequent, if held at all, and strategic goal alignment between nursing and finance was extremely uncommon. As Lencioni reminds leaders in *The Five Dysfunctions of a Team* (2002), "teamwork, rare and powerful, exceeds finance, strategy and technology as the ultimate competitive advantage for an organization" (Lencioni, 2002, p. vii) Within the dyad, building relationships, discovering new ways to engage in thoughtful and meaningful conversation, and seeking an understanding of the way dyad partners work builds trust and leads to a better understanding of the shared stressors and advances innovative solutions to address combined stressors.

Promoting interprofessional relationships through intentional and purposeful collaboration among healthcare executives is the key to delivering high-value healthcare. Interprofessional collaboration is predicated on relationship building, which is facilitated by adopting tactical strategies outlined by HFMA in *The Business of Caring* (2020). The strategies include nurturing relationships over time, building understanding for culture change, developing jointly understood vocabulary, inviting innovation and new solutions to old problems, reviewing key metrics for good business decisions, involving all stakeholders, committing to transparency, developing key

relationships and nurturing them over time, and celebrating success. A collaborative DNP-prepared CNO–CFO dyad achieves a shared understanding of value and establishes synergistic relationships that reflect shared insight into the stressors inherent in today's rapidly changing healthcare environment during times of planned and unplanned disruption.

PROFESSIONAL DYAD PARTNERSHIPS: KEYS TO SUCCESS

The AHA and its affiliates, the American Organization for Nursing Leadership (AONL) and AHA Physician Alliance, joined with the American Association of Physician Leadership (AAPL) to identify effective approaches to collaborative executive leadership in complex environments of care and to develop a shared understanding for clinical leadership decision-making, such as the CNO–CFO dyad, that can be used by other healthcare executives (AHA, 2018; Table 16.1).

A partnering mindset is an identifying attribute of a synergistic dyad and supports psychological safety. Essential qualities shared by these leaders include moving from "I" to "we," displaying known values that align with the dyad partner as well as the organization, being patient-centric, having resilience, embarking on courageous conversation, demonstrating effective communication and execution, and showing EI. In *Partnering Intelligence* (Dent, 2004), Dent describes six "partnering attributes" that

TABLE 16.1 Clinical Partnership Keys to Success as Identified by Participants at the AHA Executive Forum, September 2017

Interpersonal qualities	Interpersonal behaviors	Organizational factors
Trust and respect	Get to know each other, go slow to go fast	Shared mission, vision, and strategic goals
Intentionality	Assume good intent	Supported by senior leadership
Friends as well as colleagues	Good communication/model partnership	Clear role descriptions that include shared accountability
Self-awareness	Spend time together	Knowledge sharing is valued
Self-reflective	Strategic influencing/seen as joint leading	Offices are co-located
Open to perspective of others	Share success and failures	Opportunity to interview and hire your partner
Service orientation/ mission-driven	Present a united voice	Coaching provided to support partnerships and leadership development for all dyad leaders
Own their contribution to outcomes	Conflict engagement that preserves relationship	Cascade dyad model from executive team to unit level
Willingness to learn and grow	Give and receive feedback	
Able to take risks with each other	Can openly talk about strengths and weaknesses with each other	
Mutuality	Positively influence each other	
Humility		

Source: American Hospital Association. (2018). *A model for clinical partnering: How nurse and physician executives use synergy as strategy.* © Used with permission of American Hospital Association.

include self-disclosure and feedback, mutuality, ability to trust, comfort with change, interdependence, and future orientation.

MOVING TOWARD A COMMON MODEL OF LEADERSHIP

As the pace of health sector transformation accelerates, the value of executive leadership continues to grow across the entire healthcare continuum (Table 16.2). Advances in a variety of the disciplines could provide direction and value for effective leadership development. Interprofessional approaches have been implemented and are considered

TABLE 16.2 Transdisciplinary Leadership Model Domains and Competencies

Domains		Competencies
Execution	Action	Accountability
	X	Achievement/Orientation
	X	Analytical Thinking
	X	Communication Skills 1: Writing
	X	Communication Skills 2: Speaking/Facilitating
	X	Initiative
	X	Performance Measurement
	X	Process and Quality Improvement
	X	Project Management
Relations	X	Collaboration
	X	Impact and Influence
	X	Interpersonal Understanding
	X	Talent Development
	X	Team Leadership
Transformation	X	Change Leadership
	X	Information Seeking
	X	Innovation
	X	Strategic Orientation
Boundary Spanning	X	Community Collaboration
	X	Organizational Awareness
	X	Network/Relationship Development
Health System Awareness/ Business Literacy	Enabling	Financial Skills
	X	Human Resources Management
	X	Information Technology Management
Self-Awareness and Development	X	Self-Confidence
	X	Self-Awareness
	X	Well-Being
Values	X	Professional and Social Responsibility

Source: Garman, A., Standish, M., & Wainio, J. (2020). Bridging worldview: Toward a common model of leadership across the health professions. *Health Care Management Review*, *45*(4), E45–E55.

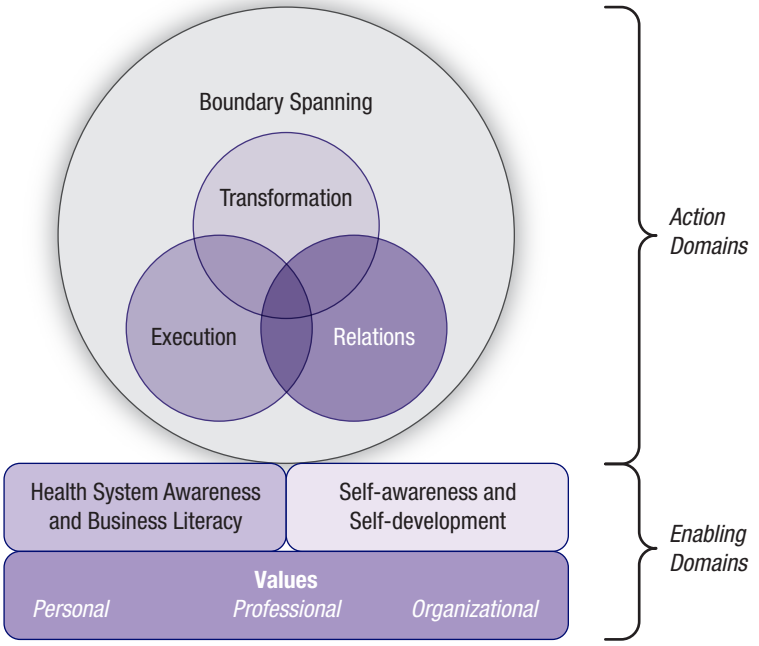


FIGURE 16.2 Transdisciplinary framework for leadership development in the health sector. *Source:* Garman, A., Standish, M., & Wainio, J. (2020). Bridging worldview: Toward a common model of leadership across the health professions. *Health Care Management Review*, *45*(4), E45–E55.

highly effective by high-performing healthcare organizations. In 2020, Garman et al. advanced a study to revise and revalidate Interprofessional Competency Model version 2.1, a widely used health sector leadership competency model created by the National Center for Healthcare Leadership, as the starting point to assess its potential for providing greater interoperability across the professions. As DNPs prepare to enter the C-suite and operationalize *Essentials* Domain 6: Interprofessional Partnerships; Domain 7: Systems-Based Practice; Domain 9: Professionalism; and Domain 10: Personal, Professional, and Leadership Development; progressive leadership models will support continued development and demonstration in providing essential leadership. Ongoing leadership development is becoming more widely recognized as a critical activity for supporting organization strategic goals (Crowe et al., 2017).

The model resulting from the Garman et al. study (2020) contains 28 competencies, which are organized using seven domains depicted in Figure 16.2. The model identifies four "action" domains, which represent leaders in the context of doing their work, as well as three "enabling" domains, representing leaders in the context of their preparation and/or development (Garman et al., 2020).

Practice Implication

The availability of a universally acceptable framework for leadership development in healthcare can provide multiple benefits for DNPs and their executive partners. The domain-level approach can provide a high-level starting point for prioritizing the DNPs individual leadership development needs. In the event the DNP wants to improve their leadership capacity to meet organizational strategic imperatives, they might prioritize

competencies within the Execution domain and then prioritize competencies within the same domain for future development. In addition, if leadership success means stronger relationships with executive partners, such as with the CFO, they might first prioritize the Boundary Spanning domain and then consider the competencies it contains (Garman et al., 2020).

CNO–CFO RELATIONSHIP: AN ESSENTIAL PARTNERSHIP

To better understand the strengths and opportunities of the CNO–CFO relationship, Kirby Bates Associates (KBA) conducted an online survey over a 5-month period between October 5, 2020, and March 8, 2021 (Figures 16.3, 16.4, and Exhibit 16.1). The survey focused on five Dimensions: 1. Lead with Purpose, 2. Lead with Strategy, 3. Lead Self, 4. Lead People, and 5. Lead for Results. Each dimension contained three questions using a Likert scale: 3 = fully true, 2 = sometimes Ttrue, and 1= not true, with a total of 45 points possible. Sixty-eight percent of the participants received the total 45 points, with 32% of the participants receiving ≤ 30 points; $N = 79$ current nurse executives with a CNO title participated in the survey (Chapp & Nagy, 2021).

Forty-one percent ($n = 39$) of the CNO–CFO relationship uses a collaborative Strategy to lead some of the time; and 1.3% ($n = 3$) do not use strategy to lead. The survey data provides a lens into the CNO–CFO relationship opportunities that currently exist. Areas of greatest opportunity, with ≥ 35% noting "sometimes true" include Lead with Strategy at 41% and Lead with Results at 36% (Table 16.3).

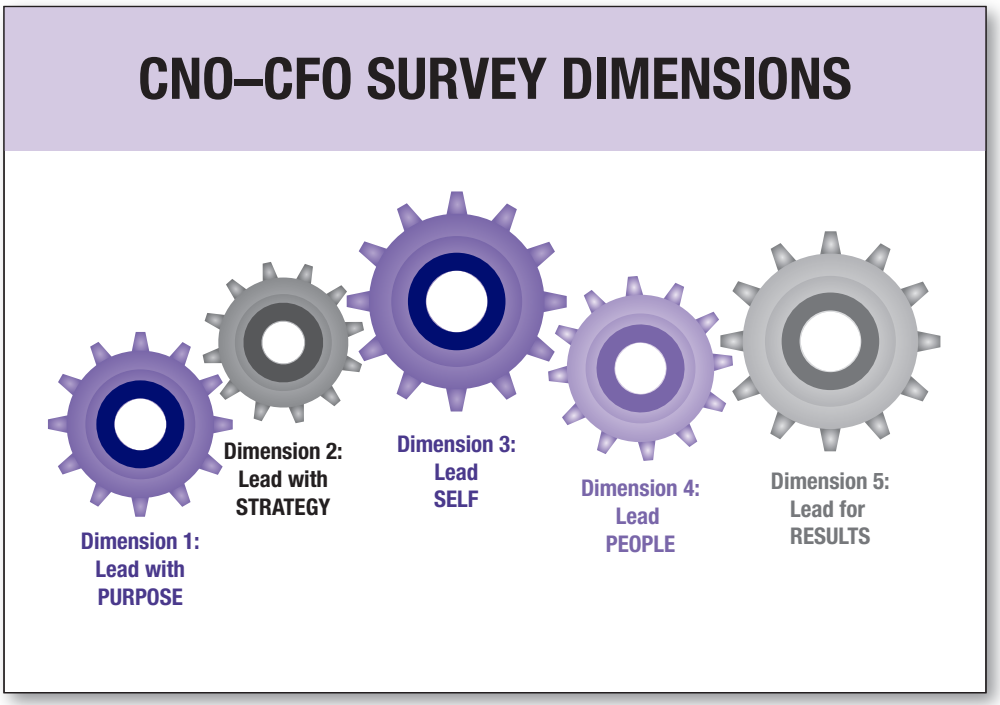
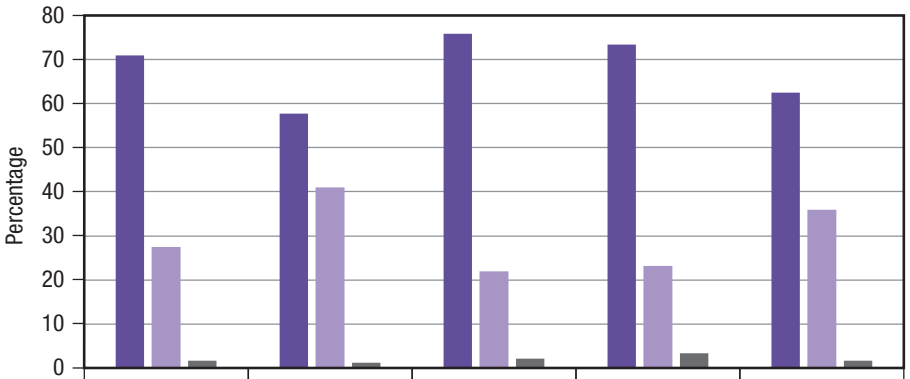


FIGURE 16.3 CNO-CFO survey dimensions.
Source: Chapp, C., & Nagy, K. (2021). *CNO-CFO relationship: An essential partnership, survey*. Kirby Bates and Associates.



	Lead with Purpose	Lead with Strategy	Lead Self	Lead People	Lead for Results
Fully True	70.89	57.81	75.95	73.42	62.45
Sometimes True	27.43	40.93	21.94	23.21	35.86
Not True	1.69	1.27	2.11	3.38	1.69

FIGURE 16.4 CNO-CFO survey dimension comparison results.
Source: Chapp, C., & Nagy, K. (2021). *CNO-CFO relationship: An essential partnership, survey*. Kirby Bates and Associates.

TABLE 16.3 Clinical Service Investment

Type of service	Percentage of CFOs
Primary care	77
Postacute residential care	61
Specialty service	63
Home care	59
Virtual health	54
Ambulatory service centers	58
Elder care	56
Behavioral health	50

Source: BDO Healthcare. (2021). 2021 BDO healthcare CFO outlook survey. https://www.bdo.com/insights/industries/healthcare/2021-healthcare-cfo-outlook-survey.

SYSTEMS-BASED PRACTICE

Systems-based practice responds to and leads within complex systems of healthcare. Nurses effectively and proactively coordinate resources to provide safe, quality, equitable care to diverse populations (AACN, 2021).

Strategic and Innovative Leadership

Today's executives believe an organization's or company's growth is dependent on breakthrough innovation and strategy to compete, improve performance and growth, and sustain gains. Success is dependent on the integration of innovation and strategy; thus, leaders must acquire the necessary skills and characteristics to lead organizations in innovation and strategy.

EXHIBIT 16.1

CNO-CFO Survey Detailed Results

Dimension 1: Lead With Purpose	Fully True	Fully True (%)	Sometimes True	Sometimes True (%)	Not True	Not True (%)	N=79	Totals (100%)
We have a clear common purpose that drives the work we do.	57	72.15	21	26.58	1	1.27	79	100.00
We disseminate the value in working together to all stakeholders.	55	69.62	22	27.85	2	2.53	79	100.00
We ensure that our collective action supports our work's purpose.	56	70.89	22	27.85	1	1.27	79	100.00
Dimension 2: Lead With Strategy								
We have a clear shared vision and agreed-upon imperatives.	46	58.23	33	41.77	0	0.00	79	100.00
We have roles that are clear, and our work complements each other.	49	62.03	30	37.97	0	0.00	79	100.00
We have a well-defined and agreed-upon strategy for achieving imperatives.	42	53.16	34	43.04	3	3.80	79	100.00
Dimension 3: Lead Self								
I (CNO) demonstrate awareness of my strengths and weaknesses.	59	74.68	19	24.05	1	1.27	79	100.00
The CFO is aware of their strengths and openly shares and leverages them with me.	51	64.56	25	31.65	3	3.80	79	100.00
I (CNO) am open to areas of growth opportunity and accept the CFO's assistance.	70	88.61	8	10.13	1	1.27	79	100.00
Dimension 4: Lead People								
We take time to develop our relationship and build/sustain trust.	55	69.62	20	25.32	4	5.06	79	100.00
We maintain an open and honest relationship.	59	74.68	18	22.78	2	2.53	79	100.00
We participate in crucial conversations with each other.	60	75.95	17	21.52	2	2.53	79	100.00
Dimension 5: Lead for Results								
We have aligned out work to support our established goals.	49	62.03	30	37.97	0	0.00	79	100.00
We have established action plans to support defined imperatives.	46	58.23	30	37.97	3	3.80	79	100.00
We openly discuss roadblocks and personal performance accountability.	53	67.09	25	31.65	1	1.27	79	100.00

Source: Chapp, C., & Nagy, K. (2021). *CNO-CFO relationship: An essential partnership, survey.* Kirby Bates and Associates.

Successfully Scaling Up (Harnish, 2014) requires leaders who possess aptitudes for prediction, delegation, and repetition, which are important for CNOs and CFOs to understand as they collaborate on organizational strategy. Leaders do not need to be years ahead of the market; just minutes ahead, the key is frequent interaction with customers, employees, and interprofessional relationships. The innovation and strategy leader's job is to keep the organization on message and everyone heading in the same direction. Successful delegation requires pinpointing what the person or team needs to accomplish, creating a measurement system for monitoring progress, providing feedback to the team or person, and giving appropriately timed recognition and reward. *Repetition* refers to consistency, finishing what you start, meaning what you say, not saying one thing and doing something else. Harnish (2014) believes that a critical function of leadership is delivering frequent messaging and metrics to reinforce the key attributes of the company and culture reflected through core values, core purpose, big hairy audacious goals, and priority themes.

The critical issue for strategic leaders leading innovation is how to make changes that progressively build on each other and represent an evolving enhancement of the organization's well-being. Hughes et al. (2014) believes the **strategy process** is a learning process, and that leaders must enter it with a learning orientation, including curiosity, inquiry, humility, and collaboration with others. Leaders must be clear about what drives them, so they can authentically navigate the landscape and be able to see and understand other perspectives and be patient and persistent in continuing to influence as strategic initiatives unfold (Hughes et al., 2014).

The process for building innovation competencies requires anticipatory and experiential knowledge. Davila et al. (2013) believed that anticipatory knowledge happens through strategic thinking and planning, whereas experiential knowledge happens through experience in developing new strategies.

Strategy Competencies and Tools

Assumption-Based Planning

Assumption-based planning is a tool designed to improve the robustness and adaptability of plans to reduce avoidable surprises along with ensuring that shaping and hedging actions are developed for whatever risks are recognized in any plan or planning. Determining the right foresight approach includes using analytical tools designed for various situations. Assumptions matter; as the level of uncertainty increases, quantitative forecast methods give way to qualitative methods, because it is better to have an approximate answer in the right area than to have exact solutions that are not (Gordon, 2008). Identifying trends through horizon scanning provides vital information to make better decisions and manage uncertainty. Future-savvy and future-smart leaders learn to distinguish and apply future-aligning and future-influencing forecasting toward successful results and outcomes.

Scenario Planning

The scenario-planning approach is qualitative and dynamic and considers that the future is created, whereas traditional planning is more quantitative and statistical and has a passive attitude toward the future (Lindgren & Bandhold, 2002). Performance-based scenario systems reflect inputs of stakeholder needs and organization history and culture; outputs reflect a robust strategy with an increased understanding (Chermack, 2011). Superior scenario planning is a more in-depth approach to examining fundamentals and assumptions based on the scenario-planning method, with the value of a clearer understanding of a successful future allowing the leadership team to get closer to a shared sense of reality (Schoemaker & Gunther, 2002).

Divergent thinking can be reflected through a set of scenarios representing various depictions of future options. By making your mind think about qualitatively different directions, you train yourself to think the unthinkable and hone your ability to foresee unusual events, which assists in shared exploration of the future (Lindgren & Bandhold, 2002). Presenting several diverse scenarios, which include information from the internal and external environment while using an adaptive learning approach, can provide the experience of scenario learning while reflecting the benefits of divergent thinking.

Responding to Constant Change

When information is rapidly changing, as evidenced with the pandemic, and as the new normal is being defined, strategic and innovative thinking are ever more critical. Success is dependent on the integration of strategy and innovation. The crucial role of leadership is to make difficult decisions regarding constructing the right organization, structure, and relationships and choosing the appropriate innovation strategy, as well as understanding capabilities and strengths along with the continuum of care.

Leaders can unite their staffs by explaining how their staffs' work and roles contribute to the higher objectives of the organization and help them align their priorities with those along the continuum. Once people understand their roles and contributions, innovative leaders set clear and consistent expectations about the outcomes of the teams' work. Innovators embrace change as an opportunity to develop solutions and are willing to learn new things to create value. They also provide an aspiration that challenges complacency and articulates a vision that reflects where the organization is going, commits resources, sets an innovation strategy, and leads by example.

Strategic leaders drive innovation and transformation by making changes that progressively build on each other and represent an evolving enhancement of the organization's well-being. They have a learning orientation and exhibit curiosity, inquiry, humility, and collaboration with others. Strategic leaders can authentically navigate the landscape and be able to see and understand other perspectives. They are also patient and persistent in continuing to influence as strategic initiatives unfold.

Organizational agility is a vital competency with profound performance impacts. Agility as a competency reflects the capacity to respond as well as the ability to envision strategic opportunities and proactively conduct vital small tests of change. COVID-19 created a common focus, unifying healthcare in unprecedented ways. It also allowed leaders with Future Smart skills to remain agile, adapt, and advance through this difficult time.

INTERPROFESSIONAL PARTNERSHIPS

Interprofessional partnerships reflect intentional collaboration across professions and with care team members, patients, families, communities, and other stakeholders to optimize care, enhance the healthcare experience, and strengthen outcomes (AACN, 2021).

Foresight and the Futurist Mindset

The common themes of inclusion and engagement of interprofessionals focusing on meaningful depth of content and cultivating positive hope and future expectations provide a solid foundation and purposeful approach. Four essential concepts used to unlock futurist mindset to be able to shift from a risk-focused to opportunity-focused perspective include the following (Pryor, 2018):

1. Understand why critical thinking is essential for shaping the future.
2. Know your landscape.

3. Understand the power of humility.
4. Encourage diversity of thought.

Recognizing that deeply held beliefs, attitudes, and assumptions underpin a broader view, one might ask, "What are the assumptions I hold about the way I think we need to do business?" Becoming opportunity-focused is imperative rather than reacting to the environment and becoming trapped in the previous ways of doing business. Understand why critical thinking is so important and start implementing it in your thinking; study what the landscape looks like and be humble in the face of uncertainty. Break down silos and foster a culture of diverse thought—then you can create a shared vision of the future and find the best ways to shape your plan.

Benefits of systematically organized foresight activity reflect the rapid pace of change, which emphasizes the importance of helping organizations to pull together and spend time on making sense of the developments and plan their operations accordingly. So much unstructured information is available from a variety of sources; thus, organizations can be supported by bringing order and structure to the chaos, which adds value (B. Jacobson & Hirvensalo, 2018). Attunement reflects being in sync and having the right timing, implying a balance between the time orientation needed by the organization and the one provided by the leader. Synergy occurs when interprofessionals are involved and work in a positive and supportive working environment.

C. Jacobson and Hawig (2021) shared a story on how the clinical and financial leadership worked together to address the best way to implement cost-reduction measures during the pandemic. The organization converted to reusable isolation gowns with an annual savings of $70,000, with a far less environmental impact, and met with staff satisfaction. The health system's Quality and Patient Safety Department worked with finance and the supply chain regarding investment in elastomeric masks resulting in a cost avoidance of $500,000 and increased supply and provision of safe personal protective equipment (PPE) for staff. A PPE calculator was developed and incorporated into the organization's COVID-19 incident command structure, so that PPE needs were in sync with surge planning decisions regarding bed changes, staff deployments, and case volume setting changes or deferrals. Together, these actions allowed the health system's steadfast focus on the safety of its workforce and patients, while optimizing recovery planning, mitigating PPE acquisition costs, and positioning the enterprise for significant cost savings postpandemic.

Nurse executives are voices for frontline caregivers, patients, and consumers. To do this effectively, they must command influence on executive decisions. This requires a credibility that can only be gained and maintained if individual nurse executives have mastered requisite skills and acumen to manage the nursing enterprise (Sanford & Janney, 2019). In addition, nurse executives need the education and vocabulary to participate and contribute to strategic, tactical, financial, and legal/compliance discussions. This includes appropriate use and understanding of big data sets, which when competently analyzed, can be an effective tool for helping healthcare organizations better understand their operations, including the ability to forecast and strategize for the future (Sanford & Janney, 2019). Change and the reality of limited resources will lead to greater scrutiny of the value added by nurse executives.

PROFESSIONALISM

Professionalism refers to the formation and cultivation of a sustainable professional nursing identity, accountability, perspective, collaborative disposition, and comportment that reflects nursing's characteristics and values (AACN, 2021). What matters most in life is the depth of one's relationships. Helping individuals refocus and prune their jobs over

time to focus more on activities that give them strength and less on activities that make them weak. Leaders are readers, reserving time for quiet reading, and thinking supports the fact that great business leaders know you must have input to realize output; having a natural curiosity and thirst for learning separates the good from the great.

Human-Centered Leadership in healthcare is a newer leadership model, which emphasizes by focusing on others, leaders will become more fulfilled and effective (Kennedy et al., 2021). Through recognizing the humanity in others, cultivating growth in others, and creating healthy, connected communities for others, the Human-Centered Leader (HCL) establishes cultures of caring, excellence, and trust. The HCL who practices self-awareness, self-care, and mindfulness is also others-focused and recognizes that sustainable change is initiated at the point of care. The HCL knows that it starts with me, however, it is not about me (Kennedy et al., 2021). By embracing the attributes of an upholder, the HCL creates a culture of caring by believing in the good intentions of staff, being vulnerable, and never blaming or shaming. The HCL is also an awakener of excellence by establishing a learning environment, connecting goals to purpose, and coaching the team on change and innovation. Last, the HCL is a connector who creates a culture of trust by establishing and recognizing the collective wisdom of staff to develop solutions in an ever-changing environment (Kennedy et al., 2021).

Nurse executives of the future will be evaluated on their agility, creativity, and ability to connect teams. The future is already being shaped, creating a need for new learning opportunities to ensure nurse leaders are ready for what will come tomorrow and beyond.

The accelerated rate of change in workforce, payment systems, government mandates and regulations, technology, and population composition requires an ability for executives to make, and change, assumptions and decisions while thinking strategically (Sanford & Janney, 2019). Nurse executives must be part of the team that understands the changing world and develops strategies that can adapt to drastically altered realities that require letting go of past practices and finding new solutions to old and new problems.

The COVID-19 pandemic has called for leaders to actualize their abilities to be a Future Smart Leader. The pandemic has required expansion of rapid change cycles beyond what many could have imagined. One determinant of success through COVID-19 is the ability to demonstrate leadership agility, through a quickly changing and often unknown environment (Chapp & Gruebling, 2020). Success stories from the crisis showcase nurse leadership practices and insights, including how agility and adaptability were reflected in successful outcomes. Several key takeaways were highlighted by CNOs:

- Trust your leaders.
- Build strong relationships.
- Have a clear structure in place.
- Hand over the details, you cannot lead everything.
- Communicate.

Clearly, leadership agility is essential as we look to the future. There is a need to function in two operating models; the first is to work to regain lost revenue and resume care in a different way, and the second is to ensure staff and organizational readiness (Chapp & Gruebling, 2020). COVID-19 has created a common enemy, unifying healthcare in unprecedented ways, allowing leaders with Future Smart skills to remain agile, adapt, and advance through this difficult time. Beckman (2020) stated it best, "The transformations in care delivery and demonstrated agility during this time will be evidence supporting that, indeed, we can do things differently and more swiftly than we ever imagined" (Beckman, 2020, p. E7).

PERSONAL, PROFESSIONAL, AND LEADERSHIP DEVELOPMENT

Personal, professional, and leadership development reflects participation in activities and self-reflection that foster personal health, resilience, well-being, lifelong learning, and supports the acquisition of nursing expertise and assertion of leadership (AACN, 2021).

Emotional Intelligence

Understanding EI is an essential concept for anyone involved in managing people and supporting personal and professional development. Daniel Goldman, the pioneering author of EI, identified four EI domains that people high in the emotional quotient possess (McNally & Cunningham, 2010):

1. **Self-awareness:** They know what they are feeling, have confidence, and can make a realistic assessment of their abilities.
2. **Self-management:** They manage their emotions, think before speaking, take the initiative, and are flexible and resilient.
3. **Social awareness:** They can sense what others are feeling, can develop relationships, and can adapt to changing circumstances.
4. **Relationship management**: They exert leadership, communicate effectively, influence others, serve as a catalyst for change, and manage conflict.

Studies have shown that EI is linked to leadership effectiveness, career success, and organizational outcomes (McNally & Cunningham, 2010).

Professional Presence

Professional presence is a unique quality that sets specific business and professional leaders apart; it creates power, credibility, and sense of competence (Bixler, 1991). Today's healthcare and business environment demands are ever changing; because one conducts business in an arena with people of varying background and many generations, one must learn how to adapt to constantly changing situations. Professional presence is the savvy that gives leaders the edge or extra measure or control to act in any situation with clear advantage without making other people feel uncomfortable (Bixler, 1991). Professional presence is a mature recognition that strength and diplomacy go hand-in-hand and that far more can be negotiated than forced; it is a subtle yet powerful form of negotiating for the best circumstance, vantage point, and opportunity.

Professional presence is one's professional value proposition, a brand promise manifested in behaviors and measured in people's perceptions about one's character, abilities, and worth to them and the organization (Petty, 2012). When embarking on a program to strengthen one's professional presence, it is important to realize that is it a journey of self-discovery.

Executive Presence

Executive presence refers to the impact one has on others within the specific environment in which one operates. An important step of enhancing executive presence is to become aware of how reactive or responsive one is in specific situations; it is vital to reflect objectively and build an awareness of what one observes, thinks, feels, and wants in these situations. To shift from an internal dialogue of "Why is this happening to me?" to a more objective one that asks, "What is happening?" and "What needs to happen?" Self-efficacy or confidence is a belief in one's ability to succeed in a specific situation or accomplish a

task. The balance of authenticity, emotional self-regulation, and self-confidence are at the heart of developing a powerful executive presence (McNally & Cunningham, 2020).

The greatest leaders exude a presence that leaves a memorable impression on and off the stage. As nurse executives, your success is dependent on your ability to show up powerfully and confidently to set the vision and enlist the enthusiasm and commitment of others. This requires being self-aware, speaking with clarity, keeping your composure in the heat of the moment, and letting team members sense your confidence in them as well as yourself. It is sending the signal: "Let's work together. WE can do this!"

Leaders with presence begin with a sense of purpose rather than a list of objectives. This requires mindful thinking and mindful action. Mindful leaders are self-aware, know their triggers, and move toward unresponsiveness, rather than reactivity. Through their mindfulness, they stay curious and open, so they can consider ideas radically different from their own without the attachment to being right or having all the answers, making them more flexible and effective. Practicing presence can be done anytime and anywhere. Try practicing walking with purpose, tune into your feet and observe your stride and breadth (McNally & Cunningham, 2020).

Leadership Development

Beirl (2021) reflected on how one healthcare organization's leadership team realized its true north. Leadership development is arguably the most important success factor for a healthcare organization. A strong leadership team with a consistent managerial philosophy is a key component of any great organization because its actions and behaviors cascade through every aspect of the operation. In healthcare, indicators of effective leadership development may be identified through metrics such as an organization's internal key performance indicators, publicly reported quality outcomes, financial position, and brand loyalty (Beirl, 2021). If leading indicators are not identified and intentionally improved, the correlation between investment and outcomes will be difficult to discern, given the extended timelines needed for change.

Active engagement of individuals and respect for the skills and experience that they possess are needed to facilitate the adult learning process. These fundamentals are universal to the guiding principles that support a sustainable Lean transformation in an organization. Beirl (2021) reflected on his executive team decision to challenge their organization's traditional leadership development approach because they believed that the quarterly frequency of leadership development was actually impairing progress toward developmental goals. A shorter cycle time for leadership development was believed to yield greater results than a longer cycle time, whereas the overall time investment would remain neutral. The baseline model was a quarterly off-site 8-hour day dedicated to leadership development. The experimental alternative design centered on a biweekly 30-minute block of leadership development time, believing this model would enable the creation of leader-standard work that would align with their true north values.

This model can be applied to nursing and finance leadership development on such topics as productivity, selection of new products or equipment, clinical improvements, or reviewing staffing options. When we develop people, improve processes, and execute on the strategic plan, we can deliver the greatest value to those we serve.

Nurse leaders must think differently and prepare to learn new skills to provide innovative leadership to transform healthcare practice and outcomes, especially with the complexity and ever-changing healthcare landscape. Leadership development for nurse leaders must provide for a foundation built on evidence and integrate essential skills to make more informed decisions and lead the way for necessary changes.

Leadership coaching is designed to develop already influential leaders who are already influential, along with emerging leaders, to ensure the long-term success of the organization. Nurse leaders and finance leaders can benefit from objective skills assessment and customized teaching that allows them to develop new lifelong skills and expertise. Nurse leaders must cultivate a broader worldview and thinking to address current and future challenges and opportunities in the healthcare arena.

THROUGH THE CFO LENS

We are witnessing a turning point in the history of the healthcare industry. The future is being formed by decisions made today that contemplate an organization's capabilities and value, the projected needs of the communities they serve, and the digital implications on their services. Healthcare leaders have made clear that their vision is more collaborative, connective and patient-centric than ever before (BDO Healthcare, 2021, p. 4).

The story of healthcare in 2020 is certainly marked by a national tragedy, but it also has many heroes in the form of nurses, doctors, researchers, support members, to name just a few (Table 16.4). Crisis also puts everything into a new perspective, allowing healthcare organizations to set sights on long-term silver linings for our industry. Case in point, according to the 2021 BDO Healthcare CFO Outlook Survey, 52% of healthcare CFOs say their organization made faster decisions during the pandemic. Healthcare organizations channeled that decisiveness into action that will shape the future of the healthcare industry (BDO, 2021, p. 3).

In September 2020, BDO (2021) conducted the 2021 BDO Healthcare CFO Outlook Survey, polling 100 CFOs from across the care continuum with revenues ranging from $250 million to $3 billion. The survey was conducted by Rabin Research Company, an independent marketing research firm using Op4G's panel of executives. The types of healthcare organizations were 80% for-profit, 18% nonprofit, and 2% government. The patient population was 52% suburban, 39% urban, and 9% rural. The survey results provide CNOs the opportunity to clearly see through the same lens as the CFO. The healthcare business opportunities that the CFO is focused on clearly align within the nursing executive space and will benefit substantially from a synergistic CNO-CFO dyad model relationship in addressing the complex imperatives facing the healthcare executive team today and into the future.

Six of the survey results, which are called out as "Six Silver Linings," are all areas of focus and importance for the nurse executive, as well. They are partnerships across the healthcare ecosystem, digital transformation, increased consolidation, diversified revenue streams, the acceleration of value-based care, and product and service innovation. Clinical services will experience significant shifts as CFOs move to reset their areas of

TABLE 16.4 Planned Divestment

Divestment area	CFO (%)
Ambulatory service centers	16
Postacute residential care	16
Virtual health	17
Retail properties	23
Behavioral health	24

Source: BDO Healthcare. (2021). 2021 BDO Healthcare CFO Outlook Survey. https://www.bdo.com/insights/industries/healthcare/2021-healthcare-cfo-outlook-survey

focus. Three in four CFOs are planning to invest in primary care in the next 2 years (BDO, 2021).

Even amid executive optimism that healthcare has taken the correct path to move toward recovery, for more than one in three, that path will require restructuring or reorganization (BDO, 2021). Sixty-five percent of the CFOs secured government funding in response to the pandemic as of September 2020. Cost optimization is a key element of strategy, now more than ever.

Healthcare organizations have been focused on optimizing care coordination to improve clinical outcomes, patient experience, and to decrease the overall cost-of-care. Going forward we need to enhance our focus on core capabilities and profitability. CFOs are planning to divest in five specific areas to realign resources with redefined strategies.

FUTURE SMART LEADERSHIP

The concept of Future Smart was influenced by James Canton, author of Future Smart, Managing the Game-Changing Trends That Will Transform Your World (2015). Canton (2015) believed that it is imperative to become future-ready to navigate the uncertain, disruptive, and complex challenges on the horizon. Being future-ready encompasses preparing, adapting, and learning for the future, which leads to becoming Future Smart as the perpetual state of readiness. Future Smart thinking is about ideas that empower individuals to explore and shift their thinking, to embrace a new mindset of opportunity that will transform one's life, work, or career and as a catalyst to transform organizations and communities.

The unifying concept that enables highly successful people to be successful is that they have the capacity, the courage, and the Future Smart worldview to forecast, to look ahead (Canton, 2015). Future Smart requires paying attention to emergent signals, early warnings, news, or consumer behaviors that precede and later shape trends. Future Smart is about understanding and exploring the possible scenarios of the future, so one will be able to better prepare for it today. Becoming Future Smart is an evolutionary shift in how one thinks about the world from being reactive and passive, in which the future happens, to being proactive and a catalyst—real architects of change; one must own the change to create the possible future (Canton, 2015).

The sheer complexity of challenges and the velocity of change is often bewildering. Becoming Future Smart is a learning process; it is also a journey. Canton (2015) identifies how one must think differently to navigate the journey:

1. Adapt smart.
2. Be a fast learner.
3. Boldly discover.
4. Collaborate deeper.
5. Embrace radical innovation.
6. Catalyze change.
7. Experiment daily.

Future Smart is about having the right strategy to predict with accuracy and courage and then to take practical actions to capitalize on those predictions (Canton, 2015). Companies and individuals that embrace the challenge of looking ahead, of having the courage to discover and the willingness and openness to understand the trends that may shape the future are usually rewarded with market share, competitive advantage, prosperity, market leadership, and a talented workforce; these are the game changers of the

future (Canton, 2015). They are the leaders who not only look ahead but also take actions to adapt, learn, and innovate for the future of their customers, partners, shareholders/owners, and employees, and they are Future Smart.

The convergence of connected systems help us understand our world of healthcare and ourselves, from better predicting population health to broadcasting education to opening new markets or service lines and connecting partners who have never been connected before. Accelerated awareness of customers' needs and market demands through this connectivity will build more intimacy with and understanding of organizations; as an individual, to become Future Smart, one must become adaptive, agile, and predictive (Canton, 2015).

The New Future is an era of business defined by speed, accelerating digital innovations, knowledge value, and globalization. The New Future skills are defined by Canton (2015) as:

- accelerated change
- fast innovation
- smart technology
- predictive systems
- connected markets
- digital everything
- mobile commerce

Future Smart leaders think differently; their mindsets are about being prepared for innovation, being hungry for change, being willing to learn and adapt, and being competent at shaping a preferred future for the organization. Future Smart leaders have a plan, and they are bold in marshaling their troops to go after a significant objective that may stir the soul or seem impossible. They have a vision for the future that they enroll others to embrace, collaborate on, and contribute to making a reality; they inspire greatness in others and evangelize the future vision; they welcome new talent and change the organization's culture, structure, and work processes to attract and retain talent (Canton, 2015).

Customers are looking for businesses to restore their trust in the fundamental relationships that customers have with organizations. Future Smart leaders and strategies that focus on the new ROI (return on innovation) from investments in science, tech, education, and building a nation of enlightened individuals are the game-changers of the future.

Future Smart learning is lifelong learning; one never finishes learning as a process of discovery. The challenge is to become Future Smart if one wants to be sustainable as an individual and if one wants to thrive and survive in the future; thus, one must learn and work differently, with agility, and be able to design one's own education and future.

Future Smart leaders have a plan and are confident in rallying their teams to be willing to learn and adapt with a vision for the future, inspiring others to embrace, collaborate, and contribute to making the plan a reality. Every business in the future must embrace a higher purpose to be agile and adaptable to the ever-changing healthcare landscape with a focus on making a positive difference as the core business value of one's organization. What matters most is the depth of one's relationships. Embracing strengths-based management practices will bring more fulfilled, resilient, and engaged employees who will lift themselves and the organization to new levels of energy, performance, and innovation.

Adaptive leadership can help people look at forces beyond one's control and influence, which will impact the organization. Canton (2015) described a future-ready adaptive world as a scenario in which the world collaborates and prepares with an enlightened leadership of visionary powerbrokers in the private and public sectors who work together

to reach a plan for action through consensus. Future integration is a prerequisite for future excellence, requiring a new perspective on business along with new practices and tools to implement the unique aspects of leading in an uncertain environment.

Design Thinking

Design thinking is an approach or way of thinking that can help when solving complex problems and adjusting to unexpected changes. The Design Thinking Cycle framework integrates classic problem-solving with art and design methodologies (Naiman, 2018). Leaders can challenge organizations to think about how to spend more time doing collaborative, generative work, producing a tangible outcome at the end of the day without more meetings. Design thinkers learn to navigate among the constraints through risk-taking and exploration, moving from problem to project focus.

The Design Thinking Cycle

1. Discovery: Choose an affirmative, strategic topic. Gather data. Understand and empathize with unmet needs.
2. (Re)frame opportunity: Look for patterns and insights. Question assumptions. Frame your point of view. Define your scope.
3. Incubate: Switch gears. Feed your brain with diverse stimuli. Meditate. Sleep on it.
4. Ideate/illuminate: Experiment. Explore possibilities. Envision a desired future. Co-create in diverse teams. Make your ideas visible.
5. Evaluate/refine ideas: What is desirable, feasible, and viable about your ideas? What are the constraints?
6. Rapid prototype/test: Think big, act small, fail fast; learn from end users and refine.
7. Deliver: Final testing, approval, and launch.
8. Iterate and scale: Evaluate. Learn. Create. Innovate.

CONCLUSIONS

Every business in the future must embrace a higher purpose or it will not be able to compete given customers' changing attitudes and values. They are making a difference—not for show, instead as the core business value of an organization. Healthcare organization CNOs and CFOs who are committed to making the world a better place, and who understand the role of business is to be socially accountable, will be the Future Smart leaders.

Organizations face changes in their environment requiring them to adjust and adapt their actions and strategies very quickly. Agility is grounded on the alignment of characteristics and capabilities, including handling organizational conflict; awareness of criteria regarding how success is measured; being available and transparent relative to organization information; having the capacity for rapid response when needed; and actions reflecting clear, widely shared and practiced values (Hughes et al., 2014). Agility as a competency reflects the capacity to respond as well as the ability to envision strategic opportunities and proactively conduct vital small tests of change.

In an increasingly complex environment, future-ready CNOs and CFOs will lead through influence with a social process guiding alignment and commitment. They will think of possibilities instead of constraints, be comfortable with big data, and use it to make informed judgments. Tomorrow's leaders will constantly test new ideas rather than rely on conventional wisdom and years of experience (Sanford & Janney, 2019).

Nurses' value as executives in an evolving world will be enhanced when they have honed their strategic thinking and decision-making skills. Development of an executive presence will increase their ability to influence the future for their organizations and communities. By practicing innovative thinking and evidence-based design thinking, they can help both their systems and care teams thrive in a transformed environment. The DNP program will prepare nrse leaders with competencies in executive business skills to support critical imperatives for Future Smart nurse executives with their CFO relationships.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Systems-Based Practice
   In today's healthcare environment, DNPs are faced with increasing challenges in addressing ever-changing complexity and persistent uncertainty. Using assumption-based planning, identify three key trends using horizon scanning. For each trend, identify three key assumptions and how you plan to address them.

2. Interprofessional Relationships
   Leaders must be clear about what drives them to authentically navigate the landscape and be able to see and understand other perspectives, as well as to be patient and persistent to be an influence. Using anticipatory knowledge through strategic thinking and planning and your experiential knowledge, identify a current opportunity as a DNP in which you can work or are working with finance to arrive at a new strategy. Describe how you can broaden your perspective to become attuned to and in sync with your finance leader.

3. Professionalism
   Nurse leader DNPs are evaluated on their agility, ability to create a culture of trust by recognizing the collective wisdom of those with whom they work, and on their business acumen. There is a need to function using two operating models at times to regain lost revenue and resume care in a different way. Describe how you will approach a current or future situation related to a care delivery model, service line change, or other opportunity that can no longer continue using the same mode of operation.

4. Personal, Professional, and Leadership Development
   Lifelong learning is imperative for DNPs to continue to think differently and learn new skills. DNPs must also increase financial acumen related to the provision of patient care and ensure an efficient and effective workforce. Create a professional leadership development plan that integrates the DNP knowledge pathway and key experiences to cultivate a broader view and way of thinking to meet the opportunities and challenges before you.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 17

Making the Financial Case for Academic-Practice Partnerships: The ROI for Specialty Education

Nicolette Fiore-Lopez

The American Association of Colleges of Nursing (AACN)/American Organization for Nursing Leadership (AONE) Task Force on Academic-Practice Partnerships defines such partnerships as one that shares goals, respect, and knowledge that can be broadened to include not only partnerships within nursing and other professions but also corporations, government entities, and foundations (AACN, 2012). For over 10 years, academic-practice partnerships have advanced graduate nursing education, gaining much momentum with the passage of the Patient Protection and Affordable Care Act (ACA) in 2010 (Patient Protection and Affordable Care Act, 2010) and the 2010 release of the Institute of Medicine's (IOM) The Future of Nursing report (IOM, 2011).

Some academic-practice partnerships predate the ACA and The Future of Nursing report. The exemplars that will be included in this discussion are not nearly exhaustive but provide us with evidence of successful components upon which to build others. It is within the academic-practice partnership that (DNPs may build the foundation to practice to the top of license and to the full extent of their education and training, a major recommendation of the IOM's The Future of Nursing report (Institute of Medicine, 2011).

LANDMARK LEGISLATION, LANDMARK REPORTS

Patient Protection and Affordable Care Act

The passage of the ACA in 2010 marked "the most significant overhaul of the U.S. healthcare system since the passage of Medicare and Medicaid in 1965" (Patient Protection and Affordable Care Act, 2010, p.759). Of many components of the nearly one-thousand-page law, several are highly relevant to this discussion.

In order to meet the demands of the newly insured, a concomitant increase in healthcare system capacity was needed that would strengthen primary and preventive care (Berg & Dickow, 2014). Nurses, specifically, APRNs prepared at the doctoral level, can fill the roles that have been created in this new healthcare paradigm as they have the education prerequisite to influence and to lead. Academic-practice partnerships in doctoral nursing education provide the clinical settings where competencies

can be achieved and practice models may be created, piloted, and achieve successful outcomes. The clinical settings may encompass a full spectrum that includes direct patient care, academia, clinical research, leadership at all levels of the healthcare system (Lathrop & Hodnicki, 2014) as well as government and industry partners.

The ACA also magnified existing issues for nursing practice. To be specific, scope of practice for advanced practice nurses and reimbursement for the care they render vary from state to state. Although efforts continue in this area, these obstacles remain, limiting the accessibility of patients to care as envisioned with the ACA and restricting the ability to develop innovative primary care models (Vincent & Reed, 2014).

The Future of Nursing Report 2010–2020

The first key message of *The Future of Nursing* report (Institute of Medicine, 2011) is that nurses should practice to the full extent of their education and training and further states that APRNs should be prepared at the doctoral level. The report provides evidence that to meet its key recommendations, a total transformation must take place in the way nurses at all levels are educated, from prelicensure through doctoral preparation.

In the first of three recommended reforms to transform nursing education, *The Future of Nursing* (IOM, 2011) identified the need to develop partnerships to enrich nursing education and listed nursing service, medical education, and other disciplines relevant to health as crucial to the success of transforming nursing education. It also recommended innovative academic-practice partnerships be developed, implemented, and evaluated "between nursing programs and acute care, primary care, long-term care, community, and public health settings" (IOM, 2011, p. 407).

The Future of Nursing 2020–2030

The most recent *Future of Nursing* report states that "throughout this coming decade, it will be essential for nursing education to evolve rapidly in order to prepare nurses who can meet the challenges articulated in this report with respect to addressing social determinants of health (SDOH), improving population health, and promoting health equity" (National Academies of Science, Engineering and Medicine, 2021, p.189). To meet these challenges, the report offers several conclusions. One calls for a nursing curriculum with course work and experiential learning that prepares students. Another conculsion states that learning experiences should include opportunities for nursing students to incorporate these newly learned skills across diverse community settings. The revisions to nursing curricula should include academic-practice partnerships that will be innovative while effectively addressing the SDOH.

AACN–AONE WORK

In an integrative review, Beal (2012) accessed over 300 articles from refereed journals, including 110 as her final sample, that described detailed information of academic-practice partnerships. Although this seminal work provided the first set of elements to be addressed in academic-practice partnerships (Box 17.1), it failed to find formal evaluation of the effectiveness of the academic-practice partnerships reviewed. Instead, based on this extensive review, Beal (2012) suggests some broad areas for academic-practice partnership outcome evaluation that includes outcome measures at the partnership level, at the regional level, and at the individual level, and that the AACN-AONL Task Force on Academic-Practice Partnerships will take on this needed work.

BOX 17.1

Academic-Practice Partnerships: Main Issues for Consideration

- Prerequisites for successful partnerships
- Benefits of partnerships
- Types of partnerships
  - Models of faculty practice
  - Centers for research and evidence-based practice
- Workforce development initiatives
  - Academic-practice progression
  - Educational redesign

Source: Beal, J. A. (2012). Academic-service partnerships in nursing: an integrative review. *Nursing Research and Practice, 2012*, 501564. https://doi.org/10.1155/2012/501564

BOX 17.2

Guiding Principles of Academic-Practice Partnerships

1. Collaborative relationships between academia and practice are established and maintained.
2. Mutual respect and trust are the cornerstones of the practice/academia relationship.
3. Knowledge is shared among partners.
4. A commitment is shared by partners to maximize the potential of each RN to reach the highest level within their individual scope of practice.
5. A commitment is shared by partners to work together to determine an evidence-based transition program for students and new graduates that is both sustainable and cost-effective.
6. A commitment is shared by partners to develop, implement, and evaluate organizational processes and structures that support and recognize academic and educational achievements.
7. A commitment is shared by partners to support opportunities for nurses to lead and develop collaborative models that redesign practice environments to improve health outcomes.
8. A commitment is shared by partners to establish infrastructures to collect and analyze data on the current and future needs of the RN workforce.

Source: *American Association of Colleges of Nursing. (2012c).* The guiding principles to academic-practice partnerships. https://www.aacnnursing.org/Academic-Practice-Partnerships/The-Guiding-Principles

Shortly before the release of the original Future of Nursing report, a group of leaders from the AONE and the AACN met to establish the AACNAONE Task Force on Academic-Practice Partnerships (Beal et al., 2014). Among its many accomplishments, this task force developed eight key principles that should guide the development and implementation of academic-practice partnerships (Box 17.2). In addition, the task force released a tool kit that can be used to take academic-practice partnerships from concept through implementation and evaluation (Box 17.3). AACN also provides links that contain the partnership expectation and outcome matrixes to help make planning and implementation a success (AACN, 2012d).

In 2016, AACN released a report titled "Advancing Healthcare Transformation: A New Era for Academic Nursing" (AACN 2016). One of the six recommendations of the report states that academic nursing and academic healthcare systems should partner in education of all levels of nursing, but specifically referenced supporting one of the core

BOX 17.3

Academic-Practice Partnerships Tool Kit

- Select partners.
- Prepare for the first meeting.
- Conduct initial and subsequent meetings.
- Consider environmental factors of time, space, regulation, and context.
- Share exemplars of strong academic-practice partnerships.
- Provide a template to guide you from start to finish in developing a partnership.

Source: American Association of Colleges of Nursing. (2012b). *Academic-practice partnerships tool kit*. https://www.aacnnursing.org/Academic-Practice-Partnerships/Implementation-Tool-Kit

BOX 17.4

AACN-AONE Advisory Committee: National Call for Action

✓ State-level joint forums with deans and nurse executives
✓ A shared vision for practice and academic nursing
✓ Undergraduate- and graduate-level residencies and fellowships
✓ Collaborative research
✓ New models of care and solutions for workforce shortages

Source: Beal, J. A., & Zimmermann, D. (2019). Academic-practice partnerships: Update on the national initiative. *JONA: The Journal of Nursing Administration, 49*(12), 577–579. https://doi.org/10.1097/NNA.0000000000000817

recommendations of *The Future of Nursing* report (IOM, 2011): leadership development. The education of future nurse leaders should include clinical partnerships that prepare these leaders with the knowledge and skills that include population health in its entire spectrum and evolving technologies that not only enhance care but also provider-client communications. The academic-practice partnership would also support yet another recommendation of the report that calls for the establishment of new clinical models that support accountable care.

As a result of the work of the AACNAONE Task Force on Academic-Practice Partnerships (AACN, 2012a) and the subsequent release of the AACN report "Advancing Healthcare Transformation: A New Era for Academic Nursing" (AACN, 2016), AACN and AONE created an advisory committee whose mission is "to unite practice and academia to cocreate models of care, workforce readiness, and a lifelong continuum of learning to optimize the impact of nursing on health and wellness" (Beal & Zimmerman, 2019, p. 578). There were two strategic priorities developed by this advisory committee: academic-practice partnership leaders would develop models of care and learning that will meet the demands of projected workforce shortages while overcoming any challenges to the challenges of mutually effective partnerships. A plan was established to meet these priorities, including a call to action that was presented at both the 2018 AACN Annual Academic Leadership Conference and the 2019 AONE annual meeting (Box 17.4). The strategic priorities and call for action have led to many creative responses, including further recognition of the need for academic-practice partnerships at all levels of nursing education, including the DNP level.

EXEMPLARS

Indiana University Learning Practice Partnership

When exemplars of academic-practice partnerships are mentioned, one of the first that should be discussed is the Indiana University Learning Partnership (IUNP), recognized by Sigma Theta Tau International in 2013 and the Magnet Commission in 2014 as an exemplar (Everett, 2016). The mission of the partnership, led by the Dean of the School of Nursing, Marion E. Broome, and the System Executive Vice President and Chief Nursing Officer, Linda Q. Everett, was simply to improve the health of the community (Broome et al., 2014). The model that emerged has several components (Box 17.5) that are important to DNP academic-practice partnerships.

Exemplary nursing practice is a component that is operationalized when DNP students collaborate with nurse leaders to develop organizational change projects. These projects can be knowledge generating, translating, or application based. The work that is done with the DNP student and nurse leader can result in a transformative experience for both partners and may have impact beyond the immediate change. As faculty and nurse leaders collaborate on projects of mutual interest and benefit that lead to important organizational changes, both academic nursing and practice benefit.

There are many resources needed to effectively implement such a program, both people resources and financial support. The IUNP was fortunate to have two highly respected nurse leaders as executive sponsors. They, in turn, appointed a group facilitator who was a critical component to the success of the partnership. Two federal grants supported the work of this partnership related to health outcomes and interprofessional practice and that work is widely disseminated through publications and presentations (Box 17.6; Broome et al., 2014).

University of Kentucky College of Nursing and Norton Health Care Institute for Nursing Academic-Practice Partnership

University of Kentucky College of Nursing (UKCON) and Norton Health Care (NHC) formed a 7-year academic-practice partnership, admitting its first students in the spring semester of 2014, after the NHC Institute for Nursing received a 4-year designation as a center of excellence from the National League for Nursing in 2013 (Howard & Williams, 2016). The responsibilities of each academic-practice partner were clearly delineated in the memorandum of agreement that included the quality of the partnership, the integrity of the curriculum, the qualifications of the faculty and staff, and the admission criteria and support that the students would expect to receive.

BOX 17.5

Indiana University Nurse Learning Partnership Model Components

- Exemplary nursing practice
- Knowledge generation/ translation/ application
- Transformative learning experiences
- Transformational leadership
- Resources

Source: Broome, M. E., Everett, L. Q., & Wocial, L. (2014). Innovation through partnership: Building leadership capacity in academe and practice. *Nurse Leader, 12*(6), 91–94. https://doi.org/10.1016/j.mnl.2014.04.003

BOX 17.6

Indiana University Nurse Learning Partnership Model Outcomes

Partnership Outcomes

- Undergraduate and graduate level curricular revision
- Staff nurse, nurse manager, and clinical nurse specialist knowledge of research and EBP
- Shared appointments
- Scholarly manuscripts and presentations

Operational Outcomes

- Shared faculty and practitioner appointments for teaching and research
- Financial support for research/EBP faculty council consultants
- Shared appointments that are reciprocal: "Funding comes from both the health system for undergraduate shared faculty and from the school to buy out the time of the graduate faculty" (p. 94).

EBP, evidence-based practice.
Source: Broome, M. E., Everett, L. Q., & Wocial, L. (2014). Innovation through partnership: Building leadership capacity in academe and practice. *Nurse Leader, 12*(6), 91–94. https://doi.org/10.1016/j.mnl.2014.04.003

To determine the effectiveness of program goal attainment, a pilot study was designed and approved by the UKCON Institutional Review Board and the NHC Office of Research Administration (Williams & Howard, 2017). A qualitative descriptive study design was used to explore pilot data from the academic records at the midpoint of the 3-year program of the first cohort of students and explore student perception of core course outcomes and initial ideas for final capstone projects (Williams & Howard, 2017). Student responses about the program were either positive about the program or provided constructive feedback to serve as a catalyst for program optimization and the foundation for student evaluation of course content and learning outcomes (Williams & Howard, 2017). Other benefits of the success of the first cohort were a resulting increase in interest to secure a spot in the second cohort. Future studies are planned to determine the impacts of the program on each institutional member of the academic-practice partnership as well as a cost-benefit analysis (Williams & Howard, 2017).

Neil Hodgson Woodruff School of Nursing: Forging Academic-Practice Partnerships

In contrast to the previous exemplars, the Neil Hodgson Woodruff School of Nursing (NHWSN) sought to establish academic-practice partnerships with several practice partners. To foster the partnership between NHWSN and Emory Healthcare (EHC) nursing, first dedicated education units and then a Partnership Task Force were established in 2009 (Kelly et al., 2018). By 2010, "bridge nurse positions" were established that formalized and invigorated the Partnership Task Force, which eventually became the Academic-Clinical Partnership Committee (A-CPC), that included representation from numerous NHWSN partners (Box 17.7). "The A-CPC provides a platform for collaboration while advancing the priorities of participating stakeholders" (Kelly et al., 2018, p. 332). Several of the many activities of the A-CPC are listed in Table 17.1.

There were several components that led to the success of these ongoing partnerships: committed nurse leaders, shared strategic vision, and multiple linkages, but there were also several challenges that were grouped under bureaucracy and logistics and include the differences between academia and practice in hiring, budgeting, hiring and professional advancement (Kelly et al., 2018). The durability of these partnerships and

BOX 17.7

The Nell Hodgson Woodruff School of Nursing Academic-Clinical Partnership Committee

Emory Health Care
Atlanta Veterans Administration Health Care System
Two additional Woodruff Health Sciences Center- affiliated hospitals
Centers for Disease Control and Prevention
Georgia Department of Public Health
Georgia Department of Behavioral Health and Developmental Disabilities
The Carter Center

Source: Kelly, U., Abraham, C., Toney, S., Muirhead, L., & Shapiro, S. E. (2018). Growing a robust academic practice partnership in an academic health system. *Nursing Administration Quarterly, 42*(4), 331–342. https://doi.org/10.1097/NAQ.0000000000000319

TABLE 17.1 Nell Hodgson Woodruff School of Nursing Selected Partnership Activities

Partnership	Area	Activity
Atlanta Veterans Administration Health Care System	Education	VA Academic Partnership for Graduate Education
	Practice	Cognitive Disorders Specialty Care Education Center of Excellence
	Research	AVAHCS Nursing Research Scholars Program
	Other	AVAHCS Nurse Executive Scholars EBP Scholars Program
Emory Healthcare	Education	Emory Nursing Professional Development Center
	Practice	EHC's Integrated Memory Care Clinic (nurse-led)
	Research	Nurse Science Data Center
	Other	Technology Interest Group
Other	Education	Degree Program Advisory Committees
	Practice	Faculty Practice (NHWSN clinical track faculty expectation)
	Research	Clinically and faculty-generated research
	Other	Global health and related social justice healthcare initiatives

AVAHCS, Atlanta Veterans Administration Health Care System; EBP, evidence-based practice; EHC, Emory Healthcare; NHWSN, Nell Hodgson Woodruff School of Nursing.

Source: Kelly, U., Abraham, C., Toney, S., Muirhead, L., & Shapiro, S. E. (2018). Growing a robust academic practice partnership in an academic health system. *Nursing Administration Quarterly, 42*(4), 331–342. https://doi.org/10.1097/NAQ.0000000000000319

programs, some well over a decade old, reflect the commitment of each of the partners to make them successful for all stakeholders.

The U.S. Department of Veterans Affairs Nursing Academy

The Department of Veterans Affairs (VA) is uniquely situated within the healthcare landscape. A large part of its charge is to provide healthcare to over 18 million veterans within the largest integrated healthcare system in the country (Burtin, 2020). Although the healthcare of veterans was a longstanding government obligation, the surge of returning World War II veterans resulted in a shortage of human and physical resources

to meet their needs. This began the long history of the VA's efforts to the educate healthcare professionals (Bowman et al., 2011).

Chaired by Linda Burnes Bolton, The National Commission on VA Nursing published its report in 2004, recommending that VA nursing not only meet the demands of the current work force but the future workforce as well, reaffirming its obligation as the largest provider of healthcare education and training (U.S. Department of Veterans Affairs, 2004). Then, in 2007, the VA secured $60 million in funding to create the Veterans Administration Nursing Academy (VANA), a 5-year pilot program whose goal was to enhance academic partnerships (Bowman et al., 2011). Programmatic objectives (Box 17.8) were designed to be co-led by the Dean of the School of Nursing and the chief nurse executive of the VA facility (Bowman et al., 2011).

A framework for critical elements of effective academic-practice partnerships was derived from the VANA goals (Box 17.9). Many programs were resourced similarly. Other inputs were derived as partnerships progressed (Box 17.10). Dobalian et al. (2014) identified five key themes from their qualitative analysis of 15 ongoing academic-practice partnerships during the VANA launch year (Table 17.2). Due to the variations in these programs, these themes are thought to be more indicative of the successes and challenges faced by academic-practice partnerships.

The Birmingham Veterans Affairs Nursing Academic Partnership (VANAP) is an extraordinarily successful VANA-practice partnership he Birmingham Veterans Affairs

BOX 17.8

The Veterans Administration Academy: Program Goals

1. Expand faculty and professional development.
2. Increase student enrollment.
3. Provide educational and practice innovations.
4. Increase recruitment and retention of VA nurses.

VA, Veterans Affairs.

Source: Bowman, C. C., Johnson, L., Cox, M., Rick, C., Dougherty, M., Alt-White, A. C., Wyte-Lake, T., Needleman J., & Dobalian, A. (2011). The Department of Veterans Affairs Nursing Academy (VANA): Forging strategic alliances with schools of nursing to address nursing's workforce needs. *Nursing Outlook, 59*(6), 299–307. https://doi.org/10.1016/j.outlook.2011.04.006

BOX 17.9

Goals of the VANA Partnerships

✓ Increase faculty positions.
✓ Increase student enrollment.
✓ Implement curricular innovations.
✓ Increaserecruitment and retention.
✓ Promotr collaboration.

VANA, Veterans Affairs Nursing Academy.

Source: Dobalian, A., Bowman, C. C., Wyte-Lake, T., Pearson, M. L., Dougherty, M. B., & Needleman, J. (2014). The critical elements of effective academic-practice partnerships: A framework derived from the Department of Veterans Affairs Nursing Academy. *BMC Nursing, 13*(1), 1–17. http://www.biomedcentral.com/1472-6955/13/36

BOX 17.10

Additions to the Initial VANA Partnership Framework

✓ Participation of program leaders in proposal development
✓ Prior collegial work fostering continuing collegial work between partnership members
✓ Relationship of partnership leaders with the VA's Office of Academic Affiliations
✓ Understanding of partnership leaders about procedures to disburse funds for faculty salaries

VA, Veterans Affairs; VANA, Veterans Affairs Nursing Academy.

Source: Dobalian, A., Bowman, C. C., Wyte-Lake, T., Pearson, M. L., Dougherty, M. B., & Needleman, J. (2014). The critical elements of effective academic-practice partnerships: a framework derived from the Department of Veterans Affairs Nursing Academy. *BMC Nursing, 13*(1), 1–17. http://www.biomedcentral.com/1472-6955/13/36

TABLE 17.2 Successes and Challenges of the VANA Program Launches

Theme	Successes	Challenges	Recommendations
Interorganizational collaboration	Prior working relationships between organization partners	Failed commitment to establishing and maintaining collaboration	Develop a structured proposal for external funding before program launch
	Equitable participation and burden	Weak informal communications with sporadic formal communications	Without funding opportunities, utilize formal, intensive planning processes
	Clarity in expectations of each partner	Failure to reach enrollment or faculty recruitment targets	
	Provide opportunities for communications for all participant levels		
Blending cultures/ iIntegrating activities	Anticipate and plan for mitigation of practice-academic cultural differences	Time-keeping expectations differed in practice than in academia, where time was measured across semesters	Compare and contrast the experience of non-VA partnerships
		Off campus faculty expectation of flexibility in grading	
Identifying and recruiting cinical nurses for faculty roles		Timely identification and recruitment of clinical nurse faculty	Establish mutually agreeable timelines with ongoing joint monitoring of milestone attainment and barriers/issues to success
		Matching enrollment increases with faculty expansion	
		Coordination of clinical and didactic components of course work	

(*continued*)

TABLE 17.2 Successes and Challenges of the VANA Program Launches (*continued*)

Theme	Successes	Challenges	Recommendations
Improving the practice environments and outcomes of care		Planning for how the expansion of clinical and didactic implementation was not given enough attention	Components of partnership, especially implementation, need attention to detail
		Inconsistent development, planning, and implementation weakened some programs	Lessons learned from launch year should inform revisions to improve implementation processes
Partnerships are long-term commitments	Alleviation of nursing shortage	Economic downturn with its resultant delay in staff retirements has somewhat eased the shortage of staff	Partnerships need to remain agile in order to maintain their effectiveness and success
	Addition of clinical faculty		
	Increasing student interest in VA employment		

VA, Veterans Affairs.

Source: Dobalian, A., Bowman, C. C., Wyte-Lake, T., Pearson, M. L., Dougherty, M. B., & Needleman, J. (2014). The critical elements of effective academicpractice partnerships: A framework derived from the Department of Veterans Affairs Nursing Academy. *BMC Nursing, 13*(1), 1–17. http://www.biomedcentral.com/1472-6955/13/36

Nursing Academic Partnership (VANAP) (Harper et al., 2016). The Veterans Health Office of Academic affairs funded three partnership programs between the University of Alabama at Birmingham and the Birmingham Veterans Affairs Medical Center, including one undergraduate program that continued beyond its initial funding and two graduate education programs (Harper et al., 2016). This discussion focuses on the Veterans Affairs Nursing Academic Partnership—Graduate Education (VANAP—GE).

There are two components of the VANAP—GE. The first is a psychiatric mental health nurse practitioner (PMHNP) program within the master of science in nursing (MSN) and one of only four funded post-MSN residency programs for mental health nurse practitioners (MHNPs). After their initial, individual pilot launches, the MSN program and the MHNP residency merged (Harper et al., 2016). This program improved access to care for America's veterans (Box 17.11) and identified a number of elements that contributed to its success (Table 17.3).

Academic-Practice Partnerships Forged to Address the Operating Room Nurse Shortage

Academic-practice partnerships have been developed to address nursing specialty pipeline shortages. One nursing specialty that has suffered from nursing shortages is that of the operating room (OR) nurse. A 2020 Association of periOperative Registered Nurses (AORN) survey revealed that a 7% nurse vacancy persists in ORs, with lack of qualified nurses being second only to budget constraints as the top reason for vacancy (Bacon & Stewart, 2020). Over the years, as undergraduate curriculums expanded and focused more on general nursing knowledge, some nursing specialty instruction was eliminated from curricula and one of the casualties was the OR rotation (Ruth-Sahd & Wilson, 2013). Vortman and McPherson (2020) opine that with ORs accounting for up to 65% of a large hospital's profit margin, the state of the perioperative nursing workforce should be a concern for all nurse executive leaders.

BOX 17.11

University of Alabama School of Nursing and Birmingham Veterans Affairs Medical Center Veterans Affairs Nursing Academic Partnership: Improving Access to Care for America's Veterans

1. Increase the number of students in the PMHNP specialty track.
2. Expand PMHNP course content to include information specific to the care of veterans.
3. Increase the number of preceptorsto increase faculty practice in traditional and diverse settings, giving veterans more options to access care.
4. Increase student placements that focus on the unique mental health needs of veterans.
5. Developf PMHNPs as educators through faculty appointment and ongoing efforts to support their development of teaching skills that enhances pipeline development.
6. Endorse funded residency to prepare PHMNPs beyond advanced practice competence to address the complex mental health needs of veterans.
7. Core competency evaluation tool adapted to include wording that resulted in a "veteran-centric tool" (p. 428).
8. Develop scholarly projects focused on veteran mental health issues.

PMHNP, psychiatric mental health nurse practitioner.
Source: Harper, D. C., Moore, R. L., Cleveland, C., Miltner, R. S., Froelich, K., McGuinness, T., Waldrop, J., Fogger, S., Davis, A. H., & Selleck, C. S. (2016). Transforming veterans health care through academic-practice partnerships. *Nursing Outlook, 64*(5), 424–430. https://doi.org/10.1016/j.outlook.2016.05.001

TABLE 17.3 University of Alabama School of Nursing and Birmingham Veterans Affairs Medical Center Veterans Affairs Nursing Academic Partnership: Elements of Success

Element	Outcome
Engage executive leadership from academia and practice	Nursing's contributions supported and recognized by both partner organizations, beyond nursing.
	Support of interprofessional teams contributes to the program effectiveness.
Partners committed to the shared vision	Partner organization leaders are visible, engaged and affirm the shared vision.
	Revisit vision and goals when differences occur, especially during leadership transitions.
Faculty partnership exchange	Develop new models of innovative care.
	Perform joint scholarly work, resulting in national presentations and publications in peer-reviewed journals.

Source: Harper, D. C., Moore, R. L., Cleveland, C., Miltner, R. S., Froelich, K., McGuinness, T., Waldrop, J., Fogger, S., Davis, A. H., & Selleck, C. S. (2016). Transforming veterans health care through academic-practice partnerships. *Nursing Outlook, 64*(5), 424–430. https://doi.org/10.1016/j.outlook.2016.05.001

Plank (2018) describes three types of academicpractice partnerships that provide nursing students with perioperative nursing experience. They were developed through an academic-practice partnership between The Louise Herrington School of Nursing, Baylor University and the Baylor University Medical Center in Dallas, Texas. In the first scenario, an OR expansion led to the need for more trained OR nurses. In partnership, the hospital-based OR educators and the nursing school faculty developed an elective course for undergraduate students based on the AORN Periop 101: A Core Curriculum (AORN, 2021),

a comprehensive, web-based curriculum that provides students the didactic component of perioperative training. As a result of this program, which enrolled five students, three accepted OR positions and two accepted postanesthesia unit positions after graduation.

The second approach described by Plank (2018) was an internship or transition-to-practice model in which students in their final semester choose to participate in a capstone or practicum. The perioperative area was included on the list of specialty choices. Students frequently select these placements to assist them with deciding on a nursing specialty at graduation and some of these students applied for OR positions after graduation.

A third strategy offered by Plank (2018) was to designate a clinical practice day in the perioperative area. Because of the academic-practice partnership in place, students were given the opportunity to participate in an intensive experience that included following a patient through the entire perioperative process from admission through discharge from the postanesthesia care unit. Positive feedback was gathered from both the students and the nurses in the perioperative practice areas.

Another example of an academic-practice partnership to create an OR nurse pipeline is the partnership described by Brooks et al. (2021). An American Nurses Credentiaing Center (ANCC) Magnet®-designated and National Cancer Institute-designated Comprehensive Cancer Center (Memorial Sloan Kettering Cancer Center) and a school of nursing (SON: Stony Brook University) became partners through the development of a shared vision that benefitted both program partners.

The Comprehensive Cancer Center (CCC) and the SON met to develop a shared vision. The CCC had a longstanding, extraordinarily successful nurse residency program but had limited success with the OR. The SON was seeking to expand its options for clinical placements for their capstone course and believed that the OR experience would meet the objectives of a newly revised curriculum (Brooks et al., 2021). An Operating Room Capstone Program was developed as a result of the partnership (Table 17.4). After program implementation, several changes were made (Brooks et al., 2021). Before final selection was made for the observation course, an interview was conducted by the CCC nurse leaders and during the observation course, students were required to

TABLE 17.4 School of Nursing –Comprehensive Cancer Center Academic-Practice Partnership: Operating Room Capstone Program

Steps	Process
1. Elective 30-hour observation course	a. SON selects students based on grades and interest.
	b. Course offered during winter intersession to allow CCC to select optimal time and preceptor.
	c. SON and CCC review student reaction papers submitted at course completion to determine those who move on to step 2.
2. 150-hour capstone course	a. Goals set to decrease time for new nurse onboarding and to increase retention.
	b. Provides in-depth view of OR nursing to determine "good fit."
	c. Didactic guidance provided by selected parts of AORN Periop 101 (AORN, 2021).
	d. Hands-on tasks are guided by trained preceptors.
	e. SON faculty provide linkages between theory and practice.

AORN, Association of periOperative Nurses; CCC, Comprehensive Cancer Center; OR, operating room; SON, school of nursing.

Source: Brooks, C., Della Ratta, C., LaSala, M. E., Gerberich, B., & Browne, K. (2021). Leveraging academic-clinical partnerships to create an operating room nurse pipeline. *JONA: The Journal of Nursing Administration, 51*(3), 168–172. https://doi.org/10.1097/NNA.0000000000000989

demonstrate proficiency in donning complete surgical attire during the observation component. In addition, graduates of the program who then become OR nurses are invited back to share not only their experiences but how their experiences reflect the theory of relationship-based care (Brooks et al., 2021).

In 2018, two California private university nursing programs, Azusa Pacific University and Mount Saint Mary's University, committed to developing and providing perioperative training courses for 17 RNs, partnered with eight area hospitals to improve the OR nursing pipeline (American Hospital Association [AHA], 2019). This was a recommended strategy by HealthImpact, the nursing workforce center designated by the state of California after its 2016 report on statewide nursing specialty shortages (American Hospital Association, 2019). A three-year, regional plan was developed that followed a process of assessing and strategizing; planning and coordinating; implementing and evaluating; and expanding and sustaining (AHA, 2019). Specifically, the two universities, Azusa Pacific, and Mount St. Mary's, led the design and implementation of parallel postlicensure, continuing-education courses that included (a) classroom didactic using a "flipped classroom" pedagogy, (b) skills training at a host hospital using an empty OR as a skills lab, and (c) at least 88 clinical hours with a preceptor; the AORN Periop 101 curriculum (AORN, 2021) and other resources served as the foundation of the course. MSN-prepared faculty who were subject matter experts were clinical instructors for the courses. Hospital partners, who grew to a total of eight, provided the program participants and training sites. Although the project faced challenges (Table 17.5), strategies were developed to mitigate the challenges and, at program completion, 100% of participants completed and up to 17 nurses were prepared to transition into OR nursing practice (AHlA, 2019). HealthImpact developed a spreadsheet to calculate the return on investment

TABLE 17.5 Perioperative Specialty RN Training Program Selected Barriers/Challenges and Strategies for Change/Improvement

Barriers/challenges	Strategies to address and incorporate innovative practices in real time
Communication about the course and model did not occur far enough in advance of the course starting.	• Universities felt that notifying hospitals of course dates with sufficient prior notice will help facilitate advance planning and strengthen future attendance. • It would be beneficial if schools could offer the course more than once per year with options to expand to more hospitals. • Development of a true regional collaboration amongnursing programs and hospitals, along with collaboration within each school and its affiliated hospitals would facilitate strategic planning for future workforce needs and scaling of course offerings necessary to meet those needs. • Expansion could be achieved, and sustainability strengthened by responding to requests for courses from hospitals beyond LA County, including Riverside, San Bernardino, Ventura, Santa Barbara, and San Diego areas. • Expanding the number of hospitals and partnerships will facilitate cost-effective course offerings by each nursing program while ensuring full classes with reduced risk of course cancellations.

(*continued*)

TABLE 17.5 Perioperative Specialty RN Training Program Selected Barriers/Challenges and Strategies for Change/Improvement (*continued*)

Barriers/challenges	Strategies to address and incorporate innovative practices in real time
Diifficulty moving beyond support and guidance in planning steps for hospitals to engagement and action.	• The pilot project director assisted hospital leaders to understand the pilot funding, course offerings, and to navigate the process to enroll their nurses. • This issue was discussed at the first collaborative meeting. • The need to budget for specialty training and anticipate vacancies was reinforced during the qualitative interviews conducted with the partner hospitals. • CEOs, CFOs, and CNOs should be routinely informed of regional and statewide workforce trends, the cost savings and benefits from supporting the development of the existing workforce by hiring those who have demonstrated successful completion of a course, reducing the reliance on contract personnel such as RN travelers, etc.
Delays occurred related to difficulty in identifying a primary leader in the partner hospitals to obtain and provide information, plan, and coordinate RN enrollment in the course and participate in evaluation.	A coordinating role and function is recommended for future partnerships and courses. A contact list can be developed and maintained, streamlining communication.
Supporting processes to accompany the transfer/hire of the RN into the new specialty area are lacking.	Ensuring the nurses participating in the course are transitioned into the OR before or during the course should be considered a hospital condition of participation in future courses.
Hospitals did not have a mechanism in place to plan for specialty training despite vacancies and turnover, so this required real-time posting of positions, hiring staff, and accommodation for union requirements with class start dates looming.	The need to budget for specialty training and anticipate vacancies was reinforced during the qualitative interviews conducted with the partner hospitals.
Class absences due to vacations and hospital staffing shortages and remediation were costly (faculty time and salary) and difficult to reschedule.	Course faculty were flexible, allowing make-up sessions, completion of modules, and retesting to achieve 100% course completion.
There is inconsistent, competent preceptor availability and exposure to adequate surgical case experience.	• Smaller hospitals would consider sending future nurses to a larger hospital for the clinical education practicum in order to gain a better experience. • Completion of the Periop 101 preceptor course is encouraged, but not required.

Barriers/challenges	Strategies to address and incorporate innovative practices in real time
Hospital partners did not fully recognize the cost-benefit and value of this nursing leadership skill/competency, the impact on planning future expenditures for specialty training with reduced organizational costs related to use of contracted RN travelers, and registry and premium pay utilized to staff hard-to-fill specialty vacancies.	• All partner hospitals were offered assistance in calculating the ROI and provided a spreadsheet template with sample calculations. • Calculating the ROI is recommended to be part of the conditions of participation for future funded projects and will be included as part of the outcome measures.

CNO, chief nursing officer; OR, operating room; ROI, return on investment.

Source: Reproduced with permission from Hospital Association of Southern California. (2018). *Perioperative specialty RN training pilot project final report* (pp. 12–14). Author. https://www.hasc.org/post/report-perioperative-rn-training-released; American Hospital Association. (2019). Perioperative specialty RN training pilot project: Final report. https://www.aha.org/case-studies/2019-09-25-perioperative-specialty-rn-training-pilot-project-final-report

(ROI), which the hospital chief nursing officers (CNOs) were asked to complete as part of the partnership (permission has been granted by HealthImpact to download this ROI Worksheet Template from https://healthimpact.org/resources/publications).

Academic-Practice Partnerships Forged to Build Nursing Research Capacity and Translation of Research Into Practice

Nursing education had been developed using three foundational elements: nursing as a discipline, liberal education, and competency-based education (AACN, 2021b). To meet the needs of the 21st century, nursing education must prepare nurses who can address issues of diversity, equity, and inclusion; the four spheres of care (the continuum of care from disease prevention through hospice); systems-based practice; information and technology; engagement and experience; academic-practice partnerships; and career-long learning (AACN, 2021b).

The fourth domain of the *Essentials* for nursing education is scholarship for nursing practice, described as "The generation, synthesis, translation, application, and dissemination of nursing knowledge to improve health and transform care" (AACN, 2021b, p. 10). Academicpractice partnerships can provide the environment for scholarship in nursing practice to grow and flourish. Harbman et al. (2017) describe one such academicpractice partnership.

The project began as a PhD thesis study and evolved into an academic-practice partnership between the Canadian Centre for Advanced Practice Nursing Research (CCAPNR) at McMaster University and at first, a large urban three-site community hospital to which l a single-governing health authority for another Canadian province was added (Harbman et al., 2017). The shared purpose was to educate and mentor APRNs to lead and conduct research (Harbman et al., 2017). The course was a post-Master's certificate course that used a nationally provided course, adapted to meet the partnership goals, and delivered at both sites (Harbman et al., 2017). A research mentor was provided to each student and course completion required the presentation of a research

proposal (Harbman et al., 2017). Recommendations for practice resulting from this academic-practice partnership are listed in Box 17.12.

Another academic-practice partnership, one that is focused on developing research capacity, is described by Davis et al. (2019), one of over 10 years' duration: a partnership between the University of Hawaii at Manoa School of Nursing and Dental Hygiene (SONDH) and the Queen's Health System (QHS). The partnership shares a mission "to address the needs of underserved Native Hawaiian and Pacific Island people through improving health outcomes and building a nursing workforce representative of the state population" (Davis et al., 2019, p. 474). The two organizations have had an informal working relationship since 1932 that was then formalized into an academic-practice partnership in 2010 in a mutual effort to build research capacity (Davis et al., 2019). Although the academicpractice partnership goals have remained the same, the partnership developed over time in three phases. The outcomes of this academicpractice partnership have been positive with remarkable achievements by both the SONDH faculty and the QHS staff nurses (Box 17.13).

Faculty and graduates DNP programs, and their PhD counterparts, frequently lament over a perceived lack of preparation to proceed with evidence-based projects for DNP graduates and independent research for PhD graduates upon program completion. Postdoctorate fellowships help to fill that gap. However, academic-practice partnerships at the graduate level may also provide the necessary mentoring to achieve a more confident, independent researcher. Two examples of these types of academic-practice partnerships are illustrated.

Wright and Cranmer (2018) describe an academic-practice partnership that was developed between a large private university that had an already-established, informal relationship with a metropolitan academic medical center. In this academic-practice partnership specfically, the practice partner sought the faculty and graduate DNP students to assist in solving what was termed **wicked problems**, were defined as problems that are "difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems" (Kolko, 2012, p. 10). The wicked problems identified by the practice partner that needed to be addressed were 30-day readmissions, disease-specific patient outcomes, and care transitions (Wright & Cranmer, 2018). The methods and results of this collaboration are listed in Table 17.6.

In 2014, Columbia University School of Nursing and New York-Presbyterian Hospital established its first jointly appointed nurse scientist role and since then have expanded to have joint scientist roles at four more New York health systems (Carter

BOX 17.12

Recommendations for Academic-Practice Partnerships to Increase Research Capacity

1. Endorse organizational values that support creating a culture of inquiry.
2. Endorse organizational values that prioritize research.
3. Provide protected time for healthcare providers to participate in research activities.
4. Provide access to PhD-prepared researchers and mentors.

Source: Harbman, P., Bryant Lukosius, D., Martin Misener, R., Carter, N., Covell, C. L., Donald, F., Gibbins, S., Kilpatrick, K., McKinlay, J., Rawson, K., Sherifali, D., Tranmer, J., & Valaitis, R. (2017). Partners in research: Building academic practice partnerships to educate and mentor advanced practice nurses. *Journal of Evaluation in Clinical Practice, 23*(2), 382–390. https://doi.org/10.1111/jep.12630

BOX 17.13

The AcademicPractice Partnership Between The University of Hawaii Art Manoa School of Nursing and the Queen's Hospital System

Academic-Practice Partnership Goals

1. Shape the nursing infrastructure and capacity through nursing research collaboration and mentorship.
2. Engaged faculty and staff nurses in academic-practice research will result from these consultation and mentoring activities.

Phases of Academic-Practice Partnership Development

1. Staff nurses and faculty members with similar evidence-based practice or research interests were partnered. A tracking system was developed to monitor for suitable nurse-faculty matches and provide support for resources as well as time to carry out interests.
2. The academic-practice partnership progressed from the nurse-faculty pair to the development of a QHS Nursing Research Fellowship, a 6-month fellowship in which the SONDH committed a day a week of the faculty workload to the fellowship. This phase was developed during the time that QHS was seeking ANCC Magnet® recognition ® in 2007.
3. The 6-month fellowship developed in 2007 evolved into a full 2-year commitment by 2015, reflecting the education and support that would be needed to guide projects from concept through IRB approval, completion and dissemination.

Selected Academic-Practice Partnership Outcomes

1. The academic-practice partnership scholarship has contributed to faculty attainment of tenure and promotion and staff nurse clinical ladder attainment and maintenance. Several fellows have enrolled in graduate programs and some have been promoted to management positions.
2. On average, there are three to five research studies that are funded per cycle, with a didactic workshop developed to enhance writing skills for publication and dissemination of research findings.

ANCC, American Nurses Credentialing Center; IRB, institutional review board; QHS, Queen's Hospital System; SONUH, University of Hawaii at Manoa School of Nursing and Dental Hygiene.

Source: Davis, K. F., & Boland, M. G. (2019). Ten years and counting: A successful academic-practice partnership to develop nursing research capacity. *Journal of Professional Nursing*, *35*(6), 473–479. https://doi.org/10.1016/j.profnurs.2019.04.013

et al., 2020). Although this was the development of the role of the PhD-prepared nurse scientist across academia and practice, there are several lessons learned that are applicable to DNP academic-practice partnerships (Box 17.14).

Academic-Practice Partnerships in a Rural Setting

Most of the literature on academic-practice partnerships as discussed up to this point have centered on those established through partnering of well-known institutions, on the academic and practice side of the partnership in urban or suburban settings. However, Akintade et al. (2021) discuss an academicpractice partnership that was developed in a rural setting.

The largest school of nursing in the state of Maryland is the University of Maryland School of Nursing (UMSON); in fact it is one of the largest SONs in the country (Akintade et al., 2021). Their APRN program was in search of clinical training opportunities and received a 5 year, nearly $1 million grant. This grant formalized an academic-practice partnership between the UMSON and the University of Maryland Upper Chesapeake Medical System (UM UCH), a community-based, not-for-profit healthcare system, consisting of 5 healthcare entities (Akintade et al., 2021). The UMSON and the

TABLE 17.6 An Academic-Practice Partnership Designed to Address Wicked Problems Target: 30-Day Readmissions

Methods	Results
1. Using complex systems theory, students receive faculty guidance for analyzing practice-specific data and creating relevant solutions.	Based on identified issues from this academic-practice partnership, course content for data analysis and systems development is revised each semester.
2. System senior leaders in the practice setting championed these efforts.	Using the DNP students as quasi-consultants has decreased the need for outside consultants.
3. Advanced statistical techniques were learned and applied to determine facility-specific readmission predictors.	The career expectation, practicing at the top of the DNP license, has been set and includes an understanding of the larger healthcare environment.
4. Data-informed findings enabled the development of solutions that helped maximize quality while reducing readmissions.	Through this data-driven process of analysis and recommendations, the staff of the practice partner now has a well-developed statistical skill set.
5. While this was an institutional review board-exempt quality initiative, confidentiality agreements were signed.	Exposure to real-world data increased the confidence of students, including their ability to use statistical analysis to support their work.
6. As successive DNP student cohorts were added, they were randomized into groups that were diverse in experience and skills.	The diverse groups gave the students an opportunity to learn how to work with diverse teams.
7. Systems and data courses were run concurrently to support the work of the students in analyzing the data.	The academic end-product included extensive data analysis, system analysis, and recommendations for change and implementation.

Source: Wright, P. P., & Cranmer, J. N. (2018). Leveraging graduate academicpractice partnerships to transform health system outcomes. *Nursing Administration Quarterly, 42*(4), 324–330. https://doi.org/10.1097/NAQ.0000000000000311

BOX 17.14

Lessons Learned From the Development of a Joint Nurse Scientist Role

1. Nurses prepared at the doctoral level are adept at identifying research opportunities, can foster collaboration, and provide guidance to navigate the institutional landscape.
2. The educational preparation provides the foundation for the flexibility needed in an ever-changing healthcare environment.
3. Responsibilities in teaching and in mentoring can prove challenging and should be anticipated and addressed by both the academic and the practice partner.
4. The uniqueness of the role needs to be recognized with role-specific criteria for promotion and advancement.
5. If external grant funding is a role expectation, allocation across both settings of the academic-practice partnership should be addressed in advance.
6. The academic-practice partnership should address, in advance, the process of resolving competing priorities that will surface.

Source: Carter, E. J., Hessels, A., Cato, K., Sun, C., Cohen, B., Rivera, R. R., & Larson, E. (2020). Evaluation of the joint nurse scientist role across academia and practice. *Nursing Outlook, 68*(3), 261–269. https://doi.org/10.1016/j.outlook.2019.10.003

TABLE 17.7 An Academic-Practice Partnership in Rural Maryland

Founding outcomes	Process	Selected scholarly DNP work
UMSON secured clinical sites for APRN students specializing in acute and primary care.	Strategic partner selection ● 10 APRN students each year over a 5-year period ● Practice-ready graduates ● Onsite UMSON faculty with a 20% grant-funded faculty practice position	Emergency room: ● Implementation of a ventilator-associated prevention bundle ● Buprenorphine/naloxone initiation for opioid use disorder
APRN students completing their clinical requirements at UM UCH became a source of a staffing pipeline and reduced onboarding expenses.	Partner engagement ● UMSON grant-writing team engaged with the UM UCH team regularly ● An advisory board with equal representation from each partner met regularly	Simulation-based learning to: ● Strengthen independence in acute stroke in a psychiatric setting ● Improve nurses' initiation of the rapid response system in the acute care setting
APRN graduates became a source of providers for acute and primary care to the communities served.	Equitable benefit distribution ● The goal of 10 APRN students per year was far exceeded. ● APRN students worked directly with UM UCH quality leaders while the UMSON faculty served as content experts	Training and program development ● Medical emergency training for psychiatric healthcare staff ● A program to increase utilization of dental benefits in Maryland Medicaid prenatal population

UM UCH, University of Maryland Upper Chesapeake Medical System; UMSON,University of Maryland School of Nursing.

Source: Akintade, B., Idzik, S., Gourley, B., Montgomery, K. L., Indenbaum-Bates, K., Novak, K., Hicks, G. N., & Appleby, T. (2021). Academic-practice partnership in rural Maryland: Opportunities for advanced practice registered nurse training and employment. *JONA: The Journal of Nursing Administration, 51*(4), 227–231. https://doi.org/10.1097/NNA.0000000000001002.

UM UCH created an academicpractice partnership that focused on a triple win for each partner and for the communities served (Akintade et al., 2021). The founding outcomes, the three-step process used to achieve them, and a selection of DNP scholarly projects illustrate the overwhelming success of the program (Table 17.7). In addition, this academic-practice partnership led to the hiring of a number of the DNP graduates of the program into rural primary care, contributing to the state's comprehensive efforts to improve access to healthcare for residents in rural areas (Akintade et al., 2021).

FINANCIAL/ROI IMPLICATIONS

These exemplars of academic-practice partnerships as well as those academic practice partnerships that have been award winners of the American Association of Colleges of Nursing award winners provide many outcome metrics (AACN, 2021a). These metrics generally include the improvement of care through research, evidence-based practice projects, podium presentations, and publications. Some partnerships report on the number of graduates who proceed to secure employment at the practice where the partnership occurred. The HealthImpact 2018 Perioperative Training Program, described herein, developed a spreadsheet to reflect the ROI with the implementation of the academic-practice partnership for specialty training. This, in turn, assisted hospital stakeholders to understand the financial implications of investing in this partnership (AHA, 2019).

CONCLUSIONS

The preceding pages have provided the background, legislation, and reports that set the stage for the development of successful academic-practice partnerships in nursing. The many exemplars of academic-practice partnerships provided herein are by no means exhaustive, but illustrate the diverse richness of outcomes that such partnerships produce. Each member of the partnership contributes and benefits from the collaborative work. Moreover, these exemplars and others are evidence that one of the best routes of achieving practice at top of the license and full scope for DNPs is through the work of these academic-practice partnerships. In the future there will be more opportunities to develop specialty-specific academic-practice partnerships that address diversity, equity, and inclusion so that the DNP will possess the knowledge and skills to address population health and its social determinants. Because of the paucity of information readily available to support the financial implications of academic-practice partnerships, it is imperative that more work be done in this area. With shrinking healthcare dollars, these academic-practice partnerships will need to show a positive ROI to get their rightful share of scarce resources.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. Describe the ways in which the Patient Protection and Affordable Care Act (ACA), the *Future of Nursing* report, the *Future of Nursing 2020–2030*, report, and the work of the AACN-AONL Task Force on Academic-Practice Partnerships provided the foundational work on academic-practice partnerships are built.

    a. What changes were made as a result of each report in nursing education and nursing practice at the undergraduate and graduate levels?
    b. How have academic-practice partnerships evolved as a result of the legislation and reports?

2. Describe at least four of the features of the U.S. Department of Veterans Affairs Nursing Academy (VANA) that differentiate it from the other academicpractice partnerships described.

    a. Using one of the other academic-practice partnerships discussed, describe at least two features offered by VANA that would improve the other academic-practice partnership.
    b. How would you plan to overcome at least one anticipated obstacle to your improvement plan?

3. Compare and contrast the development of an academic-practice partnership that focuses on addressing a pipeline shortage such as OR nurses with the development of an academic-practice partnership that addresses the development of a relatively new nursing role, such as a joint-practice nurse scientist.

    a. Who are the stakeholders in each partnership and why are they similar or why are they different?
    b. How are the outcomes measured for each partnership?

4. A newly appointed senior vce president for nursing/chief nursing officer at a Magnet® -recognized ®large academic medical center (AMC) identifies outdated practice guidelines during her first few weeks in the position. Although this AMC has had a longstanding affiliation with its academic counterpart, a formal academic-practice partnership has never been established.
   a. Beginning with a list of reasons why an academic-practice partnership should be considered in this specific situation, describe the steps to developing the partnership and identify at least one possible obstacle that could be encountered at each step.
   b. Discuss ways to address each of the obstacles so that success could be ensured.
   c. Calculate the ROI for your organization to train RNs for any specialty with vacancies in your organization using the HealthImpact ROI Worksheet Template, downloadable from https://healthimpact.org/resources/publications/ (download this ROI Worksheet Template from https://healthimpact.org/resources/publications).
5. The dean of a school of nursing (SON) and the associate deans of undergraduate and graduate programs have experienced increasing frustration with a lack of clinical placements for the students. The region where the SON exists is saturated with similar SONs, experiencing similar challenges. There are several health systems in the region and a longstanding group, composed of academic and practice representatives, that coordinates student placement.
   a. Compare and contrast the advantages and disadvantages of establishing an academic-practice partnership for this SON.
   b. Based on the exemplars discussed in this chapter, discuss at least four considerations that should help guide the choice of an academic-practice partner and list these considerations in rank order.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 18

Financial Management in Times of Uncertainty, Shortages, and Change

Connie A. Clemmons-Brown

The constant lesson of history is the dominant role played by surprise. Just when we are most comfortable with an environment and come to believe we finally understand it, the ground shifts under our feet.

—Peter Bernstein

At the time of this writing (2021), the world has collectively experienced more than a year of disaster and crisis—environmental disasters, political instability, economic uncertainty, civil and racial unrest, and the profound impact of the novel coronavirus 2019 (COVID-19) pandemic. The long-term effect of these events may take years to fully understand, yet it is clear the world as we know it has changed.

Many challenges often surface following a crisis—inadequate capacity, supply disruptions, staff shortages, need for care delivery redesign, and significant financial losses. Effective responses to these challenges require communication, collaboration, innovation, agility, and resilience. Although each disaster or crisis may differ in detail, scope, or impact, nurse leaders must learn and transform these opportunities (Begun & Jiang, 2020) to be a better positioned learning organization. DNPs must focus on nursing interventions that influence health outcomes, including the design, evaluation, and improvement of healthcare settings and systems, especially during times of crisis and recovery.

This chapter provides examples and suggestions for improving financial management for DNP-prepared nurse leaders navigating the sometimes unpredictable and challenging healthcare landscape during uncertain and changing times. The relevant domains and core competencies found in the American Association of Colleges of Nursing (AACN)'s 2021 publication, *The Essentials: Core Competencies for Professional Nursing Education,* and how they relate to leading and managing during times of uncertainty, shortages, and change are woven throughout this chapter to demonstrate their relevance and applicability to financial stewardship for the DNP student and graduate alike. A few examples of familiar types of events and their impact on healthcare systems are provided. Although not an exhaustive list of examples, these event types illustrate some of the challenges nurse leaders face and that pose similar problems to be solved. Later, specific discussions include clinical and operational challenges, and recommendations to support financial management are discussed. The chapter ends with a few critical thinking exercises.

OVERVIEW

AACN *Essentials* for Advanced-Level Nursing Education

The AACN has provided a series of publications that define an educational framework for preparing professional nurses in university and college programs at the entry and advanced levels since 1986. In its latest publication, *The Essentials: Core Competencies for Professional Nursing Education* (2021), the AACN has identified 10 domains and their associated competencies that define the professional nursing practice, integrate nursing as a discipline, and build on the foundation of competency-based education. These domains are essential to nursing practice. Today, nurse leaders face new challenges amid change, uncertainty, and shortages that require new competencies, new thinking, and new ways of doing business.

Nurse leaders have a financial management function but sometimes lack the necessary skills, knowledge, and competencies to function in this role. Additional knowledge, skill, and competency acquisition are needed, and a competency framework, like that in the *Essentials,* can provide the necessary foundation to achieve these advanced competencies. The DNP-prepared nurse is uniquely qualified to address these challenges proactively and constructively. All 10 domains apply to financial management during times of uncertainty, shortages, and change; some are more applicable to a short-term response, others for a longer view toward economic sustainability over the long run. The *Essentials* and their applicability are woven throughout this chapter to provide insight into their relevance for DNP students and graduates as stewards of the financial resources entrusted to them.

Natural Disasters

According to the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information, the United States alone has sustained over 291 weather and climate disasters since 1980, with overall damages and associated costs exceeding $1.9 trillion. Each of the 50 states has experienced at least one billion-dollar disaster, with Texas experiencing the most of any state (n=124). In 2020, the annual number of billion-dollar events in the United States reached an all-time high of 22 (NOAA, 2021). These included six named hurricanes and one named tropical storm across the gulf and Eastern Seaboard states, eight severe weather and hailstorms across the upper and lower Midwest regions, drought and heatwaves in the West and the central United States., and wildfires and firestorms across Colorado, Washington, Oregon, and California. Unfortunately, the United States is not alone in witnessing its share of destruction and devastation.

Across the world, the number of disasters, especially those related to climate—cyclones, windstorms, fires, drought, flooding, heat waves—have tripled over the past 3 decades. According to the Food and Agricultural Organization of the United Nations (FAO; 2021), disasters occur 3 times more often than they did in the 1970s and 1980s. All countries are affected by disasters (natural or human-made). Often, these catastrophic events have social and economic consequences and health effects (both short term and longer term) that strain the resources and resilience of healthcare systems present to support those impacted.

Natural disasters and extreme weather events (e.g., earthquakes, tornadoes, floods, fires, windstorms, mudslides) impact hospitals and healthcare systems differently. Some may cause actual damage to the built environment, impacting critical infrastructure, limiting or halting the ability to provide services, and disrupting operations and finance. Although others may cause a large influx of patients, straining existing resources and capabilities and disrupting operations and financial performance. Understanding and anticipating potential costs and demand for resources can help guide and inform

financial decisions. The economic effects can linger for months or years after the precipitating event. In collaboration with other C-suite members, nurse leaders should develop and periodically review and revise disaster mitigation, response, and recovery plans.

Large influxes of patients, limited medications and supplies, staffing shortages, lack of capacity and available resources (e.g., equipment, services), and sometimes damage to the physical plants can add to the financial strain placed on healthcare organizations in times of disaster. Uniquely qualified to provide influence and strategic guidance, DNP-prepared nurses are integral to crisis intervention and emergency preparation. Emergency preparedness and the role of the nurse leader are discussed later in this chapter.

Communicable Disease Pandemics

The Centers for Disease Control and Prevention (CDC, 2014) defines an **epidemic** as a higher-than-expected incidence of injury, disease, or other health condition among a specific group of persons or within a particular geographic area. Typically, the cases are related to one another in some way or share a common cause. In contrast, a **pandemic** is an epidemic that occurs across multiple countries or continents, affecting a substantial portion of the population. Since 1918, the United States has experienced several epidemics and pandemics worth noting, including:

1. H1N1 influenza pandemic (1918),
2. diphtheria epidemic (1921–1925),
3. polio (1916–1955),
4. H2N2 influenza pandemic (1957),
5. H3N2 influenza pandemic (1968)
6. measles outbreak (1981–1991),
7. cryptosporidiosis water contamination (1993),
8. H1N1 influenza (2009),
9. whooping Cough/Pertussis (2010, 2014),
10. HIV and AIDS (the 1980s to present),
11. H1N1 ("Swine flu") influenza pandemic (2009), and
12. severe acute respiratory syndrome associated with coronavirus-2 ("SARS-CoV-2", "novel coronavirus 2019"," COVID-19"), (2020-present) (Healthline Media, 2021).

Although these contagious disease outbreaks vary in frequency, cause, vector, duration, and severity, the risk is much more prevalent today, given our interconnectedness and global economy. Contagious disease outbreaks now occur with greater frequency and intensity (Lam et al., 2018; Smith et al., 2014). Unlike the more localized epidemics and smaller scale pandemics of the past century, the COVID-19 pandemic has exacted a significant human, social, and economic toll worldwide, becoming the most extensive and most expensive public health emergency in over a century. COVID-19 quickly taught us capacity constraints and supply shortages could cripple the healthcare infrastructure resulting in significant financial losses, signaling the need for better planning in terms of staff redeployment, care redesign, and better management of supply chain disruptions.

Schwarzburg (2021), using data from the World Bank, estimated that the annual economic losses due to COVID-19 for the top eight most affected countries as of April 2021 would exceed $242.5 billion. This amount is 4 times larger than any economic fallout from an epidemic ever recorded. In addition, the number of COVID-19 cases has exceeded 160 million, with more than 3.3 million deaths worldwide as of April 2021 (Global Change Data Lab, 2021), of which 32.5 million cases and more than 550,000

deaths occurred in the United States (CDC, 2021). Weaknesses in the healthcare systems are putting the entire population at risk. More than 30 million Americans are uninsured, and another 44 million are underinsured. These groups are less likely to seek medical care when they are sick. In addition, there is a lack of primary care physicians and services in this country, limiting access to care for those who need it (Seervai, 2021).

For healthcare organizations, financial concerns resulting from COVID include the direct cost of care, supply acquisition costs and use rates, resource burdens related to staff shortages and attrition, pay premiums, the intensity-of-care requirements, and loss of prior revenue streams (e.g., elective surgeries). Daily operational challenges that have existed for decades are amplified and intensified due to this public health crisis. Compounding these operational and care challenges are the questions that remain about hospitals' abilities to stay financially viable due to the pandemic. Recognizing the precarious state of the country's healthcare infrastructure, Congress enacted two laws to address the economic impact of the COVID-19 pandemic:

- The Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020) provides $75 billion to reimburse hospitals and healthcare providers for reasonable expenses to prevent, prepare for and respond to the coronavirus.
- The Paycheck Protection Program and Health Care Enhancement (PPHCE) Act (2020) provides $100 million earmarked for healthcare providers to supplement and replenish several critical programs under the CARES Act. The funding includes $75 billion to reimburse healthcare providers for healthcare-related expenses or lost revenues attributable to the coronavirus outbreak; and $25 billion for COVID-19 testing-related activities.

The largest traunch of the CARES Act funds was paid to hospitals based on their 2019 net patient revenues with less paid based on COVID-19 patient volumes, Medicare patient volumes, or safety-net status. Although these funds provided some relief to the struggling healthcare sector, hospitals treated the influx of cash differently. Some used the dollars for capital purchases like ventilators and much needed supplies like pharmaceuticals and personal protective equipment. In contrast, others held on to the cash to improve their days' cash on hand and liquidity position. Ongoing government support is needed for the foreseeable future, given the precarious state of the financial health of our hospitals and health systems still reeling under the effects of the pandemic. These sustained and accentuated economic challenges require nurse leaders to manage their operations differently, reducing costs, optimizing staffing models, leveraging technology while maintaining the quality of the care delivery and patient experience. More discussion on these topics can be found later in this chapter.

Emergency Preparedness

Hospitals and health systems are the backbones of the health of any country, and nurses play a key role in emergency preparedness and response. Yet, nurses lack the education, training, and emergency-preparedness competence to meet the demands of populations during a crisis (McNeill et al., 2020). Disaster-preparedness concepts and competency development are noticeably lacking in most nursing program curricula. The ability to respond effectively to positively affect health outcomes while maintaining the financial health and viability of the healthcare system depends on a workforce and leadership that are skilled and knowledgeable in:

- the incident command system;
- clinical decision-making;
- epidemiology including isolation, quarantine, and decontamination;

- accessing and allocating scarce resources;
- reporting and tracking requirements; and
- managing the psychological impact of these events.

The American Nurses Association (2021) considers disaster preparedness and response a part of nursing practice, acknowledging the need for nurses to participate in learning opportunities and continuing-education programs to be personally and professionally prepared for disasters.

Nurse leaders must strive for a more significant role in planning and decision-making before, during, and after a disaster, labor action, public health emergency, or other critical events. Protection of a nation's most vulnerable citizens requires a well-prepared nursing workforce. A systematic literature review conducted by Veenema et al. (2017) to explore nurse leadership competencies during disasters revealed that of the 207 articles published between 2009–2015, no articles were found to focus on disaster competencies. This is a gap despite *Essentials,* Domain 3: Population Health, Competency 3.6 (AACN, 2021, p. 37) recommending advanced preparation to protect population health during disasters and public health emergencies.

Given the events of 2020, the value of our healthcare system in national security and public health has never been more evident. During times of crisis, it is essential that healthcare leaders minimize disruption to day-to-day operations, ensure sustainability, and remain flexible and open to new ways of working. The nurse leader must be a recognized member of the organization's crisis-planning and response team (American Association for Nursing Leadership, 2017). The crisis events described earlier in the chapter (natural disasters, infectious disease outbreaks, strikes) show that not all events or circumstances are controllable. Yet, DNP-prepared nurses can create and execute plans to help their staff and organizations stand firm when adverse situations and uncertain times arise.

These realities are essential for nurse leaders to understand in both a micro and macro context. It is often said that "health care is local," but in today's interconnected world, no longer are the effects of a shortage, contagious disease outbreak, or natural disaster limited to a single facility, market, or region. Understanding this backdrop helps the DNP-prepared leader align current capabilities (e.g., human capital, financial, logistical) and capacities. The development of an emergency response plan that is agile and addresses the needs of the most vulnerable in the populations serviced, including the need for effective communication, health equity, adequacy of needed supplies, and protection of the workforce (National Academies of Sciences, Engineering, and Medicine, 2021, p. 265), become paramount. Steps should be taken to link preparedness to financial risk planning.

Financial Impact of COVID-19

The COVID-19 pandemic has revealed the vulnerabilities in an already complex and fragmented healthcare system—inequities in care and access to care, problems financing care, racism and bias, weaknesses in the global supply chain, and the burden of bureaucracy. In addition, the economic and social impacts add another layer of complexity and burden to communities, societies, critical infrastructure, and healthcare systems. According to the World Health Organization (2020, October 13), nearly 50% of the world's global workforce is in jeopardy of losing its livelihood across all economic sectors. Sectors describe large segments of the economy; the term categorizes companies that operate in the same economy or business sphere (also known as *industries*). There are twelve different sectors that are grouped into four major categories within the economy:

- **primary**: industries involved with the extraction and harvesting of raw materials and natural resources (e.g., mining, agriculture),
- **secondary**: industries involved in the production of finished products (e.g., construction, manufacturing),
- **tertiary**: industries that provide services to customers (e.g., financial institutions, retail, healthcare), and
- **quaternary**: industries involved in knowledge and intellectual pursuits (e.g., education, consulting, research, and development).

Accounting for nearly one-fifth of the U.S. gross domestic product (GDP), the healthcare sector is one of the largest and most complex of the U.S. economies. A well-functioning economy is dependent on a well-functioning healthcare sector due to its size and budgetary implications. An analysis report published by the Brookings Institution (Nunn et al., 2020) highlights the economics of the healthcare sector and identifies these facts:

- U.S. per capita spending nearly quadrupled for the period 1980–2018.
- U.S. healthcare spending is nearly double that of other large, advanced economies (e.g., the United Kingdom or Germany), paying more for diagnostic tests, prescription drugs, and surgical and outpatient procedures. Most healthcare spending is on hospitals (nearly one third) and professional services. The United States has the dubious distinction of having the highest healthcare administrative costs of any other country.
- Five percent of Americans accounted for half of all U.S. healthcare spending in 2017. The top 1% accounts for 22% of expenditures.
- People with the poorest health account for high and variable expenditures. Those at the tenth percentile of expenditures spend 100 times less than those at the 90th percentile.
- Healthcare spending by privately insured persons varies widely depending on geography. In the United States,, this is particularly true in the upper Midwest, East Coast, and northern California, where spending can be 3 times higher than in other areas.
- Competition is weak in the healthcare system resulting in high market concentrations, especially among specialist physicians, insurers, and hospitals. Healthcare prices vary widely for the same service, even within the same metropolitan area or competitive market. Surprise billing results in higher healthcare costs because consumers cannot compare prices and choose the best options. On December 27, 2020, the No Surprise Act was signed into federal law as part of the Consolidated Appropriations Act of 2021 (2021), providing consumer protection for surprise medical billing at the federal level and facilitates payment dispute resolutions between providers and private insurers. Even before the coronavirus pandemic, most hospitals operated on a thin operating margin, with the median averaging 3.5% (American Hospital Association, 2020). Hospitals with low cash reserves or unstable cash flows are the most vulnerable during times of uncertainty. The pandemic has had an immediate and significant negative impact on hospital margins. Kaufman, Hall & Associates (2020) reported that in the second quarter of 2020, nearly half of the hospitals in this country experienced negative margins. Even with the infusion of funds from the CARES Act, the **EBITDA** (Earnings Before Interest, Taxes, Depreciation and Amortization) margins could remain negative for many hospitals for months to come, meaning revenues cannot sustain operations long term. This creates a dire and unsustainable trajectory that requires healthcare leaders, including nurse leaders, to rethink their strategic financial plans.

Staffing Shortages

Unfortunately, severe weather events, natural disasters, and global pandemics are not the only uncertainties and change events faced by healthcare leaders. Making matters

worse are healthcare worker shortages that are projected to be unprecedented in their proportions. Many countries are already in crisis. The World Health Organization (WHO; 2020) projects that by the year 2030, there will be a shortfall of 18 million health workers worldwide. These shortages will impact all countries at all socioeconomic levels and have the greatest impact on lower income countries. The United States will not be immune. The healthcare worker shortage will become the United State's next public health epidemic. According to a report published by the Association of American Medical Colleges ([AAMC], 2020, June 26), the United States is projected to experience a shortage of up to 139,000 primary care and specialty physicians by the year 2033. The U.S. Bureau of Labor Statistics (BLS) predicts that the demand for qualified nurses will increase faster than all other healthcare professionals in the coming decade, especially for nurses with a BSN degree (BLS, 2018). Between 2019 and 2029, the RN workforce is expected to increase from 3 million to 3.3 million or 7% (BLS, 2021a), with the most significant shortages in the United States anticipated in the West and South (Zhang et al., 2018).

The factors contributing to these workforce shortages are many:

- Advances in medicine mean people are living longer.
- **Aging population**: Older people require more care and management of chronic conditions.
- **Aging workforce**: This includes high retirement and turnover rates.
- There is increased demand for healthcare services.
- A limited number of faculty available for new entrant education
- There is insufficient staffing as well as increased demand for productivity.

The outlook for the nursing profession is less encouraging. The RN workforce is projected to grow by 7% (n = 221,900), and an additional 175,900 RNs will be needed each year between 2019 and 2029, inclusive—meaning throughout these 10 years, more than 1.5 million additional nurses will be needed (BLS, 2021a). In the United States, these shortages are anticipated to be more significant in the West and South. Several factors, such as an aging workforce, nursing burnout, nursing schools unable to increase capacity due to faculty shortages, aging populations, and career opportunities in other fields and industries, contribute to these shortages.

Unfortunately, the nursing shortages are not unique to the United States. Drennan and Ross (2019) estimate a net shortage of seven million nurses globally between 2014 and 2030; this is concerning since nursing makes up half of the global healthcare workforce, and the demand for nurses is increasing in all countries. This is also concerning because international nurses are often used as a staffing solution. As the supply of nurses domestically and internationally continues to dwindle, the ability to continue to provide safe staffing levels will become more complex.

The competencies associated with the Essentials—Domain 5: Quality and Safety and Domain 6: Interprofessional Partnerships will aid the DNP-prepared nurse to address the supply shortages while ensuring the appropriate number and skill mix of qualified staff are available. Quality and safety are core to nursing practice. The DNP nurse will use these skills to establish benchmarks to monitor performance, formulate plans to mitigate risks, inform change, and make policy recommendations that recognize the relationship between economics and quality care delivery (AACN, 2021). Considering these shortages, it will become increasingly important to leverage interprofessional collaboration and partnerships to design and implement alternative care models. Improvements in health equity and access, population health, and health systems' sustainability depend on a stable nursing workforce in sufficient numbers to provide high-quality care.

Labor Strikes

Many hospitals and health systems have employees who share common terms and conditions of employment under a bargaining unit. Under the U.S. National Labor Relations Act of 1935 ([NLRA], 1935), employees can choose to be represented by a labor union, giving them a collective voice in the workplace. According to a recent report published by the BLS (2021b), approximately 13.6% of healthcare practitioners and technical occupations were represented by unions in 2020. Of these, 20.4% of RNs and 10% of LPNs and licensed vocational nurses (LVNs) are union members. A **collective bargaining agreement** is a legally binding contract between an employer and the union representing the employees. As a result of extensive negotiations, this contract reflects agreements on the terms and conditions of employment; wages and hours; and other provisions like benefits, training, disciplinary procedures, and safety procedures, to name a few.

Labor stoppages or labor strikes can occur in response to employee grievances, following failed negotiations, because of economic conditions or unfair labor practices. Often, during times of crisis, labor organizations push healthcare organizations to do more to protect frontline workers. Recently, healthcare leaders have seen an increase in the number of labor uprisings in response to claims of unsafe working conditions, inadequate labor standards, declining job quality, unfair pay, and concerns around worker health and safety. Although the labor movement has declined over the past couple of decades, the COVID-19 pandemic has emboldened unions to organize new chapters and seek negotiations for improved wages and working conditions. On June 21, 2021, the Occupational Safety and Health Administration (OSHA) published a final rule for an emergency temporary standard (ETS) to protect healthcare workers from occupational exposure to COVID-19. While this ETS is in effect, employers will be required to formulate and implement COVID-19 control plans. These plans must include steps to reduce virus transmission and address the use of personal protective equipment, health screenings and administration of vaccinations, training, record-keeping, and reporting, and anti-retaliation. These requirements can add to the financial burden already experienced by many employers. Understanding the fiscal impact of compliance with these standards is essential for planning purposes.

Labor disputes can exact a toll on hospital finances, quality of care, organizational culture and staff engagement, and community reputation. These costs vary depending on the duration of the strike, the number and type of employees affected, the cost of replacement workers, security costs, and legal and administrative costs, among others. These three examples demonstrate the financial impact labor strikes have on hospital finances. These are direct costs and do not include costs associated with patient harm events, marketing efforts, and organizational reputation, which affects future fundraising and philanthropy efforts.

- Allina Health (Minneapolis, MN) spent $105 million on two strikes by the Minnesota Nurses Association nurses in 2016 (Sanborn, 2016). The union filed another 10-day strike notice in late April 2021.
- Valley Memorial Health System in Salinas, CA, incurred $1.6 million in expenses for a one-day strike (Gooch, 2016).
- Brigham and Women's Hospital (Boston, MA) lost $8 million preparing for a one-day strike and then lost another $16 million in revenue because they had slowed operations, canceled appointments, and transferred patients in anticipation of the strike (Gooch, 2016).

Labor stoppages create additional chaos, stress, and financial burdens on hospitals and health systems. Strikes are costly and can impact far more than the bottom line.

Preparation is the key to surviving a labor strike. Business continuity is paramount, and considerations should be given to ensuring business continuity insurance is in place to recoup the losses associated with the added expenses and reduced revenues. Collaboration between the chief nursing officer, nurse leaders, and the CFO should include developing a plan to manage supplemental staff and their training needs and any additional equipment or supplies that are needed. Key stakeholders, including payers, investors, suppliers, insurance companies, and financial agencies, should also be kept informed.

THE IMPORTANCE OF LEADERSHIP

During crises and times of uncertainty, people feel powerless and somewhat fragile. Often, during times of stress, people will turn to their leaders for reassurance and guidance. Managing uncertainty is a crucial leadership skill. Lack of a trusted leadership source will leave employees unable to obtain reliable information, leading to mistrust. Leaders must focus on employees and community engagement with as much effort, energy, and rigor as they do on their financial profitability and quality-of-care outcomes. Put people first. Nurse leaders must use their influence, business acumen, clinical and leadership competencies, and data to promote stability and transform healthcare.

DNP graduates are adaptive leaders capable of driving transformative change, especially during crises, through planning and taking meaningful, decisive action. They are prepared to take charge of a situation because of their advanced education and training. The speed of decision-making becomes accelerated; leaders need to be transparent and ready, so there are no surprises when difficult decisions are required and communicated. Also, appreciate that some things cannot be fixed or fixed right now. A plan helps the team face reality and prepares them for the road ahead by giving them hope and a sense of control over their future. Employees need to understand the financial impact of these decisions as well.

The importance of communication cannot be underestimated. Candidly address fears and questions while helping people make sense of the changing conditions and, sometimes, conflicting information. Communicate up and out, often. It is important to keep all levels of the organization informed. Speak charismatically and use storytelling to keep people connected to their work and their purpose. Cast an inspiring vision, one that brings optimism and motivation. Keep the message clear and centered around a common goal. In turn, leaders should listen intentionally, and be open to dialogue and feedback.

During the global pandemic, nurses found themselves in situations like never before. Demonstrating competencies found in all 10 of the *Essentials*, nurses performed heroically while finding new ways to work; the countless exemplars of professionalism and person-centered care solidified nurses as healthcare leaders. As such, nurse leaders should seize the opportunity to take a more significant role in decision-making, garnering partnerships at all levels of the organization, including in the C-suite, to achieve optimal clinical, operational, and financial outcomes. Evaluating the organization's governance structure and participating in crucial decision-making committees ensures nurse leaders are "at the right tables" and involved in effective decision-making. Despite the command-and-control nature of crisis management, the DNP must facilitate innovation, ingenuity, and care redesign.

OPERATIONAL CHALLENGES

Disasters, crises, and periods of change can place significant stresses and operational challenges on the healthcare system and its leaders. The examples provided earlier in

this chapter (e.g., natural disasters, communicable disease pandemics, staffing shortages), although not exhaustive, offer examples of operational challenges faced by nursing leaders during these events. These operational challenges require the DNP nurse to rely on all the *Essentials*' competencies to address these challenges effectively. What follows are recommendations for some of the major challenges one might encounter.

Financial Losses

As stated earlier, nurse leaders need to develop relationships and collaboration with leaders in all areas and at all levels of the organization, especially in the C-suite. Effective partnerships are essential for the achievement of the shared clinical, operational, and financial outcomes. Many hospitals were facing economic challenges before COVID due to many factors like diminishing reimbursements, shifts in payer mix, increased costs of care, competition from technology disrupters and other healthcare providers and systems. What is needed is a disciplined approach to financial management based on fundamentals (financial operations, liquidity, supply chain, productivity, and labor management). This means clearly understanding the organization's strategic plan, budget and budgeting process, payer strategies, cost and capital structures, revenue cycles, and regulatory requirements. The American Organization of Nurse Executives ([AONE], 2015) describes executive nurse financial management competencies under the *Knowledge of the Health Care Environment* domain (p. 6) and the *Business Skills* domain (p. 10). These competencies require an understanding of regulatory requirements and payer issues, budgeting, management of financial resources, contract negotiations, and a thorough knowledge of the financial implications of patient care decisions. These are especially important during times of crisis, shortages, and uncertainty. Some strategies and recommendations to improve operational resilience and financial stewardship follow.

People Strategy

Begin with a people-first strategy. Keep people safe and balance financial stability with patient/staff satisfaction. Connect the mission of healthcare with the business of healthcare. Focus and communication with other leaders bring clarity to the priorities to be addressed. Anticipate and address factors contributing to or exacerbating existing staffing shortages, especially before a crisis occurs or after the event and recovery are underway.

Strategic Thinking

Revisit strategic initiatives to be more laser-focused on the essential goals and increase the speed of decisions and progress. Prioritize resources to ensure availability. This includes human capital, financial resources, supplies, and physical plant. Implement risk management strategies focused on improving utilization of nursing resources, improved RN satisfaction, reduced turnover, and reduced labor costs.

Manage Expenses

Tightly manage cost to volumes. You cannot control revenue, but you can control costs. Just remember to consider the side effects and unintended consequences of cost-cutting decisions. Cost reduction and strategic growth opportunities should be considered, remembering that you cannot cut your way to success. Identify areas of inefficiencies and address them. Leverage management and analytics tools and lower the barriers to innovation. Work collaboratively and proactively with the supply chain leaders.

Implement review of contracts even if they are not yet due for review or renewal. Renegotiate to get lower prices and to lower costs. Most vendors are willing to come to the table to negotiate better pricing rather than lose the account altogether. An alternative procurement option is to purchase from noncontracted suppliers. Although this may be more costly in the short term, this strategy may provide enough time for contracted suppliers to ramp up their operations to meet the increased demand. Consider conservation efforts and reusable supplies and equipment.

Maintain High-Quality Care Delivery

Sustain operations and care. This may involve the implementation of innovative care models and the creation of innovation teams. It may be necessary to reinvent care delivery and work to get reimbursed. Enhance consumerism and promote patient safety by re-evaluating delivery of services; streamline complex processes. Align operations with regulations, including information sharing, compliance training, routine audits and reporting, and implementation of control processes. Collaboration with other leaders to synchronize business and clinical operations through connected platforms positively impacts patients and clinicians. It also yields improvements in diagnostics, procedures, and the revenue cycle.

Think Like a CFO and Partner

Often the relationship between nursing and finance is an adversarial one. Transitioning to one that is more collaborative will contribute to finding solutions to new, complex problems. Behaviors should demonstrate that collaboration is expected. Problem-solving in isolation can be problematic during turbulent times. It is not just about finding new solutions to old problems; sometimes, old answers can be applied to new situations.

Engage proactively in discussions regarding ways to conserve cash, maximize revenue capture, brainstorm expense and cash perspectives, and anticipate and manage capital needs. Pause, cancel, or delay to preserve cash. Carefully track disaster-related expenses. Develop joint goals and principles—nursing and finance—around patient safety, operational efficiencies, cost reductions, and revenue enhancements. Understand key terms like *ratios*. Sometimes these terms are linked to defining staffing patterns and resources that go with it, so it is important to be speaking the same language and have a shared understanding. Take action to maintain timely billing and collections. Ensure charge-capture processes have been reviewed and changes made to improve efficiencies and fidelity of the process. Look at **variable costs**—reducing variable costs is often a quicker way to reduce cash outflows than focusing on fixed costs. Please see list:

- Implement travel bans.
- Impose meeting restrictions.
- Apply hiring freezes.
- Introduce restrictions on discretionary spending.
- Reduce labor spending to avoid layoffs:
  - Reduce contract labor usage.
  - Redistribute permanent staff or redistribute the work.
  - Look at hours of operation and adjust based on actual demand and utilization.
- Encourage staff to use available leave balances to reduce liabilities on the balance sheet.
- Offer voluntary or involuntary leave without pay to conserve cash.

Nonessential projects, construction projects, and other major expenditures without an immediate or rapid return on investment (ROI) should be deferred or delayed. Revisit capital investment plans—consider postponing purchases in the short term. Minimize working capital requirements by focusing on payables, receivables, and inventory. Focus on inventory management. It is important to ensure par levels are maintained during periods of increased demand and supply availability. Significant inventory cuts or shortages may have adverse effects on customer satisfaction and care delivery. Work with supply chain to project supply and equipment needs while addressing actual or potential supply chain disruptions. Cost reduction and asset redeployment will be essential in an increasingly cash-constrained environment. As described earlier, communication is critical.

MANAGING IN TIMES OF CRISIS

Data-Driven Decision-Making

Situational awareness is necessary. Exercising a disciplined approach, especially in the early phases of a crisis or event, optimizes the ability to manage the situation. Reprioritizing the interactions and activities that matter most bring clarity and value to an already chaotic situation. Data should help analyze, interpret, inform, and support decisions. Using objective data and business intelligence to inform decision-making brings confidence to the decision, removing the biases and potential pitfalls of subjectivity. Data-driven decision-making uses facts, metrics, and data to guide business decisions, helping to align goals and objectives using the latest information. The Essentials Domain 8: Information and Healthcare Technologies require the DNP-prepared nurse to gather and use data to drive decision-making. Making informed decisions at the point of care improves outcomes. This is especially important when changes are happening rapidly, and the gravity of the decision could have significant ramifications for the organization. Performance can be monitored using analytics and displaying the metrics via a dashboard to see aggregated data depicting a macro view and the capability to drill down to the individual unit or provider level. Data can influence other decision-makers. The ability to influence is crucial during uncertainty, especially with competing priorities, competition for scarce resources, or approval for a new innovative program.

Innovation and Use of Technology

Nurse leaders must create environments that support innovation. The ANA scope and standards of practice document call for all RNs to influence innovation (ANA, 2015). During times of unprecedented change, opportunities are created. The recent COVID-19 pandemic accelerated the need for innovation and shortened the time from concept to implementation. In a recent survey published by McKinsey and Company (2020), 90% of executives reported that COVID-19 fundamentally changed how they will do business in the next 5 years. However, the commitment to innovate decreased as organizations struggled to meet their short-term challenges and stabilize their core business functions. More important, few felt they were equipped to manage the challenge successfully. Operating at the status quo will no longer suffice. Business strategies employed in the past may no longer be successful during or after the crisis.

Innovation is risky, and without financial management, innovation cannot proceed. Innovation requires the organization to implement it; identifying, securing, allocating, controlling, and utilizing resources is fundamental. Lack of financial resources is a significant barrier to innovation, yet not all innovations require large sums of money upfront. Innovation does not have to be a net new invention or product development; instead, it could enhance an existing process, service, or technology. Balancing the need

for innovation with fiscal responsibilities can be difficult, so it is essential for nurse leaders to partner with their colleagues in finance to help them understand the business need and create an innovative mindset. Adaptation to new market realities will shift competitive advantage. Strategic use of technology and innovation will help an organization gain that competitive edge. DNP-prepared nurse leaders are well suited to contribute to this space by adapting to the accelerated pace of change and innovating care delivery.

Consumers are demanding to engage with their healthcare providers in different ways. The use of technology has become an expectation and a basic core competency requirement for organizations. Improving communications through the strategic deployment of technology can bring more meaningful interaction among patients, nurses, providers, and other healthcare team members, which can then positively impact patient and staff engagement. Information technology improves the connectedness of all elements within the healthcare ecosystem and facilitates real-time information sharing for improved interprofessional collaboration, care management, resource allocation, and outcomes. In addition, technology can be used for asset tracking, which provides benefits such as improved inventory control and management, thus reducing the capital needs for unnecessary inventory replacement due to loss.

Creative Staffing

One of the by-products of large-scale crises is the need to know how care is delivered and the staffing models that support it. Align cost and volume to determine the best available staffing levels. Maintain compliance with local or state staffing laws and requirements; be realistic about staffing as well as bed and equipment availability (e.g., ventilator capacity). It is prudent for organizations to understand when they are at or have exceeded capacity. Attempting to care for patients beyond existing and sustainable capabilities will only exacerbate financial issues and threaten patient safety.

Staff illness or injury increases with the number of furlough requests or refusals by staff to come into work for fear of jeopardizing the health of their loved ones; this all contributes to staff shortages. When staffing levels are not sufficient to meet patient care needs, the nurse leader must consider and employ alternative staffing plans to ensure the ongoing provision of safe patient care. Planning for various scenarios should be part of the organization's all-hazards emergency operations plan. A coordinated, multidisciplinary approach is needed to address staffing issues regardless of the care setting. Nurse leaders should take a holistic, systems approach to staffing to provide balanced resource allocation across units while maintaining the safety of patients and staff (ANA, 2020a). Transparency in decision-making is key.

The following are considerations when designing and implementing new care models:

- Be prepared for the unexpected. Advanced planning for contingency and crises will help nurse leaders anticipate staffing needs and solutions to address them. Each organization will need to determine the best combination of staff members (i.e., skill mix and qualification mix) based on available resources (Harris et al., 2020).
- Increased requests for paid time off, hazard pay, interim hourly rate adjustments, and the use of contingency/contracted labor can increase labor costs.
- Leverage and build the capacity of nursing students. Invest in skills training and clarification of roles and responsibilities.
- Identify and minimize unexpected tasks that take up staff time—things like delivering supplies. During a communicable disease outbreak, nurses often take on other tasks to reduce other clinicians' exposure. These added duties and responsibilities increase workloads and staffing demands.

- Consider a nurse pair or nurse extender model. Given staffing resource shortages, higher patient acuities, and surge capacity, it may be necessary to modify the staffing model to expand the care capabilities. An RN can be paired with another nurse (licensed/licensed pair) or with unlicensed personnel (e.g., nursing assistant, certified nursing assistant, patient care associate, patient care technician, emergency medical technician;licensed/unlicensed pair) depending on the education, expertise, experience, and competencies needed to meet the care needs of the patient population. Each state and country are different, so that the options may vary. For example, in ICU, consider pairing a critical care nurse with a medical-surgical nurse and expand the RN-to-patient ratio from 1:1 or 1:2 to 2:3 or 2:4. The clarity in roles, responsibilities, and validation of competencies will address the scope-of-practice concerns and ensure the integrity of safe care practices.
- Redeploy staff from areas of low volume (e.g., perioperative areas during COVID) to higher need and acuity areas. Just-in-time training may be needed.

Historically, staffing plans have been built on three traditional models:

- **Budget-based model:** Nurses are allocated based on a nursing hours per patient day formula.
- **Nurse-to-patient ratio model***:* Each state in the United States must set its standard for staffing. In states where nurse-to-patient ratios are not defined by law, hospital policies and collective bargaining agreements may determine staffing ratios for particular nursing units.
- **Patient acuity model**: The patient's needs determine the requirements for each shift, which may change as the acuity of the patient populations being served changes.

Staffing models have also evolved over the years, and some are gaining popularity once again (Table 18.1).

TABLE 18.1 Four Major Staffing Models

Staffing model	Description
Total Care	• The oldest method, also known as *case nursing*. • Each nurse plans, organizes, and performs all care. • This model can be found in higher acuity units like intensive care and postanesthesia care units. • The cost and availability of nurses are concerns with this model.
Functional Nursing	• This model was developed during World War II as a result of a nursing shortage. • Task-oriented in scope: Nurses are assigned tasks, not patients. • Unskilled workers can be trained to perform routine, simple tasks.
Team Nursing	• Initially designed for doctors and nurses to coordinate care activities, it has been modified over the years to utilize RNs to coordinate other RNs and unlicensed assistive personnel. • Involves a team leader and team members.
Primary Nursing	• Relationship-based nursing • High quality, holistic care • RNs practice with a high degree of autonomy and accountability • Not cost-effective; needs more RNs

Source: From Michaels, D. (2020). Nursing care model. Historical review. *American Nursing History*. pp. 7-15. https://static1.squarespace.com/static/5b3d0a51c3c16a31624ce3f9/t/5e598462d450d254c5061eed/1582924899670/Historical+Review+Delivery+of+Nursing+Care+1.pdf

A sound nurse staffing plan is a human resource management plan that positively addresses clinical needs, patient experience, staff engagement, financial impacts, and regulatory compliance. *ANA's Principles of Nurse Staffing* (2020b, p. 6) defines appropriate staffing as "a match of registered nurse expertise with the needs of the recipient of nursing care services in the context of the practice setting and situation." There is insufficient evidence to consider any one model optimal in all settings and all situations. Instead, staffing guidelines should be developed with consideration given to the specific needs of the population served and the credentials and qualifications of the nursing staff.

Redeployment, or shifting of staff, may help to balance staffing inequities or shortages. Care must be taken to ensure staff are aware of the opportunities and receive whatever training is necessary to ensure the relevant knowledge, skills, and competencies to suit the patient populations being served and the care setting where care is provided. Time commitments and cost of training should be factored into any plan to upskill or retrain staff.

Temporary Staffing Plans

Changes to staffing guidelines may change during a crisis. Here are some considerations to supplement the staffing you currently have:

- Develop **alternative staffing plans** to augment existing resources and staff competencies. Include these plans in your emergency operations plan. Develop strategies to take into consideration the care needs of the patient population served. Consider staffing mix. Should you continue a primary nurse model, or is a team approach more appropriate for the circumstances? Consider qualifications mix (e.g., education, expertise, experience, and competencies). Tables 18.2 through 18.4 provide examples of an alternative staffing model based on unit capacity ranging from 60% to 185%. Many more examples exist that consider the resources available and patient care needs, as well as unit geography, and configuration, among other factors.
- **Anticipate travel nurse needs** and plan early.
- Consider **reaching out to retired nurses, current advanced practice providers (APPs), and others** who may be interested in assisting and supporting your staffing needs. These nurses and clinicians can be trained to support a team approach to patient care. Work with human resources and talent acquisition.
- During a pandemic, consider creating a **dedicated unit or care area** where patients can be cohorted, which will help to manage resource utilization and training needs.
- **Offer upskilling/cross-training opportunities** to staff. Upskilling is a great way to provide surge capacity while implementing training programs to reskill staff (e.g., train medical/surgical nurses to be critical care or ED nurses). Do not restrict the training to RNs. Other clinicians can support staffing challenges (e.g., nursing assistants, medical assistants, surgical techs).
- Additional didactic and skills training courses may be offered to enhance knowledge and understanding depending on the crisis. Depending on the skills and experience of the staff being trained, additional training should be provided as needed. **New skills acquisition should be assessed, and competencies documented** and included in the employee's education file.
- Consider developing a **visual cue** (e.g., badge buddy, colored stickers) to identify staff deployed to a unit to provide assistance and the skills they are competent to perform.

TABLE 18.2 Sample Staffing Plan for Surge Capacity: 60% to 80%

Capacity (%)	Total beds	ICU-1	ICU-2	ICU	PACU/OR
60	30	21	5	4	0
80	40	30	6	4	0
100	49	32	12	5	0
120	60	32	12	5	11
140	70	32	12	5	21
150	74	32	12	5	25

Staffing Model

60% ICU capacity	Census 30	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	11	1	1	1	1	15
	ICU-2	3					3
	ICU-3	2					2
	PACU	0					0
	Total per skill set	16	1	1	1	1	20

Note: This model assumes abundant numberof ICU RNs available.

80% ICU capacity	Census 40	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	15	1	1	1	1	19
	Vent RN	2					2
	ICU-2	3	1				4
	ICU-3	2					2
	PACU	0					0
	Total per skill set	22	2	1	1	1	27

OR, operating room; PACU, postanesthesia care unit; PCT, patient care technician; PPE, personal protective equipment; Vent; ventilator.

Note: Ventilator support added to a census of 40+ mechanically ventilated patients

- Do not forget training for **documentation in the electronic health record (EHR)**. Although the same application is used throughout the facility, documentation and provisioning requirements may differ based on the clinician's role. Work with the clinical informatics team for the best solution based on the circumstances (e.g., perioperative nursing versus medical/surgical nursing documentation).
- Providing **orientation to the unit** is essential when staff is deployed to a different care area from their home unit. Create a **standard orientation checklist or "Welcome to the Unit" document** covering the essential things staff need to know. Consider conducting a scavenger hunt to help the team learn the location of vital supplies and equipment.
- In facilities covered under a **collective bargaining agreement** (CBA), be familiar with requirements and how the CBA may impact your crisis operations (e.g., floating, call-offs, overtime, on-call).

TABLE 18.3 Sample Staffing Plan for Surge Capacity: 80% to 140%

80% ICU capacity	Census 40	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	15	1	1	1	1	19
	Vent RN	2					2
	ICU-2	3	1				4
	ICU-3	2					2
	PACU	0					0
	Total per skill set	22	2	1	1	1	27

Note: Ventilator support added to a census of 40+ mechanically ventilated patients.

100% ICU capacity	Census 49	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ Other	Total per care area
	ICU-1	16	1	1	2	2	22
	Vent RN	3					3
	ICU-2	6	1	1		1	9
	ICU-3	3					3
	PACU	0					0
	Total per skill set	28	2	2	2	3	37

120% ICU capacity	Census 60	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	16	1	1	3	2	23
	Vent RN	4					4
	ICU-2	6	1	1		1	9
	ICU-3	3					3
	PACU	6	1	1		1	9
	Total per skill set	35	3	3	3	4	48

OR, operating room; PACU, postanesthesia care unit; PCT, ; PPE, personal protective equipment; Vent; ventilator.

- Consider **providing a review or refresher** for nurses who have recent previous experience in a specialty. For example, a nurse who used to work in ICU but has been away from ICU for 1 year may require a refresher and validation of competencies. Depending on the length of time away from actively providing care in a particular area, the length and complexity of the refresher may vary. The goal is to review activities, practices, and skills that may not have been performed for a while or where competency is uncertain.
- When using staff outside the unit's core staff, ensure the roles of each team member have been defined and everyone understands each role, its associated responsibilities, and the competencies of the individual assuming that role.
- Consider providing a **shadowing experience** on a unit to aid the staff in learning unit workflow and processes. The focus and length of the shadowing experience may vary depending on the employee's needs.

TABLE 18.4 Sample Staffing Plan for Surge Capacity: 140% to 185%

140% ICU capacity	Census 70	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	16	1	1	3	2	23
	Vent RN	4					5
	ICU-2	6	1	1		1	9
	ICU-3	3					3
	PACU	11	1	1		1	15
	Total per skill set	41	3	3	3	5	55

150% ICU capacity	Census 74	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/other	Total per care area
	ICU-1	16	1	1	4	2	24
	Vent RN	6					6
	ICU-2	6	1	1		1	9
	ICU-3	3					3
	PACU	13	1	1		2	17
	Total per skill set	44	3	3	4	5	59

185% ICU capacity	91	ICU RN	Charge nurse	Resource nurse	COVID/ PPE RN	PCT/ other	Total per care area
	ICU-1	16	1	1	4	2	24
	Vent RN	9					9
	ICU-2	6	1	1		1	9
	ICU-3	3					3
	PACU	13	1	1		2	17
	CSS	9	1	1	1	4	16
	Total per skill set	56	4	4	5	9	78

CSS, ; OR, operating room; PACU, postanesthesia care unit; PCT, ; PPE, personal protective equipment; Vent; ventilator.

- Roles may vary from day to day and from employee to employee based on their prior experience and competency level. Each nurse is responsible for **reviewing their assignment and communicating any concerns** to the unit supervisor before accepting that assignment. Consider asking the following questions to staff who are deployed to a unit that is not their home unit:
  - Do you have any concerns about your assignment as it relates to your skills and competencies?
  - What information or help is needed to complete this assignment?
  - Is this assignment within the scope of practice for your license/certification?
- In facilities where surgical or procedural volumes have decreased and staff can be deployed to other units, leaders should consider and plan for staff to meet urgent/

emergent and unplanned emergency case volumes. Consider on-call and sterile processing needs.

Interdisciplinary team-based care improves outcomes and patient experience while reducing costs. During surge capacity situations, nurse leaders must work collaboratively with members of the interdisciplinary team to ensure the plan considers a holistic view of the patient care needs, capabilities, care settings, skill mix, and treatment modalities available. This will help determine the appropriate competencies of the RNs working in that care area and those of the other care team members. The costs of nursing care should be estimated for each patient based on (a) the actual number of assigned nurses, (b) hours of care delivered, and (c) other nursing care delivery costs allocated across all patients in a particular setting (ANA, 2020b).

Innovative Care Models

The use of technology to extend nurses' capacity and capabilities has gained popularity over the past decade. With the expansion of remote-monitoring technology, high-resolution cameras, and Voice over Internet Protocol (VoIP), nurses can remotely monitor patients and serve as a clinical resource for other nurses and clinicians. In addition, the virtual nurse (VN) operationalizes and leverages technology to:

- Meet the changing needs of patients and nurses while expanding care delivery beyond the hospital's four walls.
- Direct and support care delivery by clinicians at the bedside.
- Provide patient education and conduct real-time quality surveillance to enhance patient safety.
- Support clinical decision-making, admission activities, and interdisciplinary team rounds (Schuelke et al., 2019).

Also, telehealth technology is used by APRNs to provide virtual care visits, which helps to improve access to care and specialists, especially for patients in rural and underserved areas. In addition to telehealth capabilities, organizations can consider increasing the use of remote work options. Remote work options for office workers were born out of necessity because of the COVID-19 pandemic. A study conducted in 2020 by Gartner, Inc. surveyed 127 company leaders in various industries, who indicated that 82% of respondents intend to allow workers to continue to work remotely even as workers return to their offices. Forty-seven percent said they would allow their workers to work remotely full time going forward (Gartner, 2020). There are several benefits associated with a flexible work environment. Nurse leaders should work with their CFOs to determine the financial and employee recruitment and retention benefits of implementing or expanding a remote work option.

CONCLUSIONS

Managing and leading an organization through times of uncertainty, shortages, and change can be a daunting task, even for the most seasoned leader. DNP graduates receive education to help them build the competencies as defined in the *Essentials.* The application of these competencies ensures nurse leaders are well positioned to lead and respond effectively during difficult times. Table 18.5 applies the DNP Essential domains to the areas discussed in this chapter.

A comprehensive and realistic understanding of the organization's issues and the timely implementation of an action plan to deal with the various challenges are necessary skills for the nurse leader. DNP-prepared nurses are specially qualified to lead

TABLE 18.5 Application of the Essential Domains

Domain	Disaster and pandemics	Emergency preparedness	Operational challenges	Innovation
Domain 1: Knowledge of nursing practice	X	X	X	X
Domain 2: Person-centered care	X	X	X	X
Domain 3: Population health	X	X	X	X
Domain 4: Scholarship for nursing practice	X	X	X	X
Domain 5: Quality and safety	X	X	X	X
Domain 6: Interprofessional partnerships	X	X	X	X
Domain 7: Systems-based practice	X	X	X	X
Domain 8: Information and healthcare technologies	X	X	X	X
Domain 9: Professionalism	X	X	X	X
Domain 10: Personal, professional, and leadership development	X	X	X	X

Source: American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing education*. https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

during times of uncertainty and crisis. As illustrated in Table 18.5, the *Essentials* apply to all scenarios as they serve as the foundation for nursing professional practice. Financial management under these circumstances requires the nurse leader to expand their understanding of core financial management principles to include more emphasis on collaboration of local finance leaders and consideration of factors that impact expenses, cost, and revenue generation. Thinking like a CFO, using common language to improve communications and understanding, and engaging staff and key stakeholders in planning processes will serve the DNP nurse well in managing fiscal responsibilities.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. When a crisis has a significant financial impact, how can you adapt your business/staffing model to reduce costs, both in the short and medium term?
2. Are there well-coordinated and standardized communication systems and protocols to follow to ensure clear and transparent communication with all stakeholders? If not, what will you need to do to provide clear, consistent, timely communications?
3. At what loss of volume should you take action to enable the sustainability of the organization and its long-term mission? What steps can you take to align expenses with anticipated volumes without jeopardizing quality, liquidity, and productivity while prioritizing high-value activities?
4. How can technology expand capacity to provide services, improve efficiencies, and improve staff and patient satisfaction? What is your role in identifying and enabling this technology?

5. What role does innovation play in disaster/emergency response planning? What is the role of the DNP-prepared nurse in disaster mitigation and response?
6. Identify three things that the DNP-prepared nurse can do to prepare and lead during times of uncertainty, shortages, and change.
7. Your collective bargaining agreement is due to expire in 60 days. Given the tenor of the negotiations, you anticipate the union will be issuing a strike notice in the next 10days. What steps will you take to prepare for this possible strike? What concerns do you have, and how will you minimize the disruption and financial impact if the strike occurs? What portion of your workforce will be directly impacted, and what contract labor costs will be incurred?

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INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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CHAPTER 19

The Efficient Hospital of the Future: Improving Patient Access and Patient Flow

Lisa J. Massarweh

Now more than ever, it is essential to gain clarity about what it takes to execute in increasingly complex hospital operations. Tighter regulations, a focus on value-based purchasing (VBP), the challenges of adhering to multiple union contracts, and a dwindling supply of caregivers can make it difficult to understand what it takes to lead safe and efficient hospital operations in the best of times. Overlay a pandemic with aging and disparate systems and opportunities for improvement become accentuated. This chapter focuses on strategies, when implemented, that aid in the efficient use of resources. Priorities for tactical execution across the value-driven equation are challenging us to think across the system as we execute evidence-based nursing practice. Tactical decisions drive quality care delivery as the business strategy using data analytics, technology, and building interprofessional partnerships.

THE PERFECT STORM

If we thought we were in a perfect storm where the intersection of ensuring affordable healthcare to all, the expanding health needs of a graying America overlaid with a nursing shortage, the year 2020 brought forth a tsunami; we were tasked to navigate these existing healthcare challenges overlaid with a global pandemic. Americans predominantly rely on employer-sponsored health insurance (Blumenthal et al., 2021). The pandemic has resulted in job loss estimates of more than 20 million jobs (Bureau of Labor Statistics [BLS], 2020), which has had a meaningful and detrimental impact on the health and the wealth of the workforce and its families.

The Affordable Care Act (ACA), established in 2010, was designed to ensure basic health coverage for all individuals. The Act provided access to an additional 32 million Americans (Institute of Medicine [IOM], 2011) and converged with coverage available through the Centers for Medicare & Medicaid Services (CMS) to move more closely toward rewarding those hospitals that delivered quality care while penalizing those that failed to meet defined thresholds and shifted traditional care-delivery models from volume to value. However, recent political actions have subsequently rolled back provisions of the ACA eroding overall health coverage (Simons-Duffin, 2019). Healthcare projections continue to support a rising demand for nursing care overlaid atop a growing utilization of specialty services as a result of the current pandemic, an aging population,

and diminishing supply of nurses. The supply–demand mismatch predicts a yearly need of nearly 176,000 nurses each year through 2029 (BLS, 2021). The nurse executive is challenged to think strategically in light of these competing priorities for scarce resources in order to achieve safe and efficient hospital operations.

Strategic hospital leadership requires astute business and operational knowledge; it builds on systems thinking and leverages interprofessional partnerships. This chapter makes the argument that the nurse executive is perhaps the single most qualified professional to address the care needs of the future. This leader holds the keys, wielding knowledge of hospital operations as well as an understanding of key data points to strategically identify and execute strategies against principal cost drivers. The practice essentials of advanced-level nursing practice preparation (American Association of Colleges of Nursing [AACN], 2021) uniquely prepare this executive to affect change. Areas of curricula preparation include systems-based practice, focus on quality and safety, use of information and healthcare technologies, and collaborative partnerships among professions.

SHIFTING OUR MENTAL MODELS: THINKING AS A SYSTEM

Hospital financial measures have historically been grounded in models associated with illness care, fee-for-service reimbursement, and accounting mechanisms using prior-year's run rates of official "12 midnight census" for workforce planning. Nursing units have been classified into cost centers as opposed to areas that positively impact quality care delivery, resulting in overall cost avoidance. Understanding these perspectives becomes important as hospital staffing typically accounts for more than half of the cost equation (Schouten, 2013). Historic thinking using prior-year averages is not responsive to the rapid surge volumes seen with this pandemic. The crisis has provided illumination of not only our dependencies, but also our resilience and innovative spirit inherent to the nursing profession. A new system of multihospital networks has formed in order to load-balance bed capacity and mechanical ventilator availability with patient need from the community (Siwicki, 2020). Collective modeling using community positivity rates for the virus to predict admissions to the hospital and resulting specialty care needs has been beneficial in responding with necessary resources. The nurse leader has been instrumental in applying the operational understanding of care delivery both within the four walls of the hospital proper as well as a part of the geographic collaborative of hospitals within a system or community in order to flex, matching supply and demand efficiently. Partnering with C-suite colleagues using data to impact evidence-based clinical quality initiatives is a unique responsibility of the nurse executive. Clarity and alignment, in and of itself, will assist in eliminating wasted hospital resources (MacLeod, 2016). This is the first essential step necessary to gain operational efficiencies.

THE ESSENTIALS: CORE COMPETENCIES FOR PROFESSIONAL NURSING EDUCATION DOMAINS THAT IMPACT HOSPITAL EFFICIENCY

Healthcare dilemmas from the past and those that persist in the present and future necessitate transformation of healthcare. Nurses—particularly nurse leaders, as members of the healthcare team, are expected to assume a prominent role on the healthcare team to address these problems and issues. In order to significantly impact healthcare transformation, their educational preparation must provide nurses with opportunities to learn and employ scholarship, leadership, and teamwork skills to advance practice. Scholarly, evidence-based work that aims to improve clinical practice and systems-level intervention is required of nurses completing DNP)degree (AACN, 2021, p. 24). *The Essentials: Core Competencies for Professional Nursing Education* ,which provides a framework for preparing individuals as members of the discipline of nursing, introduced 10

domains that represent the essence of professional nursing practice and the expected competencies for each domain. The domains and competencies most impactful to the hospital of the future are explored next (AACN, 2021).

Domain 6 and Domain 7: Interprofessional Partnerships and Systems-Based Practice

Hospitals are, by their very nature, complex adaptive systems in that healthcare organizations bring together nonlinear processes from multiple inputs to supply information and incentives that result in system response (Rouse, 2008). The response of these dynamic systems is a result of the partnerships with leaders, members of the care delivery team, patients, families, and the community.

Much has been written about the importance of aligned leadership; it is the role of the C-suite executive leaders to clearly articulate the organization's vision. The team must be able to express to all levels of the organization how value-based care delivery fits the care priorities and future vision of the organization. Collins and Porras (2011) identify three requirements for articulating a vision: identification of the (a) organization's core purpose, (b) a few fundamental values held as sacred, and (c) desired long-term future state of the organization. These concepts are important and must be adequately identified and clearly expressed. It is this strategic vision aligned to values and behaviors that will speak to the entire team. Once these foundational elements are identified, the broader vision can be put into practical application of actionable strategic priorities that are supported and tracked to the articulated vision.

The backdrop of the COVID-19 pandemic has provided the platform to punctuate the areas on which we must improve; it forced us to think more broadly as a system rather than individual hospitals. The CMS, in March 2020, expanded the hospital-without- walls and telehealth initiatives in acute hospitals in order to provide services to select acute care patients in their homes, thereby waiving the requirement for immediate 24/7 availability of nursing services. This action was taken in response to the pandemic to increase hospital capacity and maximize resources. Results did not reveal any increase in mortality or risk of readmission to the hospital; hospital length of stay was shortened (American Hospital Association [AHA], 2020b).

The early call to action by New York's governor in March 2020 to increase hospital bed capacity by 50% to 100%, adding 18,000 to 37,000 additional intensive-care beds shined a light on challenges. To procure the estimated 50,000 additional New York healthcare workers, policy change with regard to state licensure was implemented (Clinical Executive Committee for National Association of Travel Healthcare Organizations, 2020). As this pandemic has revealed multiple peaks of resurgence, we must continue to ask ourselves and our profession how we can take lessons learned forward. This pandemic is not an isolated instance, but merely the catalyst accentuating our need for improved responsiveness to address natural disasters, terrorism, healthcare outreach, the nursing shortage, and other unknowns.

Domain 5: Quality and Safety

The hallmark of an efficient hospital is one in continual pursuit of excellence. Focusing well on a few key clinical initiatives can make significant initial improvements in reducing hospital length of stay, improving patient outcomes, and affecting the overall cost of care. The APRN stays abreast of scholarly works that inform contemporary nursing practice. APRNs are charged with facilitation, application, and evaluation of innovative care delivery. In addition, they command a fluency in process improvement, quality management principles, and human capital development. Data provided at the individual nursing-unit level and aggregate medical center-level can identify populations associated

with higher cost of care, **readmission rates**, and variation in practices; these all lend opportunities for improvement. This leader understands that community and hospital macrosystem priorities affect care delivery at the nursing-unit or microsystem level. The use of these data to understand specific care improvement opportunities, while applying quality- improvement techniques, can inform the APRN on which value-added priorities to focus.

The pandemic has driven fundamental challenges in quality care delivery resulting in lasting impacts on the cost equation. Patients delayed seeking medical care due to county- and state-mandated stay-at-home orders and fear of contracting the disease in the hospital setting. Elective surgical cases were halted to provide additional hospital-bed capacity, resulting in staff being relocated to unfamiliar work areas or furloughed. These shifts have led to monumental quality and financial challenges, and forced new ways of thinking. Addressing nurse-sensitive hospital-associated complications has immediate and meaningful impacts on the value equation of hospital care delivery. Inclusion of evidence-based practices as well as cultivating academic–clinical partnerships can engage frontline caregivers as well as inform policy and practice of care-delivery protocols. Care requirements of COVID-19 patients have challenged our thinking and standard care practices. Patient isolation, staff concern over limited personal protective equipment, and evolving care protocols have provided additional challenges. New practices have evolved, such as using intravenous (IV) tube extensions in order to move IV pumps into the hallways to minimize the need for using personal protective equipment. The ability to providing adequate skin care and catheter care as a result of prolonged prone positioning present added risk of unintended consequences, such as hospital-acquired infections. It is the APRN who has a solid understanding of current evidence-based literature, the knowledge to bring forward appropriate mitigations along with a solid business case, and the political weight to influence other executives. This well-structured strategy focusing on safe quality care can translate to efficient care delivery that can be the unifying vision understood by all.

Domain 8: Information and Healthcare Technologies

Healthcare has a data problem. There is too much data in disparate systems that do not talk to each other, resulting in a deluge of information that is often not actionable. It is not atypical for a hospital's scheduling and staffing system to exist as a stand-alone system that is not interfaced or integrated to the electronic medical record, admission, discharge, and transfer systems, or patient classification systems. According to an IOM report focused on improving care at a lower cost (Smith et al., 2013), antiquated staffing practices create system stressors that result in ED overcrowding, delays in admissions, and adverse care outcomes. The pandemic has provided both a challenge and an opportunity for hospitals to improve on the real-time visibility of bed supply and staffing resources. Dynamic capacity management has stretched systems to take into account care-delivery models as well as alternative locations in which to perform care delivery. Natural disasters and conditions, such as this pandemic, give pause to consider alternatives to individual state-regulated mandates, such as national licensure, in order to provide for rapid workforce expansion.

The Robust Roster

The IOM (2011), in its seminal work on the future of nursing, challenged governmental agencies and the nursing profession to better collect data and to build an infrastructure for workforce data analysis. Since this initial publication, a national workforce

commission to collect and synthesize workforce needs has not materialized. Instead, many state nursing workforce centers continue to independently work to collect information on supply, demand, and education (Altman et al., 2016). On both a local and national level, accurate forecasting provides the foundation and flexibility necessary for effectively addressing the supply–demand challenges ahead.

Hospital scheduling and staffing involve dynamic complex processes. Advances in technology provide the opportunity to leverage predictive analytics; artificial intelligence can assist in matching supply with demand. When the planned resource roster does not adequately address actual hospital census, day-to-day adjustments in staffing occur; the staffing office aims to fill vacant shifts while simultaneously satisfying regulatory and contractual requirements as well as staff preferences. When hospital nurse staffing demands stretch beyond capacity, typical responses are to fill the void with extra shifts, overtime, and use of **contingent workforce**. A measure to address expanding capacity is the ability to provide for extra shifts in a manner that does not unduly tax the nursing workforce by working them beyond 40 hours per week or beyond the scheduled shift length. The literature is rich in the adverse impact that fatigue plays to both the nurse and patient (Collins Sharp & Clancy, 2008; Rogers et al., 2004; Stimpfel & Aiken, 2013; Trinkoff et al., 2011). This was especially true during the peak of the pandemic and warrants additional attention to the standard care-delivery approaches as well as outcomes (Stifter et al., 2021). It is thus imperative that the APRN challenges historical norms and uses all tools available to advocate and direct adequate resource planning, keeping the workforce safe in order to promote care delivery.

Traditional planning for hospital nursing staff has started with inputs from official midnight census and/or historic average daily census volumes. These inputs are used to model future resource allocation across individual nursing units. Neither of these methods provides the necessary flexibility to address changing care-delivery environments, challenges of abrupt census surges, nor do they offer an adequate starting point to forecast the needs of the unit. Official census numbers often lack data capture of all the patients present on a nursing unit (e.g., those under observation or in procedural recovery) or patient turnover through admissions, discharges, and transfers (ADT) and, as such, underestimate the nursing resources required. The use of census averaging does not address the ebb and flow of inpatient census fluctuations and thus does not adequately match supply with demand across the shifts during the day. These antiquated models understate volume, resulting in a failure to allocate adequate staffing at the unit level (Hughes et al., 2015). This deficiency may contribute to overextending staff in overtime shifts, adding unnecessary expense, and introducing the unintended consequences of fatigue such as occupational injury, attrition of staff, and adverse patient outcomes.

The ability to use analytics assists in matching supply and demand, along with bolstering recruitment in areas of predicted risk. Leveraging technology to make sense of external inputs as well as actual hourly census at the nursing-unit level provides better data for robust rostering and allows the capture of seasonality of census distribution, thus allowing for better matching of needs by shift and day of week. Forecasting community factors, such as positivity rates of COVID-19 to inpatient admissions and estimated length of stay, aids in responsive demand-based staffing. Data inputs from vacancy rates along with predictive analytics, retirement and attrition rates, changes in services, and community demographics come together to provide greater specificity of inputs to create a more robust roster. This precision, in turn, lessens the burden of daily staffing on an already-fatigued workforce. Effective scheduling and staffing practices are tied to patient safety, employee satisfaction, and, if deployed thoughtfully, can result in cost savings.

Performance Metrics

Achievement of key performance indicators for the human capital equation relies on putting in place structures and processes that consistently match supply and demand. The APRN must evaluate whether the plan was accurate and whether the execution was efficient or whether there was variance to either. Adding to the mathematical complexity was the need to translate county COVID-19 positivity rates to hospital capacity, downstream supply chain impacts (e.g., personal protective equipment, ventilators, and oxygen) and impact on workforce absence as a result of personal or family illness. Additional key human capital performance indicators include monitoring attrition rates, nonholiday overtime rates as a percentage of productive hours, nurse-sensitive indicators, and employee injury rates as they may provide an early indication of larger workforce issues. These key performance indicators are displayed in Exhibit 19.1.

Once an informed roster has been established, it is imperative to develop defined strategies involving workforce planning and visual displays to effectively provide actionable information to operational leaders. At a glance, key indicators should be visible that speak to the planned census and resulting planned resource need as a result of census and acuity. Exhibit 19.2 illustrates cost drivers of the human capital equation. This level of detail should be reviewed by the responsible leader at the nursing-unit level as well as the advanced practice leader for the hospital as a whole. Once the principal cost drivers are isolated, specific corrective action plans can be developed.

Workforce Management

As staffing and scheduling technology advance, new opportunities unfold in the area of efficient workforce management. Leveraging technology is one strategy to aid in expanding capacity in light of rapidly changing healthcare demands atop a looming nurse shortage. Health economists indicate that the current pandemic has put a spotlight on healthcare inequities and flaws in delivery structures (West, 2020). The need to focus on efficiencies toreach a large number of patients across health systems has provided a road map for healthcare improvements. The expansion of telehealth to virtually connect the patient with the provider in nontraditional office visits was the primary avenue of care during the first wave of the pandemic. This proved a viable method of reaching more patients and drove reform in terms of payment parity (West, 2020). Whether looking at an individual hospital or across a hospital system, research into hospital workforce flexibility shows the use of technology has demonstrated superior performance in staffing to demand at a favorable cost when compared to traditional hospital staffing practices (Drake, 2014; Wright & Bretthauer, 2010; Wright & Mahar, 2013). Often hospital staffing relies on antiquated processes that often depend on individuals making their best decisions possible in the moment to cover unfilled shifts. Hospitals have been tasked with the need to not only understand the workforce needs

EXHIBIT 19.1

Key Performance Indicators

Census (planned to actual)
Full-time equivalent (planned to actual)
Nurse attrition (planned to actual)
Overtime (nonholiday) as a percentage of productive hours
Harm index (nurse-sensitive indicators)
Employee injury rate trends

EXHIBIT 19.2

Detailed Cost Drivers

Level of Care	YTD OT% of Prod (Exc. Holiday)	OT FTE (YTD)	Planned Annual Avg Total Census	Total Census Last 3 PP	Staffed Patient Capacity (Hired + Contingent)	Hired FTE	Current Contingent RN (Non-LOA)	Actual Productive FTE (YTD)	Actual Total FIE (YTD) (Prod + Nonprod)	More Patients Than Plan?	Under Hired to the Plan?	Is Sick Leave an Issue?	Need Temp to Cover LOA?	Need Temp to Cover Open Postings?	Need more Hour Utilization from PerDiem?
ICU	11.20	4.3	10.50	12.33	14.00	36.55	5.40	38.40	46.63	Yes	Yes				
Tele	9.68	3.0	16.52	20.21	16.00	22.60	0.00	30.57	36.76	Yes	Yes	Yes	Yes		
Medsurg	18.52	5.6	16.51	24.82	30.00	31.80	2.70	30.02	38.34	Yes			Yes		
NOU	5.65	2.1	19.00	19.00	21.00	39.60	0.90	37.84	48.73		Yes	Yes		Yes	
L&D	11.14	2.7	5.00	4.88	6.00	28.55	0.90	24.10	32.54			Yes	Yes	Yes	
OB	9.25	1.6	10.00	11.14	12.00	16.80	0.00	17.11	21.72	Yes	Yes		Yes		
NICU	11.94	1.5	2.00	2.01	4.00	12.00	0.00	12.80	16.28	Yes		Yes	Yes		Yes
	10.88	20.8	79.53	94.39	103.00	187.90	9.90	190.84	241.00	Yes	Yes		Yes		

FTE, full-time equivalent; L&D, labor & delivery; LOA, leave of absence; NICU, neonatal intensive care unit; NOU, neurosurgical observation unit; PP, postpartum; YTD, year to date.

locally, but across the community. Cloud hosting has allowed for structures to be quickly stood up in order to provide the visibility and accessibility for collaborative efforts in patient placement, workforce, and supply chain needs.

The application of technology aids in consistent complex computational analyses for confirmation of qualified staff according to prescribed rules of legislation or labor contracts within the individual hospital or across multihospital systems. Common platforms provide the opportunity to leverage a "sharing economy" much like processes used by Uber and Airbnb. In addition, scheduling and staffing systems that are integrated with ADT data, **patient classification systems**, and predictive analytics further positively influence data-driven decisionmaking at the front line. These systems provide a platform to affect operational efficiencies before the shift is deployed and thus get in front of value proposition incrementally, several times a day, before shift change occurs and resources are committed. Technology that applies predictive analytics, such as conversion of community positivity rates for COVID-19 to anticipated hospital admissions by geographic location and level of care with machine learning, could provide a precision of adjustment for variable staffing, identify specific volume trends at a medical center level, and alert medical staff of either improving or deteriorating patient condition. These triggers all inform the patient's level of care placement and could be used to prompt the provider to evaluate the patient's readiness for discharge.

Clinical Decision-Support Tools: Patient Placement

Bed management and patient placement are additional key drivers of resource utilization. Patients are admitted to nursing units throughout the day. The skill set of staff assigning bed status to the patient being admitted can be variable. As bed assignments typically occur on an as-needed basis, the ability to capture and data-mine the thought process of bed placement by experienced leaders is often lost when these processes reside in our heads and leverage pencil and paper. This multivariate complex decision-making process is an area ripe for optimization with machine learning.

Clinical decision-support tools can aid in routine tasks and support quality-improvement efforts. Taking inputs from hospital census, staffed beds, and specific patient care requirements (e.g., isolation room, telemetry, chemotherapy unit) overlaid with mathematical modeling in order to maximize efficiency of available qualified staff and thereby suggesting the optimal unit for admission can aid in efficiencies of (a) decreasing boarding time in the postanesthesia care unit and ED, (b) maximizing clinical grouping to enhance geographic patient distribution, (c) smoothing admission and discharge volumes, (d) determining the need to utilize overflow units, and (e) maximizing distributed staffing. A tool can be developed by culling hourly census by type of service and level of care extracted from the electronic medical record for a year's period of time to understand historic average and unit peak bed need by time of day and day of week. Once the demand is confirmed, the nurse leader can apply knowledge at both the micro and macro level to identify the types of services offered with the number of beds designated for each service to the individual nursing units. This informs creating a clinical decision-support tool for bed assignment decisions using standard logic, 24 hours per day, 7 days per week and thus decreases variability in decision-making. (prototype illustration, Figure 19.1).

Use of Clinical Decision-Support Tools: Nurse-to-Patient Assignment

The reoccurring act of assigning nurses to individual patients occurs several times per day in almost every hospital nursing unit across the nation with the start of each shift.

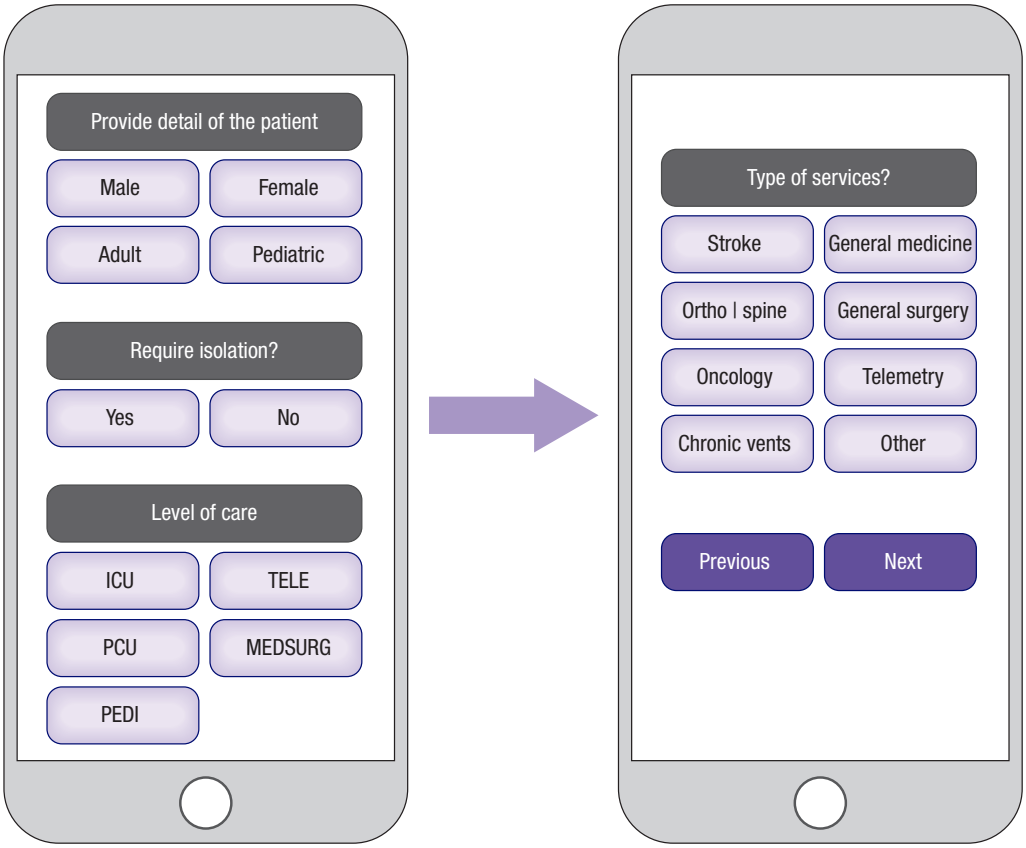

FIGURE 19.1 Prototype of bed placement decision-support tool.

This often underscrutinized activity of workload distribution can have direct impact on the quality and safety of care delivery, nurse satisfaction, burnout, and cost (Cathro, 2013; Ellis, 2008; Quadra Med, 2013). Moving from paper-based systems to electronic versions can leverage heuristic rule-based logic to facilitate the nurse-to-patient assignment pairing and gain incremental efficiencies across multiple nursing units several times per day, every day. Technology provides a framework to support patient safety, meet patient care needs, and addresses nursing factors while adhering to legal and contractual rules. When clinical decision-support tools that add value are embedded into existing workflows, cost and workforce optimization follow.

Human capital makes up over half of hospital operating costs. Staffing effectiveness provides the APRN with a platform on which to exert influence and execute standardized processes in order to improve efficiencies, reduce variation, and cost. An illustration of a strategic alignment of policies, workflows, and tools is provided in Figure 19.2.

Hospitals of the Future: Innovative Demonstration Projects

In March of 2020, the CMS created Hospitals Without Walls to provide regulatory flexibility for hospitals to treat patients in locations outside the hospital. The CMS has now created the Acute Care Hospital at Home program, in response to the needs driven by

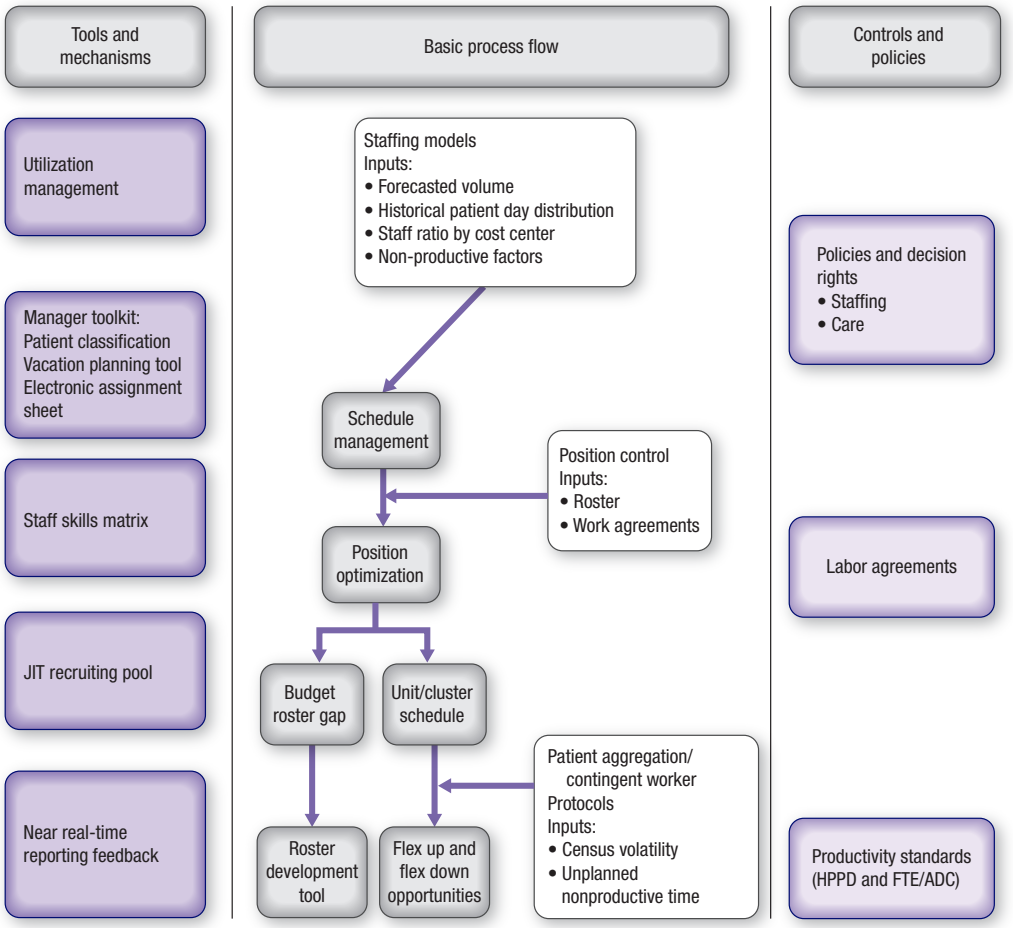

FIGURE 19.2 Demand-based care delivery system.
ADC, average daily census; FTE, full-time equivalent; HPPD, hours per patient day; JIT, just in time.

the COVID-19 pandemic, to provide additional regulatory flexibility for hospitals to treat patients requiring *acute inpatient admission* in locations outside the hospital, including their homes. The structure and implementation of hospital-at-home care varies based on the capacity of the hospital and the needs of the patient population it serves. Some hospitals facilitate the program from the ED and admit eligible patients to their homes, whereas other hospitals may rely on community paramedics, inpatient services, or specialty clinics to refer patients into the program (AHA, 2020b). This program requires an in-person physician evaluation and screening protocols to assess medical and nonmedical factors before a patient can begin receiving care at home. An RN must evaluate each patient once per day in person or remotely, and either registered nurses or mobile integrated health paramedics must conduct two in-person visits per day based on the patient's nursing plan and hospital policies. The program best fits medium-acuity patients who have chronic conditions, such as congestive heart failure, diabetes, chronic obstructive pulmonary disease (COPD), or pneumonia, that respond well when managed under well-defined treatment protocols. Hospitals must report quality and safety data to CMS at a frequency based on their prior experience with providing acute hospital care at home.

At the time of this announcement, CMS also approved waivers for six health systems with extensive experience providing acute hospital care at home to begin immediately participating in the new program, including Brigham and Women's Hospital and Massachusetts General Hospital in Massachusetts, Huntsman Cancer Institute in Utah, Mount Sinai Health System in New York, Presbyterian Healthcare Services in New Mexico, and UnityPoint Health in Iowa (AHA, 2020a). Although this conceptual model is not traditionally how we view hospital operations, a growing body of research shows that hospital-at-home is an effective healthcare delivery strategy that improves all three components of the value equation: improve outcomes, enhance the patient experience, and reduce cost (AHA, 2020b).

CONCLUSIONS

Acute care delivery systems epitomize **complexity theory** in action in that individual inputs affect the overarching performance of the whole. A confluence of factors, including an impending shortage of nurses, the exponential growth of medical technology, rapidly changing care needs associated with a pandemic, and unknown political variables, make the present time the right time to act boldly and affect change. Advanced-level nursing education provides the framework needed to address contemporary care-delivery needs.

The clinical experience, the ethos of the nursing profession steeped in its interaction and obligation to society, along with the academic preparation of the APRN place this leader in a unique transformational position to transform the future of acute care delivery. Rather than relying on traditional retrospective reviews of missed opportunities, this leader possesses the knowledge and skill set to get in front of the curve by utilizing data and evidence proactively to inform decision-making. In this role, advanced practice leaders are the health delivery advocates for patients and staff, obligated to ensure the right resource in the right place at the right time; they hold the keys to creating the efficient hospital of the future.

END-OF-CHAPTER RESOURCES

CRITICAL THINKING EXERCISES

1. In groups of three, with each person acting in one of the C-suite leadership roles, identify and share with the class your hospital's core values, core purpose, and what the future of the organization vividly looks like in 30 years.
    a. What do you personally value? How does that guide your decision-making and form the foundation on which you act? List three to five personal values and then compare and collectively identify them with your hospital's values.
    b. Identify the purpose of why your hospital exists today and for the next 100 years. Distill the essence of your presence by using the performance improvement techniques, asking the five whys, or using a fishbone diagram to get to the root. This purpose should have inspirational meaning to those working within your hospital.
    c. With clarity of your collective purpose and value system, envision and describe with strong conviction and in vivid detail your hospital 30 years from today. This should include a goal that aligns both purpose and values; when spoken, others say "wow" and understand it right away.

2. Focus on a quality campaign of aggressive early ambulation. How might you differently consider and articulate the value of this initiative?
   a. Consider the value proposition of adding one unlicensed nursing assistive personnel (UAP) for every eight patients planned in a 24-bed medical–surgical nursing unit.
   b. Assumptions: Average wage rate of the UAP is $31/hour; tax and benefit burden is 36.5%; nonproductive add of 21%; average hospital cost is $3,200/patient/day. This initiative was able to yield an average reduction in length of stay of 0.4 days.
   c. Consider the C-suite as your audience. How will you make the business case for this campaign?
   d. Now consider the nursing unit and patients as your audience. What elements of the delivery change? What stays the same and why?
3. Review the data presented in Exhibit 19.2. Based on this information, consider the following questions and provide an action plan that is aligned to the hospital's core purpose, vision, and values.
   a. Which units are running a high rate of overtime?
   b. What considerations, other than census, are driving the costs in overtime utilization?
   c. Based on your previously articulated mission, vision, and values, what innovations can be implored to ensure patient and staff safety?
4. In your original C-suite grouping, explore examples of how technology might assist in the area of human capital management during a crisis such as a pandemic. How might you introduce these concepts locally at your institution as well as across hospitals in your community?
   a. Look to industry outside of healthcare to expand your thinking.
   b. What are the challenges that will need to be addressed and what synergies exist that can be capitalized upon?
   c. The Acute Care Hospital at Home Program is one innovation that occurred in response to the pandemic. What other initiatives might you explore to maximize capacity in the next crisis (pandemic, natural disaster, workforce scarcity)?
   d. What legislative and policy changes must be made to address the needs in a sustainable way?
   e. Present your thoughts to the group with rationale that ties back to your strategic vision, and provide a sound business case for the improved efficiencies.

INSTRUCTOR RESOURCES

A robust set of instructor resources designed to supplement this text is available. Qualifying instructors may request access by emailing textbook@springerpub.com.

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Glossary

Accountability Acceptance for the responsibility and the outcomes for staffing for the performance of a task, department, and unit with the authority to lead the work and with the expectation of being evaluated on the performance according to recognized standards.

Accountable Care Organization (ACO) Groups of providers and hospitals that jointly provide coordinated care.

Accounts Payable (AP) During the normal course of business, debts can be due for services rendered. Bills for materials received or obligations on an open account may be accounts payable. This kind of liability usually arises from a purchase of merchandise, materials, or supplies.

Accounts Receivable (AR) Money owed by patients or others to an entity in exchange for services that have been delivered but not yet paid for.

Activity The accumulated patient traffic admissions, discharges, and transfers in and out of the unit in a 24-hour period.

Activity on Arrow (AOA) Method of mapping a project network; activity is shown as an arrow.

Activity on Node (AON) Method of mapping a project network; activity is on the node.

Acuity A measurement of patient severity of illness that is related to the amount of resources required to care for the patient.

Admission, Discharge, and Transfer (ADT) *Admission* is a new patient admitted into the hospital. *Discharge* is an existing patient discharged to leave the hospital. *Transfer* is an existing patient who is moved from one unit to another within the hospital.

Advanced Practice Registered Nurse (APRN) An RN with at least a master's degree who is also licensed as a nurse practitioner, certified registered nurse anesthetist, certified nurse midwife, or clinical nurse specialist.

Affordable Care Act (ACA) Also known as the Patient Protection and Affordable Care Act (PPACA; Public Law 111–148). Healthcare reform measure composed of a group of laws concerning health insurance to advance United States citizens' right to healthcare.

Agile Project Management Iterative process used to create a product or service.

Aim Drift An attempt, unconscious or deliberate, to back away from stretch goals that require team corrective action.

Aim Statement A form of SMART goals recommended by the Institute for Healthcare Improvement (IHI) that emphasizes numerical stretch goals and direct measurement to create more accountability in the quality-improvement process.

Alternative Payment Models (APMs) Value-based reimbursement options.

American Association Colleges for Nursing (AACN) the Essentials Core Competencies for Professional Nursing Education.

American Nurses Association (ANA) Code of Ethics for Nurses with Interpretive Statements (The Code) Guide for carrying out nursing responsibilities in a manner consistent with the ethical obligations of the nursing profession. The interpretive statements provide additional guidance on applying the ethical principles to nursing practice.

Amortization The process of retiring a debt, usually by equal payments at regular intervals over a specific period of time.

Analysis/Design Phase The project management phase that explores the factors necessary to ensure the project goals and outcomes are aligned with the organization's strategic plan, delineates project specifications, performs financial analyses, and builds a team capable of completing tasks and accepting responsibilities.

Appreciative Inquiry A discussion technique that focuses on shared goals and includes four phases consisting of discovery, dreaming, designing, and delivering the project.

Assets Resources that are possessed by the organization that have an economic benefit. Most assets are tangible in that they can be measured, such as cash, goods, or services, or intangible in that they are difficult to measure, such as reputation.

Autonomy Patients' right to self-determination by making their own decisions, free of coercion.

Available Bed A bed that is equipped but not staffed for patient admissions.

Balance Sheet (BS) A comprehensive financial statement that is a summarized assessment of a company's accounts specifying its assets and liabilities.

Bed Utilization The actual number of bed turns compared to the maximum possible number of bed turns to determine, expressed as a percentage.

Benchmarking A method that assists in comparing outcomes of two or more entities.

Benefit The amount the insurance company pays when the insured suffers a loss.

Benefit Period The amount of time involved in an individual claim. In the case of hospitalization, the first day of the hospital stay through the day of discharge and often up to 60 days after release from the facility.

Best Practices Techniques or methodologies that, through experience and research, have proved to reliably produce results. Committing to use "best practices" is a commitment to using all the knowledge and technology at one's disposal to ensure success. A best practice tends to spread throughout a field or industry after a demonstrated success. According to the American Productivity and Quality Center, the three main barriers to adoption of a best practice are a lack of knowledge about current best practices, a lack of motivation to make changes involved in their adoption, and a lack of knowledge and skills required to do so.

Budget A plan that provides a formal, quantitative expression of management's plans and intentions or expectations.

Budget Types

Expense Composed of salary and nonsalary items.

Revenue Total amount of income anticipated during a defined period of time. Manager rarely controls revenue, but can control variable expenses, usually payroll and supplies for nursing.

Budgeting A process whereby plans are made and then an effort is made to meet or exceed the goals of the plans.

Bundling Including additional services, such as laboratory tests, in with an office visit.

Burst Activity In project management, an activity that comes before one or more subsequent activities can begin.

Cafeteria Plan Offers a choice between two or more benefits or a choice between a benefit or cash.

Capital Assets Buildings or equipment whose utility is expected to continue more than a year beyond their purchase.

Capital Expenditures Budgetary entries for items outside of the day-to-day operations realm, usually with the total outlay of $1,000 or more, commonly abbreviated as *CapEx*.

Capitated Rate A rate per member per month.

Capitation An organization is paid a fixed, negotiated rate per member per month. The entity receives payment whether or not the member uses the services of the organization in a given time period. A business model calls for the risk to be spread within the group for the array of services that are agreed upon ahead of time.

Case Mix Combination of types of patients served; defined by diagnosis, payment source, and so forth.

Cash Burn The monthly cash cost of new operations in the period prior to any revenue being generated.

Cash Flow A stream of money into (inflow) or out of (outflow) a project, an investment, or operations.

Cash Flow Statement A financial statement that shows how changes in the balance sheet accounts and income affect cash and cash equivalents, and breaks the analysis down to operating, investing, and financing activities; also referred to as *a statement of cash flows* or *funds flow statement*. Essentially concerned with the flow of cash in and cash out.

Categorical Imperative Kantian ethical principle that a rule of conduct is absolute and does not depend on any desire or end.

Census The census can be taken at any time throughout the day but the midnight census is the one used in financial accounting which is the number of admitted patients occupying a bed at midnight.

Centers for Medicare & Medicaid Services (CMS) Federal government agency overseeing Medicare and Medicaid programs.

Change Agents Individuals who influence others' decisions to accept change in the direction deemed desirable by the change agent.

Chi Square A statistical calculation used to determine whether the difference between an expected and actual distribution is significant; used primarily with nominal data.

Claim A request to the insurance company to pay benefits for a loss.

Clinical Significance Not a calculation but an application of clinical reasoning and sound clinical judgment, coupled with business sense. For example, a more expensive medication reduces the systolic blood pressure by only 1 mmHg; the decrease could be statistically and practically significant, but an expert understands that this is probably not clinically significant to the patient's disease process or well-being.

COBRA A federal law (Consolidated Omnibus Budget Reconciliation Act) that allows employees to continue their coverage, through self-pay, after they leave employment.

Co-Investigator (Co-I) Works with the principal investigator (PI) to identify and prepare drafts; provides formative and summative reviews in specific sections.

Collective Bargaining Agreement A legally binding contract between an employer and the union representing its employees.

Community Foundations Their name usually alludes to the area they serve (e.g., Glendale Community Foundation), and they wish to see their community members somehow served in the scope of the grants funded. Community foundation grants generally support replication projects rather than groundbreaking research or experimental approaches.

Comparative Effectiveness Research Properly informs healthcare-related decisions. Defined as the comparison of one diagnostic or treatment option to one or more others.

Complexity Theory Mathematically demonstrates the unpredictable nature of living systems and the continuous effort to adapt toward a better "natural fit" over time.

Concluding Phase The project management phase that consists of final testing and deployment, training the end user, sign-off by appropriate parties, and transfer of key documents related to the projects.

Consent Manual Guide for state legal requirements related to patient consent for medical treatment, the release of medical information, and state reporting requirements.

Consultant Provides expertise and experience in one or more focus areas.

Contingent Workforce Temporary staff; includes traveler staff.

Continuous Data Answers the question "how much?" The precision of continuous data collection is, by definition, dependent on the accuracy of the measuring instrument.

Contractual Allowance A discount determined between a provider and a third-party payer for a given service. For example, the difference between billed charges and the amount paid by Medicare for the diagnosis-related group (DRG) is the contractual allowance for Medicare.

Contribution Margin Portion of the charge to a patient or payer for a procedure or supplies that are over and above the actual cost (does not include indirect costs).

Coordinator Assists with grant applications and coordinates all required sections and materials to be included in the application. Manages and coordinates personnel and procedures of a funded grant.

Co-investigator (Co-I) Works with the PI to identify and prepare drafts; provides formative and summative reviews in specific sections; and does the footwork of the grant, which may include preparing for institutional revew board (IRB) presentation, designing tools to be used in the project, troubleshooting problems, and so forth.

Co-Payment A small charge the insured pays at the time service is received.

Correlation A statistical calculation that gives a number that represents the amount and direction of the relationship between two variables; most common is Pearson's product–moment correlation coefficient, used with ratio and interval data.

Cost–Benefit Analysis The analysis of healthcare resource expenditures relative to possible medical benefit.

Cost Center or Unit The financial unit or code from which wages are paid and costs can be identified and controlled by a specific nurse leader. Accounting practice is to assign all labor costs to the home cost centers and to allocate to all other cost centers the hours worked on those units. May also be called *cost center, cost unit*, or *department number*.

Cost/Cost Plus The provider organization is reimbursed for actual costs plus an additional percentage of those costs to generate a margin.

Cost-Effectiveness Analysis (CEA) Compares the costs and the values of different healthcare interventions in creating better health and longer life.

Cost of Care per Day or Cost per Unit of Service A mathematical calculation of the cost of care per day or unit of service using average salary costs by category of employee and HPPD (hours per patient day).

Cost per Encounter The product of intensity of services, productivity/efficiency, and resource prices/salaries and wages.

Cost Types

Amortization Predicting the rate of obsolescence of a given product and assigning a dollar value to that rate.

Capital Includes equipment and renovation expenses needed to meet long-term goals. Usually has a life span of 1 year or more and exceeds a certain dollar amount.

Fixed Remain constant despite fluctuations in activity levels.

Operating An annual budget based on anticipated revenues and expenses for the organization's fiscal year (12 months—not always calendar year).

Variable Fluctuate in response to internal or external changes, that is, census, patient acuity, staffing mix, and product cost.

CPT Code Common Procedure Terminology.

Crash Shorten an activity or project.

Cumulative Percentage/Cumulative Relative Frequency Reports the percentage of occurrences as an additive measure.

Current Assets Organization's cash resources or other resources that can easily be converted into cash within a year or resources that will be depleted within a year.

Current Liabilities Obligations that the organization expects to pay off within a year.

Dashboard Reporting Key performance indicators or metrics in a format that tracks and benchmarks organizational performance.

Data The basic element by which many critical decisions are based.

Data Analysis The interpretation and application of statistical results, including types of numerical data, organizing and tabulating results, distinguishing differences, and interpreting and applying results.

Decision Innovation Process A description of the phases of adoption that networks of individuals undergo before incorporating a change in practice; it includes five stages: knowledge, persuasion, decision, implementation, and confirmation.

Deductible The amount of covered expenses the insured must pay out of pocket before the insurance company pays.

Deliberately Developmental Organization (DDO) A company dedicated to the personal and professional growth of its employees as the central premise of its organizational and business strategy.

Deliverables Major products or results that must be finished before a project can progress to the next step.

Denying the Claim When an insurance company does not pay a bill because the service was not covered, or because preapproval or other conditions were not met.

Departmental Operating Report Contains relevant information about the particular department or cost center; also referred to as *cost center report, profit and loss statement, trend report*, or another term, depending on the organization.

Depreciation Accounting for the cost of an asset across all of its years of useful, revenue-generating life. In accounting, depreciation is an operating expense that must be included in the price of the goods or services sold. It is the loss in value the organization anticipates for its buildings and equipment.

Developmental Alignment An employee's level of satisfying needs in relation to the Maslow's hierarchy of needs.

Diagnosis-Related Groups (DRGs) A taxonomy of codes describing diagnoses in alphanumerics, used for reimbursement.

Digital First Model The practice of utilizing digital communication with the physician or other healthcare provider as the first point of service in patient care, also referred to as the virtual first model.

Direct Care Hours The number of hours of direct labor used in making a product or providing a service. In acute care, it is the hours of all staff providing direct care (hands-on caregivers) to patients. If your hospital does not separate direct and indirect hours, the total worked or productive and direct hours are the same.

Direct Costs Costs specifically incurred by the department over which the manager has responsibility and potential authority to make changes.

Director of Strategy Head of the strategy committee; a full-time position reporting directly to the president/CEO, or a member of the management team in smaller organizations.

Discount Rate The reciprocal value of the interest rate that correlates the present and future values of an investment or a cash flow.

Discrete Data Answers the question "how many?" These data are frequency or counting values. There are no "in-between" values for discrete data.

Double-Loop Learning Process of questioning; reflecting on why a certain response is made, then shifting to a new response; paradigm shift.

Dysfunctional Conflict Conflict that hinders group performance and requires the project manager to intervene to get the project team back on course.

EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) The difference between a firm's operating revenues and expenses; could be positive (profit) or negative (loss). Represents how much money a company earns if it did not have to pay interest, taxes, or take depreciation and amortization charges. EBITDA is intended to be an indicator of a company's financial performance without consideration of debt, tax, or asset base. This is becoming a much more common way to determine earnings.

Economic Market A structure that allows sellers and buyers to exchange goods, services, or information.

Economics The study of how resources are allocated.

Editor/Proofreader Expert in the use of the English language and effective grantsmanship. Polishes the application before submission.

Efficiency The cost associated with a specific level or quality of care.

Encounters Outpatient visits that are billable or otherwise reimbursed.

Endowments Resources contributed by a donor, which are used to generate additional, consistent income for the organization.

Entropy A term used in systems theory for a disorganization that threatens the balance of complex systems such as those found in the healthcare setting.

Environmental Evaluation Broad assessment process performed to pinpoint an organization's standing in regard to the stated mission, vision, and existing strategic objectives and to inform ongoing strategy formulation.

Epidemic A higher-than-expected incidence of injury, disease, or other health condition among a specific group of persons or within a particular geographic area.

Equilibrium or Homeostasis The balance of a complex system into an organized and functioning whole.

Executive Sponsor Person who lends administrative support, expertise, or credibility to the project.

Failure Mode Evaluation Analysis (FMEA) Each potential risk is assessed in terms of severity of impact, probability of the event occurring, and ease of detection.

Family Foundation Grants Reflect the values of the family members whose interests have been memorialized by the creation of the foundation. This creates significant variability in funding purposes, criteria, and patterns among family foundations. Although family foundations represent the largest subset of private foundations, their asset base and subsequent funding amounts are generally quite small, and they typically fund on a local level.

Federal Poverty Level (FPL) Poverty thresholds are the dollar amounts used by the U.S. Census Bureau to determine poverty status. Each person or family is assigned one out of 48 possible poverty thresholds, which vary according to the size of the family and the ages of the members. The same thresholds are used throughout the United States. Poverty thresholds are updated annually for inflation by the U.S. Bureau of Labor Statistics, using the Consumer Price Index for All Urban Consumers (CPI-U). Although the poverty thresholds in some sense reflect the family's needs, they are intended for use as a statistical yardstick, not as a complete description of what people and families need to live.

Fee for Service When the scope of work is clearer, this is a method most common for the Other Professional Services category in the National Health Expenditures data. A set fee is billed at the risk of additional services being required at the time of treatment. The local market drives the rates that patients are willing to pay.

Fidelity In nursing ethics, the principle of respect for loyalty and faithfulness to patients and the nursing profession.

Filled Position An allocation in the position control assigned to an employee in the unit based on the budgeted full-time equivalents (FTEs) for full- and part-time work agreement.

Financial Models Computerized tools for evaluating financial feasibility of investments and projects or forecasting and monitoring financial performance.

Five-Stage Model of Group Development A model of group development developed by Tuckman and Jensen to shed light into the phases of group activity and how to manage the group process.

Five Whys A questioning method of asking the question "why?" five times to obtain more information about the problem and reduce the number of false assumptions made during evaluation.

Fixed Assets Assets that cannot be converted to cash within a year (also referred to as *long-term assets*). Examples are land, building, and equipment.

Fixed Budget Budgeting style based on a fixed annual level of volume that does not allow for variation.

Fixed Price This approach focuses on a fixed price for treating a certain disease condition. This is the category in which the DRG system falls. The provider is rewarded for efficiency.

Flexible FTEs Staff hours scheduled based on actual or projected patient volume.

Float Also known as *slack*; the amount of time that a project task can be delayed without causing a delay in subsequent tasks.

Force Field Analysis Restraining and driving forces acting simultaneously to compete for and against goal achievement.

Forecasting The approximation of the time and cost it will take to complete project deliverables.

Fraud To knowingly submit for payment or reimbursement a claim known to be false.

Frequency The number of times a given value occurs.

Frequency Distribution A table that shows how many times each given value occurs. It is the most common reporting format for frequency data.

Full Cost Sum total of all direct and indirect costs.

Full-Time Equivalent (FTE) Number of hours of work for which a full-time employee is scheduled for a weekly period; for example: 7-day (8-hour shift) period—needs 1.4 FTEs.

Functional Conflict Conflict that supports the goals of the group and is a productive part of the group process.

Future Value (FV) The worth of a cash flow or an investment at a specified point in the future.

Gains Sharing Cash or equity bonuses intended to motivate employees to achieve and exceed set financial, strategic, quality, and other goals; also known as *profit sharing*.

Gantt Chart A bar chart used during the monitoring phase of a project to break the project down into activities with distinct start and finish times.

Governing Board A committee responsible for the authoritative direction and control of an organization; frequently referred to as a *board of directors* or *board of trustees*.

Government Federal, state, and local entities participating in health insurance programs.

Greatest Good for the Greatest Number Also known as the Greatest Happiness Principle and the Greatest Good principle. The utilitarian ethical principle that an act is good if it promotes happiness for the highest number of people.

Groupthink A phenomenon in which members of a group strive to be in agreement with each other, even though some members privately disagree.

Health Maintenance Organization (HMO) The passage of the HMO Act occurred in 1973. The principles underlying HMOs are cost-effectiveness based on productivity; population management with a focus on preventive care; a predetermined and agreed-upon array of services, including both ambulatory and inpatient care; prepayment in the form of dues; and assumption of risk by the provider to meet the requirements of the promised care and service.

Heterogeneous Highly varied, when there is a lot of spread between and among the scores.

Hiring Plan The position control budget for the unit defining open positions by FTE or work agreement requirement, full- or part-time status, shifts and planned weekends for human resources and recruitment.

Homogeneous Condition of little variation among the data points; they are all closely clustered about the mean.

Hospital at Home Model Hospital level acute care services provided to patients in their home setting.

Hours/2-week Defines the regular hours scheduled for a given 2-week pay period, including tenth-of-an hour fractions (i.e., 80, 40, 37.5). See Work Agreements.

Hours Classification A distinct grouping used to classify hours, correlated with financial industry standards. Standard hour classifications include direct, indirect, total worked or productive hours, nonproductive hours (benefit and, at some hospitals, education, meeting, and orientation), and total paid or annual hours.

Hours per Delivery A standard financial unit for the hours of care provided for the number of deliveries in the obstetric units during the hours the unit is operational. Census is reported as "couplets" meaning one mother and one baby.

Hours per Patient Day (HPPD) A standard financial unit for the hours of nursing care provided per patient per day by various levels of nursing personnel. HPPD is calculated by dividing the total paid hours for nursing personnel for a specific time period by the total number of patient days in the same time period.

Hours per Surgical Case A standard financial unit for the hours of care provided for the number of surgical cases completed during the hours the operating rooms or same-day surgical units are operational. Time is tracked in surgical minutes or other increment based on minutes (e.g., 1 unit = 6 minutes or 1 unit = 10 minutes).

Hours per Unit of Service (HPUOS) A standard financial unit for the hours of care provided for the number of patients served during the hours the unit is operational.

Hours per Visit A standard financial unit for the hours of care provided for the number of patient visits in the ED, outpatient clinics, pain clinics, and so forth, during the hours the unit is operational.

Hours Worked The actual hours worked for a given period, including regular hours and overtime.

Human Capital The economic value of an employee's skill set; recognizes that all employees are not equal.

Hurdle Rate Organization-specific minimum acceptable rate of return on investment or a project.

Implementation Gap Disagreement among the top and middle management members on the organization's goals.

Implementation Phase The longest and most labor intensive phase of project management in which the project is built, implemented, and then monitored to verify costs and schedules meet baseline projections.

Incentive Compensation A variety of approaches for motivating employees; does not need to be monetary to be effective, as long as perceived to carry meaningful value.

Incident- to Billing A Medicare rule requiring the doctor to be in the suite and immediately available in order for a service to be billed. The service provided is reported as if the billing provider provided the service.

Incremental Cost-Effectiveness Ratio (ICER) The ratio of the change in costs of a therapeutic intervention (compared to the alternative, such as doing nothing or using the best available alternative treatment) to the change in effects of the intervention.

Independent Practice Association (IPA) Open panel system in which individual physicians contact to provide care for enrolled members.

Indicators Factors that measure conditions, performance, or results, and can be used to help find the root causes of problems.

Indirect Costs Costs that cannot be attributed directly to a specific area and are usually spread over several areas, for example housekeeping and administration.

Indirect Hours Hours of staff (e.g., manager, health unit coordinator, monitor tech, and others) providing service to the unit, but *not* directly with patients or taking a patient assignment. Also include other worked and paid hours but *not* directly involved with patients such as education, orientation, and classes.

Institutional Research An organizational function responsible for collecting, aggregating, and interpreting internal and external data.

Insurance A system for the collective, long-term prepayment of the costs of health services.

Internal Rate of Return (IRR) The discount rate at which the net present value of a project or investment equals zero.

Justice Fair and equal distribution of benefits and burdens.

Key Performance Indicator (KPI) A measure or indicator that is reported in a format that tracks and benchmarks organizational performance, also referred to as a metric.

Level of Measurement Determines which statistical techniques can be used to analyze the data.

Liabilities The financial obligations of an organization, that is, bills to be paid.

Long-Term Liabilities Obligations that will be paid off within the following year.

Margin Revenue less specified expenses.

Marginal Costs The additional costs related to providing one extra unit of a specific item.

Marginal Utility The value of one more, given that a certain amount has already been consumed.

Market Segmentation Dividing a particular market for potential services into subsections with separate, measurable needs.

Mean Also known as the *average*, a very common statistical test used to summarize a group of data. The mean is calculated by dividing the sum of each individual value by the total number of values.

Measure A standard, a basis for comparison, a reference point against which other things can be evaluated.

Median The midpoint of a group of results; indicates that 50% of the scores are above the median and 50% are below the median.

Medicaid Established in 1965, implemented in l966. A federal program that pays for certain mandatory health services provided to low-income children and their caretakers. Amendments have been made to include people with developmental disabilities and other low-income groups, including the elderly, children, and pregnant women. Medicaid is jointly funded by the federal and state governments. A particular state's per capita income determines the amount of federal matching funds it receives.

Medical Malpractice Professional misconduct, improper discharge of professional duties, or failure to meet the standard of care that results in harm to another.

Medicare Created in 1965 under Title XVIII of the Social Security Act. Expanded in 1972 to include people of any age with end-stage renal disease. In 1973, it was expanded again to include people of any age who meet Medicare's definition of disability.

Metrics Measures or indicators that are reported in a format that tracks and benchmarks organizational performance, also referred to as key performance indicators.

Milestones Groups of deliverables that represent a significant event or accomplishment.

Mission Organization's reason for existing.

Mission Statement Succinct and precise present-oriented passage that describes what the organization is and does.

Mode The most frequently occurring value in a distribution.

Monitoring Compilation of organizational systems and processes designed to promote outcomes visibility, targets achievement, and strategy execution.

Moral Distress Occurs when nurses use their ethical skills to determine the right thing to do and experience constraints that make it impossible.

National General Purpose Grants Made on the basis of a broad scope and impact across the nation and even world. These foundations may use professional consultants as reviewers; like to create change; and generally prefer creative, innovative, or model projects that others can replicate.

National Health Expenditures Payments to hospitals, providers, vendors, and long-term care agencies as a proportion of the gross domestic product.

Net Fixed Assets Determined by subtracting depreciation from the total fixed assets.

Net Income Income that exists after expenses have been subtracted from total revenues.

Net Present Value (NPV) Present value of predicted future revenues minus present value of predicted future payments.

Net Worth Value of an organization after paying off all its debts and/or liabilities.

Nominal Variables Classifications of variables into mutually exclusive categories. By definition, this means that the number used for a nominal variable is arbitrary and functions as a label rather than a quantity amenable to computation.

Nonmaleficence Ethical obligation of a nurse not to harm the patient.

Nonparametric The results of measurement of a variable, when plotted on an x–y graph, are not distributed along a standard normal curve.

Nonproductive Hours A term used for all hours the hospital defines as *nonproductive*. Always includes benefit time for paid time off (e.g., vacation, sick, holiday). Some organizations may also include education, meeting, and orientation hours as nonproductive time, although the employee is working and paid.

Normal Curve Symmetrical graphic in which the mean, median, and mode share the same point on the curve. The standard normal curve incorporates the measurement of standard deviation and defines the parameters for each standard deviation unit.

Observation Hours per Patient A standard financial unit for the hours of care provided for the number of patients being observed in the ED, obstetric unit, or other units during the hours the unit is operational.

Operating Budget Financial projections that guide day-to-day functions at every level of an organization.

Operating Expenses The daily costs required to maintain and run an entity.

Operationalizing The process of translating environmental evaluations, SWOT analyses findings, strategic objectives, and substrategies into concrete, executable tasks and projecting the costs associated with these undertakings.

Opportunity Cost of Capital The magnitude of the best-return investment alternative of the same risk.

Ordinal Measurements Also known as *rankings*. Ordinal data are ranked against some defined criterion.

Organizational Alignment Degree to which employees subscribe to, accept, and model their employer's mission, vision, and values.

Organizational Culture The shared values, beliefs, and assumptions of employees within an organization.

Owner Equity The proportion of net assets of an organization or entity that can be claimed by its ownership or shareholders.

Out-of-Network Care Medical services obtained by managed care plan members from noncontracted healthcare providers.

Outliers Any situation in which outcomes are outside the normal pattern (i.e., patients who have an atypical care experience that extends their length of stay).

Overhead Operating costs not directly associated with revenue generation.

Paid Claims Ratio (PCR) The amount hat hospitals bill and what they actually collect.

Pandemic An epidemic that occurs across multiple countries or continents, affecting a substantial portion of the population.

Parametric The results of measurement of a variable are distributed normally; that is, if the individual results are plotted on an *x*–*y* graph, the spread resembles a standard normal curve.

Passion Skills Convergence of technical expertise and enthusiasm for performing specific duties.

Patient Classification See Acuity.

Patient Classification System A standardized method of determining patient severity of illness. Classification systems assign patients to defined categories by care intensity, care level, assumed or average utilization of resources, or other variables. One example is that of California, where these systems are required by Title XXII.

Payback Model A common criterion for selection of business projects, which measures the time it takes for the project to recover its investment.

People Outcomes Subset of broader organizational strategic outcomes focused on organizational, role, and developmental alignment of employees.

Pent-up Demand An increase in deferred consumption, for example, an increase in outpatient visits following a time period when outpatient services were not available.

Performance Appraisal Formal organizational process for evaluating an individual employee's achievements and compensation as well as setting goals, performed at predetermined time intervals.

Performance Improvement Plan Formal, individually tailored program targeted toward uncovering the root causes of objectively assessed underperformance and creating concrete, timed tactics for course correction.

Performance Management Organizational systems and processes established to control the progress toward achievement of individual, departmental, and firm-wide goals, including performance appraisal, periodic feedback, and performance improvement programs.

Periodic Feedback Semiformal organizational process that requires managers to check in with direct reports from time to time and provide feedback, both positive and constructive, while inviting every employee to solicit and welcome such feedback.

Personal Dashboards Widely used tools for intradepartmental communication and progress monitoring, focused on individual performance targets.

Plan–Do–Check–Act (PDCA) A successive cycle that starts off small to test potential effects on processes, but then gradually leads to larger and more targeted change.

Plan–Do–Study–Act (PDSA) A process improvement model promoted by the Institute for Healthcare Improvement (IHI), originally developed by Shewhart and subsequently modified by Deming, to guide continual improvement processes by tracking the stages of the improvement process. Stages include the Plan stage of data gathering, Do stage of experimentation, Study stage of evaluation, and Act stage of adoption. The PDSA cycle is continual and once completed begins with testing and evaluating another potential improvement.

Planning Phase The project management phase that includes preparation of schedules and budgets with accompanying resource allocations, identification, and mitigation of risk.

Point-of-Service (POS) The location in which services are provided, such as a clinic or hospital.

Policy Directives that document decisions about programs, laws, regulations, or legal directives.

Position Control A report showing the actual number of positions based on full- or part-time work agreements or FTEs filled on a unit as opposed to the number of positions budgeted.

Position Control Plan A plan for staffing requirements that determines how many FTEs are required to deliver the amount of care identified as being necessary.

Potential Patient Days The maximum number of patients who would occupy all staffed beds.

Practical Significance Calculating the significance of two different variable scores using an approach that will return a result in standard deviation units; this is used frequently for meta-analysis in evidence-based practice because it allows research with different measurement approaches to be standardized and then compared.

Practice Management The continuum of processes, often unique for each practice, that impact the provision of patient care. These processes include staffing, scheduling, billing, and quality-improvement practices.

Preapproval The requirement set forth by an insurance company to approve certain care before it is provided.

Preferred Provider Organization (PPO) Physicians, group of physicians, hospital, or other healthcare facility that has contracted with a private insurance company or business to provide healthcare services to a select group of patients.

Present Value (PV) Adjusted for the timing and risk, the current monetary worth of a future cash flow or an asset.

Principal Investigator (PI) In research projects, this is the person responsible for all aspects of the grant.

Principled Negotiation Negotiating rules that focus on the problem and shared interests and mutual gain.

Productivity Average measure of efficiency of production, often expressed as a ratio of output to inputs.

Product Line Budget A budget focusing on the costs and profitability of a clinical specialty or on selected groups of patients with same or very similar diagnoses, also referred to as a service line budget.

Profession Group of disciplined individuals who adhere to high ethical standards, are accepted by the public as possessing special knowledge based on a high level of organized education and training, and are prepared to apply this knowledge in the interest of others.

Professional Grant Writer Serves as the technical writer in situations in which the project manager plays more of a clinical expert role or has little grant-writing experience. Often, the cost of a professional grant writer can be included in the funding request.

Professional Liability Insurance premiums that need to be paid to cover potential lawsuits.

Profit Margin Percentage difference between expenses and revenue.

Pro Forma Predictive financial statement for a project or organization.

Pro-Forma Income Statements Tools that forecast revenues, expenses, and profits and/or losses resulting from future operations.

Project Short-term effort to give rise to a unique product, service, or end result.

Project Evaluation and Review Technique (PERT) A statistical analysis tool used to represent project tasks that shows the critical path.

Project Manager Person who writes the grant, manages the execution and deliverables, and submits final reports.

Prospective Payment System (PPS) Mechanism for prospectively transferring funds to hospitals based on the facility's DRG profile.

Psychological Safety Occurs when individuals believe that change can be made without harm to their personal values or integrity; encourages participation.

Quality-Adjusted Life Year (QALY) A measure of disease burden, including both the quality and the quantity of life lived.

Range The simplest measure of dispersion or variation. It is the difference between the largest and the smallest values in a given data distribution.

Ratio/Interval Data The most common type of variable that can be mathematically and statistically manipulated. Interval data are ordered and the distance between each number is identical.

Readmission Rates Measured 7, 15, or 30 days following discharge, the readmission rate is a quality indicator under increasing scrutiny by CMS and other payers.

Rehabilitation at Home Model Skilled nursing facility post-acute rehabilitation services provided to patients in their home setting, also referred to as the SNF at Home model.

Reimbursement Payment for healthcare goods and services, often made by a third party.

Reliability The consistency and dependability of the data.

Research Assistant Assists the PI and Co-I.

Return on Investment (ROI) A formula that quantifies a project's value by determining the ratio of dollars gained by completing the project divided by dollars invested.

Revenue Gross amount of earnings received by an entity for the operation of a specific activity. It does not include any deductions for such items as expenses, bad debts, or contractual allowance.

Risk The likelihood that an insured event will occur.

Risk–Benefit Analysis Weighs the potential for undesirable outcomes and side effects against the potential for positive outcomes of a treatment and is an integral part of the process of determining medical necessity in the delivery of quality medical care.

Risk Breakdown Structure Tool used in risk mitigation; developed in conjunction with a work breakdown structure; aligned with the organizational hierarchy identifying risks and potential risks.

Role Alignment Extent to which an employee's job matches their passions and the level of skills and knowledge they possesses to be successful in the job.

Roster Duty list or work schedule.

Scrum An iterative process of developing a product or service characterized by flexible scope, short-term design process, embracing stakeholder feedback, and change.

Service Line Budget A budget focusing on the costs and profitability of a clinical specialty or on selected groups of patients with same or very similar diagnoses, also referred to as a product line budget.

Simple/Absolute Frequency Distribution A table that reports the value and number of times that each value occurs.

Site-of-Service Migration Trend to move acute care hospital services to outpatient, home and community settings.

Skill Mix A grouping of job positions or categories most often used to group caregivers into "direct" care and "indirect" care. Direct caregivers are usually grouped into four groups or classifications: RNs, LPN/licensed vocational nurse (LVN)/LVNs, nursing assistants or unlicensed assistive personnel (UAPs), and other direct caregivers not included in the previous three groups. Indirect caregivers include all other job positions paid for by the unit that support the direct caregivers but are not included in the staffing plan ratio of caregivers to patients.

SMART Goals A method of developing goals that are specific, measurable, attainable, realistic, and time bound.

SNF at Home Model Skilled nursing facility post-acute rehabilitation services provided to patients in their home setting, also referred to as the Rehabilitation at Home model.

Snapshot Review A formal process for keeping the key performance indicators (KPIs) as well as other strategic indicators continually visible throughout the institution and for driving performance to reach goals.

Special Purpose Budget A budget prepared for any purpose that has not been otherwise budgeted, often for a specific project, such as a business plan or grant proposal budget.

Special-Purpose Foundations Very large organizations, usually funded by large asset bases, that define their area of concern quite specifically.

Spread The dissemination of a successful project, practice, or knowledge to a different care setting.

Staffing Mix Ratio of various types of personnel to one another; that is, RNs 40%, LVNs 40%, and others 20%.

Standard Deviation The positive square root of the distribution's variance.

Statement of Cash Flows Reports on a company's cash flow activities, particularly its operating, investing, and financing activities.

Statement of Comprehensive Income A report on an institution's income, expenses, and profits over a period of time; also referred to as *profit and loss statement (P&L).*

Statement of Financial Position Reports on a company's assets, liabilities, and ownership equity at any given point in time; also referred to as a *balance sheet*.

Statistical Deviation The amount by which an individual score differs from the group mean.

Statistical Significance A statistical calculation (p) that compares the probability that the observed p value is less than the significance level defined for the study. It tells us whether we should reject or accept the null hypothesis.

Statistician Works with the Pi and Co-I to develop the specific aims, determines the plan of analysis, assists in developing the database, and supervises the analysis.

Statistics The formal mathematical procedures used to organize and comprehend data.

Strategic Goals (Objectives) Broad, high-level statements that set targets for and describe how an organization progresses from the state of its present mission to the state of its desired vision.

Strategy Committee The body responsible for driving the strategy process in an organization.

Strategy Process Systematic, cyclical, dynamic, and broad-based framework for organizational management, consisting of four equally important stages—formulation, operationalizing, execution, and monitoring.

Substrategies Methods implemented to achieve the broad strategic goals.

Sunk Costs The resources previously expended on a project or investment that should be disregarded when evaluating the net present value.

Supply Chain Management Systems for prudently managing the ordering, purchasing and dispensing of supplies.

SWOT Analysis Commonly used tool for analyzing an organization's strategic capabilities and positioning, referring to its *strengths, weaknesses, opportunities,* and *threats*.

Synergistic Effect The phenomena in which the group produces more knowledge than each of the members working on their own.

Systems Theory A theory that is useful in a complex setting, such as healthcare, because it analyzes processes by breaking them down into parts and then reassemble them to show how the parts work within the system.

Systems Thinking A method of root cause analysis looking at the interrelationships of the individual parts; problem-solving by investigating the cause-and-effect actions between systems.

Tactical Map A document illustrating the tactics to be performed by units, departments, teams, and individual employees within an organization.

Tactical Planning Part of operationalizing; the process of deriving strategy execution tasks, assigning them to responsible parties, and establishing completion timelines.

Tactics The planned activities undertaken in order to meet the stated strategic objectives.

Terminal Value A method for determining the final worth of a project or an investment that estimates the overall value of a mature enterprise by applying an industry-comparable earnings multiplier to the EBITDA.

Therapeutic Fibbing Saying things that are not true to avoid causing a patient distress and help them feel safe and comforted.

3-F Framework An approach for capital projects and expenditures vetting in organizations that includes three equally essential components: finances, fit, and feasibility.

Time-Constrained Project When time and schedule are not flexible, and resources are added to compensate for a project with a fixed schedule.

Total Paid Hours The actual number of hours paid per employee, which includes total worked and total nonproductive (e.g., time not spent in assigned duties such as education time) time.

Total Worked Hours Total worked and paid hours. If your hospital does not separate direct and indirect hours, then direct and total worked will be the same. This does not include any benefit time (e.g., paid time for no work) or education, meeting, and orientation if your hospital classifies these hours as nonproductive.

Turnover Rate Rate calculated by dividing the number of employees leaving by the average number of workers employed in the unit/facility during the year and then multiplying by 100.

Uninsured Those people who have no health insurance, either by choice or due to cost or other barriers.

Units of Service (UOS) The number of activities performed in a unit associated to revenues measured against the labor and other expenses. For example, *census* is the units of service for inpatient units, whereas *visits* or *procedures* are the units of service for units such as the ED, outpatient clinics, or other units that do not have inpatient census for a specific time of day. It is reported as hours, dollars, or FTEs per unit of service.

Validity The level of certainty that the collected data actually represent the concept of interest.

Value Value is the payment model in which the organization providing the services is rewarded for the value delivered.

Values A framework that serves as criteria for prioritization, problem-solving, conflict resolution, and strategy development and allows all within an organization to evaluate decisions, take pride in their work, and make commitments.

Variable Costs Costs that vary with the volume; that is, payroll costs.

Variance Difference between planned costs and actual costs.

Variation The variability of a group of data points; how spread out or close together the values are from the other values within the group. Variation is a measure of the sameness of a group of data points.

Virtual First Model The practice of utilizing digital communication with the physician or other healthcare provider as the first point of service in patient care, also referred to as the digital first model.

Vision Statement Forward-looking pronouncement that describes what a firm aspires to be and do.

Wage Index A value associated to the Office of Management and Budget's core-based statistical area (CBSA) based on geographic designations by which the base rate may be adjusted.

Weighted Average Cost of Capital (WACC) Form of a discount rate that represents the combined risk-adjusted opportunity cost for company's debt and equity holders, or organization's cost of accessing cash for investment.

Wicked Problems Problems that are difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems.

Work Agreements The specifications of the contract under which an individual was hired. *Work agreement* is a generic term that includes such things as number of hours to be worked each week or pay period, job code or position, hourly or nonexempt or exempt from overtime and benefits expected, and so forth. *See* Hours/2 weeks.

Work Breakdown Structure (WBS) A diagram that outlines a project's work elements.

Working Capital Organization's current assets and current liabilities.

Zero-Based Budgeting (ZBB) The type of budget system that starts at zero each year.

Index

A-CPC. *See* Academic-Clinical Partnership Committee, Neil Hodgson Woodruff School of Nursing
AAAHC. *See* American Association for Ambulatory Health Care
AACN. *See* American Association of Colleges of Nursing
AACN-AONL Advisory Committee, 420
AACN-AONL Task Force on Academic-Practice Partnerships, 417, 418–420
AAM. *See* Advanced Alert Monitoring program
AANA. *See* American Association of Nurse Anesthetists
AANP. *See* American Academy of Nurse Practitioners
AAPL. *See* American Association of Physician Leadership
AAPM. *See* advanced alternative payment models
absolute frequency, 254
ACA. *See* Affordable Care Act of 2010
Academic-Clinical Partnership Committee (A-CPC), Neil Hodgson Woodruff School of Nursing, 422, 423
academic-practice partnerships, 417, 468
  AACN-AONL Task Force on Academic-Practice Partnerships, 417, 418–420
  for building nursing research capacity and translation of research into practice, 431–433
  financial and ROI implications, 435
  guiding principles to, 419
  Indiana University Learning Practice Partnership, 421, 422
  issues for consideration, 419
  landmark legislation/reports, 417–418
  Neil Hodgson Woodruff School of Nursing, 422–423
  operating room nurse shortage, 426–431
  at rural settings, 433, 435
  tool kit, 420
  University of Kentucky College of Nursing and Norton Health Care, 421–422
  Veterans Administration Nursing Academy, 423–426
accountability, 132, 310, 311, 327, 339
  nursing unit leadership accountability, 112
  programs, 182, 184–185
  schedule accountability, 130–131
accountable care organizations (ACOs), 19, 39–40, 45, 190, 192, 194–195
accounting, healthcare, 200
accounts receivable (AR), 203
accrued compensation, 204
accrued hours, 125
accrued liabilities, 204
achievement recognition programs, 184
achievement threshold, 41
ACNL. *See* Association of California Nurse Leaders
ACNP. *See* American College of Nurse Practitioners
ACOs. *See* accountable care organizations
active listening, 327
activity on arrow (AOA), 322
activity on node (AON), 322
Acute Care Hospital At Home program, 473–475
acute care readiness programs, 118
acute care settings. *See also* budget
  clinical nurse specialists, 60
  health insurance and reimbursement in, 27
  nurse practitioners in, 63, 70
  shifting to outpatient care, 155–157
adaptive learning, 405
admissions, discharges, and transfers (ADTs), 113, 114–117, 133
ADTs. *See* admissions, discharges, and transfers

Advanced Alert Monitoring (AAM) program, 284
advanced alternative payment models (AAPM), 19, 40
advanced practice providers (APPs), 455
advanced practice registered nurses (APRNs), 44, 46, 59, 60, 433. *See also* registered nurses (RNs)
Advisory Commission on Consumer Protection and Quality in the Health Care Industry, 240
advisory committee meetings, 176
Affordable Care Act of 2010 (ACA), 14, 16, 17–18, 25, 29, 47–48, 227, 236, 304–305, 306, 417–418, 465
  accountable care organizations, 40
  cost containment, 18–19
  individual mandate, 306
Agency for Healthcare Research and Quality (AHRQ), 94, 97, 227, 236–238
agile project management, 335–336
agility, 405, 407
AHA. *See* American Hospital Association
AHA Physician Alliance, 398
AHCA. *See* American Health Care Act
AHRQ. *See* Agency for Healthcare Research and Quality
AI. *See* artificial intelligence
aim drift, 321
aim statements, 321–322, 324, 327, 335, 338
all-hazards emergency operations plan, 453
"All RN" nursing care model, 117
Alliance of Claims Assistance Professionals, 49
Allina Health, 448
alternative payment models (APMs), 40, 228–229
alternative staffing plans, 455
ambulatory care, 157–161
  patient encounters, 159
  referrals, 159, 160
American Academy of Nurse Practitioners (AANP), 46–47
American Association for Ambulatory Health Care (AAAHC), 305
American Association of Colleges of Nursing (AACN), 68, 77, 295, 309, 417, 418–420, 435
  essentials related to reimbursement, 26–27
  Essentials, The: Core Competencies for Professional Nursing Education (2021), 26, 50–52, 59, 169, 188, 195–196, 222, 247–249, 271, 309, 311, 318, 322, 325, 346, 347, 377, 395, 400, 441, 442, 452, 459–460, 466–468
  Position Statement on the Practice Doctorate in Nursing, 345
American Association of Nurse Anesthetists (AANA), 346
American Association of Physician Leadership (AAPL), 398
American College of Nurse Practitioners (ACNP), 46
American Health Care Act (AHCA), 305
American Hospital Association (AHA), 34, 44, 204, 380, 398
American Nurses Association (ANA), 46, 47, 239, 445
  Code of Ethics for Nurses with Interpretive Statements, 296–299, 301, 302, 310
  Principles of Nurse Staffing, 455
  scope and standards of practice document, 452
American Nurses Credentialing Center (ANCC), 285
American Organization for Nursing Leadership (AONL), 346, 353, 383–384, 398, 417, 418–420
American Organization of Nurse Executives (AONE), 450
American Psychiatric Nurses Association (APNA), 353
American Rescue Plan Act of 2021, 354
ANA. *See* American Nurses Association
analysis/design phase, project, 319–320
  project selection, 322
  SMART goals and aim statements, 320–322
analytical thinking, 381
ANCC. *See* American Nurses Credentialing Center
ancillary departments, 206
Angola, overall financial spending of, 79
annual hours, 119
anticipatory knowledge, 404
AOA. *See* activity on arrow
AON. *See* activity on node
AONE. *See* American Organization of Nurse Executives
AONL. *See* American Organization for Nursing Leadership
AORN Periop 101: A Core Curriculum, 427, 429
A.P. Smith Manufacturing Co. v. Barlow et al., 357
APMs. *See* alternative payment models
APNA. *See* American Psychiatric Nurses Association
appreciative inquiry, 333
APPs. *See* advanced practice providers
APRNs. *See* advanced practice registered nurses
AR. *See* accounts receivable

area chart, 275
artificial intelligence (AI), 284–285
Ascension Global Mission, 100
Ascension Healthcare, 100
assets, 201
  asset tracking, 453
  current, 203–204
  depreciation, 213–214
  fixed, 204
assistant managers, 116
Association of California Nurse Leaders (ACNL), 353
assumption-based planning, 404
Atlanta Veterans Administration Health Care System (AVAHCS), 423
Australia, 105
  Ascension Healthcare in, 100
  falls in hospitals, 97
  healthcare model of, 89
  nurse-to-patient ratios in, 97
Australian Commission on Safety and Quality, 89
Australian Digital Health Agency, 89
autonomy, 298–299, 300, 301
AVAHCS. *See* Atlanta Veterans Administration Health Care System
average. *See* mean
average age of plant, 210
average daily census, 127, 210, 469
Azusa Pacific University, 429–431

backfill replacement plan, 119, 129
bad debt, 203
balance sheet, 200, 201–202, 213, 252
  current assets, 203–204
  fixed assets, 204
  liabilities, 204–205
  pro forma, 214–217
Balanced Budget Act of 1997, 61
bar chart, 273–274, 281
baseline period, 41–42
BATNA. *See* best alternative to negotiated agreement technique
Baylor University Medical Center, 427
bed management, 472, 473
bed occupancy rate, 211
benchmark, 41
benchmarking, 231
beneficence, 297, 300, 301
benefit (health insurance), 28
benefit hours, 125
benefit period (health insurance), 28
benefit replacement, 125
Bentham, Jeremy, 300
best alternative to negotiated agreement (BATNA) technique, 333
Biden, Joe, 20, 45
big data, 271, 283, 406
  electronic health records, 283–284
  Meaningful Use and *Promoting Interoperability* programs, 284
  predictive analytics and artificial intelligence, 284–285
Bill and Melinda Gates Foundation, 102, 351, 352
billing, 70
  agents, 68, 69
  APRNs, 44
  codes, 64–66, 67
  CPT coding, 64–65
  direct, 61–63
  DRG-based reimbursement, 33–34
  fraud, 310, 311
  ICD coding, 64, 65–66
  incident-to billing, 61–63
  patterns, 69, 70
  rate, 67
  "shared visit" rule, 63
  surprise billing, 446
Birmingham Veterans Affairs Medical Center, 424, 426, 427
Bloomberg Philanthropies, 103
board of directors/board of managers/board of trustees. *See* governing board
bonus, 182–184
bookkeepers, 68
box and whisker plots, 278
BPCI. *See* Bundled Payments for Care Improvement Initiative
brainstorming, 325, 327
Brazil, healthcare model of, 89–90
breach of obligation, 308
breast cancer, 95
"BreEZe" complaint system, 301
bribes, 104
Bridgewater, 180
Brigham and Women's Hospital, 448
budget, 111, 156–157, 181, 349
  accrued hours, 125
  admissions, discharges, and transfers, 113, 114–117
  annual staffing budget basic formulas, 120–123
  capital, 181, 188
  carryover time, 125
  cash burn budget, 192
  components of, 112
  cost centers, 117, 118–119, 141–142
  employee requests, managing, 144–145
  4- to 6-week budget plan, 132–133

budget (*cont.*)
full-time equivalents, 111, 118, 120, 121–122, 126–127
hours per UOS, 118–120, 126–127
management reports, 149–150
master budget, 126
nonproductive, 124–125
nurse leader hours spent on, 142–143
nursing unit leadership accountability, 112
operating, 181, 349
overtime, 145, 148
payroll leakage, 148–149
position control, 134–142
productive cost, 124
project, 323
reports, 156–157
revenue forecasts, 112
rolling average, 129
schedule accountability, 130–131
schedule leakage, 148
schedule requirements, 134
scheduling order, 143–144
scheduling principles, 131–132
scheduling/staffing models, 132
special purpose, 163
summary, 126–127
target budget, 212
translating FTEs into schedule requirements, 133
24-hour budget, 111, 145
unit staffing budget, 117–118, 126–130
units of service, 112–114
variance, 211–212
volume forecasts, 112–114
budget-based model, 454
budget coordinator (grant writing), 367
bundled payment, 39
Bundled Payments for Care Improvement (BPCI) Initiative, 25
Bundled Payments for Care Improvement Advanced (BPCI Advanced) model, 155–156
burden of proof, 308–309
Bureau of Labor Statistics, 20
burst activity, 322
business acumen, 384
business case, 384, 390
business plan, 384
executive summary, 384–390
summary, 390–391
business skills, 66, 384, 450

cafeteria plan, 28
California
"BreEZe" complaint system, 301
Business and Professions Code, 312
HealthImpact, 429–431, 435
hospital outpatient visits, 155
managed care insurance plans, 16
minimum staffing regulations in, 11, 98
Nursing Practice Act, 301
California Board of Registered Nursing, 301
California Endowment, 352
California Medical Association, 312
California v. Texas, 18, 306
Canada, healthcare model of, 90–91
Canadian Centre for Advanced Practice Nursing Research (CCAPNR), 431
Canadian Medicare, 90
Canadian Patient Safety Institute, 90
Candid.org, 351
CapEx. *See* capital expenditures
capital budget, 181, 188
budgeting process, 195
financial modeling of, 191–194
capital expenditures (CapEx), 181, 188, 195
maintenance, 192
projected, 192
capital investment plans, 452
capital projects
feasibility of, 194–195
net present value of, 189–190
organizational and strategic fit, 194
capitated rate, 33
capitation payment, 33
CardinalHealth, 358
care experience, 97
CARES. *See* Coronavirus Aid, Relief, and Economic Security Act (2020)
carryover time, 125
case management nurses, 311
cash, 203
cash burn budget, 192
cash equivalents, 203
cash flow statement, 200, 216
cash on hand, 203
Catalog of Federal Domestic Assistance, 354
categorical imperative, 300
causation, 276, 308
CBA. *See* collective bargaining agreement
CCAPNR. *See* Canadian Centre for Advanced Practice Nursing Research
CDC. *See* Centers for Disease Control and Prevention
CEA. *See* cost-effectiveness analysis
CEHRT. *See* Certified EHR Technology
Center for Medicare and Medicaid Innovation, 19, 378

Centers for Disease Control and Prevention (CDC), 37, 49, 66, 443
Centers for Medicare & Medicaid Services (CMS), 19, 31–32, 34, 41, 104, 204, 221, 226, 234, 238, 354, 378, 465, 467
  Acute Care Hospital At Home program, 473–475
  diagnostic codes, 33
  digital quality measures, 231
  HCAHPS, 38–39, 238
  Hospital Acquired Conditions Reduction Program, 35–37
  Hospital Compare, 38, 42, 96–97, 238–239
  Hospital Inpatient Quality Reporting Program, 19, 42
  Hospital Value-Based Purchasing program, 35
  Hospitals Without Walls, 473
  Inpatient Prospective Payment System, 37, 311
  Meaningful Measures, 230–231, 232
  Meaningful Use and *Promoting Interoperability* programs, 284
  programs and activities authorized by, 230
  quality strategy goals, 227–228
  value-based purchasing, 226–231
Central Resource for Grants and Funding Information NIH, 358
central staffing office, 132, 141
central tendency, measures of, 256–259
centralized scheduling and staffing, 132
CEOs. *See* chief executive officers
certificate of need, 20
Certified EHR Technology (CEHRT), 284
certified nurse midwives (CNMs), 60, 87
CFOs. *See* chief financial officers
change
  agents, 334–335
  constant, responding to, 405
  management, and entrepreneurship, 382
  process, 333–335
    psychological safety, 334
    refreezing, 334
    unfreezing, 333–334
charge nurses, 116, 129, 145
charitable allowances, 203
chi square, 265–266
chief executive officers (CEOs), 112, 171
chief financial officers (CFOs), 195, 199, 201, 295, 396, 410–411, 451–452. *See also* CNO–CFO dyad
chief nurse executives (CNEs), 286
chief nursing officers (CNOs), 395. *See also* CNO–CFO dyad
  challenges, 396–398
  nursing resources, 397
Children's Health Insurance Program (CHIP), 94
China, 101
  healthcare model of, 91
CHIP. *See* Children's Health Insurance Program
Christus Health, 100
chronic care management, 49–50
claims-made policies, 71
clerical staff, 117, 158–159, 160
Cleveland Clinic, 100, 171, 172, 173
Cleveland Clinic London, 100
client feedback, 176
clinical decision support tools, 472–473
Clinical Excellence Commission (Australia), 89
clinical information system, 252
Clinical Modifications (CM), 33
clinical nurse specialists (CNSs), 60
clinical outcomes domain, 38
clinical significance, 266
Clinton, Bill, 16
cloud hosting, 472
CM. *See* Clinical Modifications
CME. *See* continuing medical education
CMS. *See* Centers for Medicare and Medicaid Services
CNEs. *See* chief nurse executives
CNMs. *See* certified nurse midwives
CNO–CFO dyad, 396, 398
  CNO–CFO relationship, 396, 401–402, 403
  Design Thinking Cycle, 413
  emotional intelligence, 408
  executive presence, 408–409
  Future Smart leadership, 411–413
  interprofessional partnerships, 405–406
  leadership development, 409–410
  professional presence, 408
  professionalism, 406–407
  systems-based practice, 402, 404–405
  viewing through the lens of CFOs, 410–411
CNOs. *See* chief nursing officers
CNSs. *See* clinical nurse specialists
co-investigator, 367
co-payment, 28
COBRA. *See* Consolidated Omnibus Budget Reconciliation Act
Code of Ethics for Nurses with Interpretive Statements (ANA), 296–299, 301, 302, 310
coding
  Current Procedural Terminology codes, 33, 64–65
  DRG-based reimbursement, 33–34
  fraud, 310, 311
  ICD-10 codes, 33–34, 65–66

Cohen's *d*, 266
collective bargaining agreement (CBA), 448, 456
Columbia University School of Nursing, 432–433
common size ratios, 208
Commonwealth Fund, 95, 105
communicable disease pandemics, 443–444. *See also* COVID-19 pandemic
communication, 185–186, 287, 288, 327, 449
  open, 325, 326
  plan, 338–339
  power/interest grid, 327–329
  skills, 195, 320, 326, 327, 335
community-based settings, 157, 163–165
community foundations, 352
community hospitals, 156
comparative effectiveness research, 232–233
competencies, 346
  agility, 405, 407
  Essentials, The: Core Competencies for Professional Nursing Education (2021), 26, 50–52, 59, 169, 188, 195–196, 222, 247–249, 271, 309, 311, 318, 322, 325, 346, 347, 377, 395, 400, 441, 442, 452, 459–460, 466–468
  financial management, 450
  gaps in informatics competencies, 286
  Interprofessional Competency Model version 2.1, 400
  and outcomes, 285
  strategy competencies, 404–405
  transdisciplinary leadership, 399
  validation of, 457
complexity science, 321
concluding phase, project, 319, 335–336
Congressional Budget Office (CBO) report, 305
consequentialism, 300
Consolidated Appropriations Act of 2021, 446
Consolidated Omnibus Budget Reconciliation Act (COBRA), 28
consultant (grant writing), 367
Consumer Price Index for All Urban Consumers (CPI-U), 28
consumerism, 46, 451
Continental National American Group, 307
contingency plan, 331
contingency table, 265
continual personal development, 180
continual professional development, 179
continuing medical education (CME), 99
continuous data, 253–254
contracting, 68
contractual allowances, 204, 212–213
contribution margin, 215
control chart, 277
coordinator (grant writing), 367
Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020), 354, 444
Coronavirus Response and Relief Supplemental Appropriations Act, 354
corporate philanthropy, 357
correlation, 263, 276
  chi square, 265–266
  coefficient, 263–265
corruption in healthcare, 103–104
cost–benefit analysis, 232
cost center report. *See* departmental operating report
cost centers, 117, 118–119, 141–142, 145, 212, 466
cost-effectiveness analysis (CEA), 160, 232, 234
cost-effectiveness of care, evaluation of, 241–243
cost efficiency, 233
cost of care per day, 124
cost per encounter, 233–234
cost/cost plus payment, 32
cost reports of hospitals, 62–63
cost(s), 39
  containment, 18–19
  control, 450
  estimation of, 324–325
  labor, 117, 149, 212
  marginal, 3–4, 5–6, 12–13, 16
  non-personnel, 163
  opportunity, 2, 13, 190
  overhead, 67–68, 71, 190
  personnel, 163
  production, 4
  productive, 124
  of quality, 226–227, 323–324
  reduction, 49
  sunk, 190
  of U.S. healthcare system, 15, 45
  variable, 451
covered services, 27
COVID-19 pandemic, 118, 145, 150, 410, 441, 443–444, 465, 467. *See also* outpatient care
  cost-reduction measures during, 406
  financial impact of, 445–446
  Future Smart leadership, 407
  and information and healthcare technologies, 468
  and innovation, 105, 452
  and labor movement, 448
  and legal liability, 307–308
  and moral distress of nurses, 302, 303
  and outpatient care, 155, 156
  and performance metrics, 470, 471
  Public Health Emergency, changes in practice authority due to, 61, 62

and quality of care, 468
and reimbursement, 45
and social inequities, 46
vaccinations, 163–165
CPI-U. *See* Consumer Price Index for All Urban Consumers
CPT. See Current Procedural Terminology codes
crash time, project, 331
credentialing, 61
CRISP-DM. *See* Cross-Industry Standard Process for Data Mining
critical thinking skills, 348, 406
Cross-Industry Standard Process for Data Mining (CRISP-DM), 273
cross-training, 117, 455
Crossing the Quality Chasm report, 221, 223, 345
crowdfunding, 358
cumulative percentage. *See* cumulative relative frequency
cumulative relative frequency, 255
current assets, 203–204
current liabilities, 204
Current Procedural Terminology (*CPT*) codes, 33, 64–65
current ratio, 209

daily staffing, 145
Daisy Foundation, Inc., 353
DALYs. *See* disability-adjusted life years
dashboard dials, 277
dashboards, 156, 186, 187, 211, 277
data, 234, 271–272. *See also* big data
and caring, 286–287
collection, 252, 284
continuous, 253–254
definition of, 272
discrete, 253–254
erroneous/incomplete, influence of, 249–250
vs. information, 250
informing *vs.* telling, 287
issues, 279, 281–283
manipulation of y-axis, 282–283
nominal, 252–253
ordinal, 253
presentation of, 273–282
qualitative, 272
quantitative, 272
questioning, 279, 281–283
ratio/interval, 253, 263
reliability, 251
story, 287
elements of, 288
knowing the audience, 288–289
relating, 289–290
transformation into information, 249–252
truncation of, 281–282
using incorrect charts, 281
validity, 251, 272
data analysis, 247, 249
causation, 276
continuous and discrete data, 253–254
correlation, 263–266, 276
CRISP-DM, 273
data tables, 256, 257
and entrepreneurship, 381
frequency distributions, 254–255
importance of, 249
levels of numerical measurement, 252–253
measures of central tendency, 256–259
measures of dispersion, 259–261
normal curve, 262–263
practical, statistical, and clinical significance, 266
standard deviation, 261–262, 273
transformation of data into information, 249–252
visual representations of data, 255–256
data-driven decision-making, 452
data integrity, 234
data tables, 256, 257
days cash on hand, 203, 210
days in accounts receivable, 210
DDOs. *See* deliberately developmental organizations
debt ratio, 209
decentralized scheduling and staffing, 132
decision innovation process, 334
Decurion Corporation, 180
dedicated unit/care area during pandemics, 455
deductibles, 28
deep learning, 285
deficit demand, 125, 135
degrees of freedom, 265
deliberately developmental organizations (DDOs), 180, 184–185
deliverables, 324, 327, 335
dementia, people with, 298, 302
Deming, Edwards, 224
deontology, 300
Department of Defense, 31
Department of Justice, 311
Department of Veterans Affairs (VA), 31, 61, 423–426
departmental operating report, 208, 211
depreciation, 204, 213–214
Design Thinking Cycle, 413
developmental alignment, 175, 180
deviation (data analysis), 259, 260–261

devil's advocate, 332
DHHS. *See* U.S. Department of Health and Human Services
diagnosis related groups (DRGs)-based reimbursement, 33–34, 37, 212–213
diagrams, 327
dialogue/dialoguing, 179, 184, 185, 297, 303, 335, 449
digital first (virtual first) model, 155
digital quality measures (dQMs), 231
direct billing, 61–63
direct care worked hours, 119, 124, 126, 127, 129
direct RN percentage, 127, 128
direct RN to patient ratios, 128
director of strategy, 171, 174, 188
disability-adjusted life years (DALYs), 95
disasters
  emergency preparedness, 444–445
  natural, 442–443
discrete data, 253–254
dispersion, measures of, 259–261
divergent thinking, 405
DNP. *See* Doctor of Nursing practice
Doctor of Nursing Practice (DNP), 1, 48, 295, 309, 395, 441. *See also* grant writing
  education, 310, 347
  and evidence-based practice, 310
  knowledge of business and finance principles, 26
  programs, 26, 59, 309, 349
  as project manager, 318–319
  role related to reimbursement, 48–50
  training, 309–310
documentation. *See also* billing
  and budget, 120
  of care, and billing, 70
  DRG-based reimbursement, 33
  electronic health records, 34, 67, 70, 90, 91, 92, 93, 211, 231, 283–284, 456
  executive summary, 335, 384–386
  of listening sessions, 176
dollars per patient day, 124
domain weight, 41
Donabedian, Avedis, 223
double-loop learning, 335
dQMs. *See* digital quality measures
DRGs. *See* diagnosis related groups-based reimbursement
dual-eligible patients, 43
duty based moral theory, 300
duty to care, 308
dyad leadership models, 396
dyads, 396. *See also* CNO–CFO dyad
dysfunctional conflict, 331
E&M. *See* evaluation and management codes, CPT
E3 Grant Program, CardinalHealth, 358
earnings before interest, taxes, depreciation, and amortization (EBITDA), 182–183, 214
EBITDA. *See* earnings before interest, taxes, depreciation, and amortization
EBP. *See* evidence-based practice
economics. *See also* health economics
  of healthcare sector, 446
  principles of, 2
economies of scale, 4, 12
editor/proofreader, 367
education, meeting, orientation (EMO) hours, 119, 121–122, 125, 129, 135
efficiency, 39, 233, 306, 311, 470
efficiency ratios, 208
EHC. *See* Emory Healthcare
EHRs. *See* electronic health records
EI. *See* emotional intelligence
8-hour shifts, 133, 134
electronic health records (EHRs), 34, 67, 70, 90, 91, 92, 93, 211, 231, 283–284, 456
electronic medical records (EMRs), 91, 93
emergency preparedness, 444–445
emergency temporary standard (ETS), 448
EMO. *See* education, meeting, orientation hours
Emory Healthcare (EHC), 422, 423
emotional intelligence (EI), 408
empirical questions, 249
employee alignment, 174–175, 178
  developmental alignment, 175, 180
  organizational alignment, 175, 178–179
  role alignment, 175, 179
employee request guidelines, 144
employee requests, 132, 143, 144–145
employee schedules. *See* schedule/scheduling
employer-sponsored health insurance, 15, 16, 17, 26, 29, 465
employer-to-employee contract, 71
EMRs. *See* electronic medical records
end of shift (EOS) overtime, 148
End-Stage Renal Disease (ESRD) Quality Initiative Program, 227
entreleadership, 378
entrepreneurs, 378
entrepreneurship, 377–378. *See also* innovation
  analytical thinking, 381
  AONL guiding principles, 383–384
  embracing ambiguity, 381
  environmental scanning, 380
  and knowledge, 380–381
  learning from failure, 382
  managing change, 382

overcoming barriers, 382–383
responding to constant change, 405
and risk taking, 381
skills and knowledge necessary for innovators, 378–379
environmental evaluation, 176
Environmental Scan 2021 report, 44
environmental scanning, 380
EOS. *See* end of shift overtime
epidemic, definition of, 443
equilibrium
changes in, 6–9
in market, 6
erratic workload UOS, 114
ESRD. *See* End-Stage Renal Disease Quality Initiative Program
Essentials, The: Core Competencies for Professional Nursing Education (2021), 26, 50–52, 59, 169, 188, 195–196, 222, 247–249, 271, 309, 311, 318, 322, 325, 346, 347, 377, 395, 400, 441, 442, 452, 459–460, 466–468
ethics, 295
autonomy, 298–299, 300, 301
beneficence, 297, 300, 301
Code of Ethics for Nurses with Interpretive Statements (ANA), 296–299, 301, 302, 310
fidelity, 297, 299
Florence Nightingale Pledge, 296, 298
justice, 299, 309
and law, relationship between, 308
moral distress, 301–303, 312
nonmaleficence, 299, 302, 308
and state regulations, 300–301
utilitarian and duty based moral theories, 300
veracity, 298, 299, 301–302
ETS. *See* emergency temporary standard
evaluation and management (E&M) codes, CPT, 64–65
evaluation plan, 386, 388
evaluation teams, 176, 177
evidence-based practice (EBP), 1, 52, 310, 347, 352, 468
EVOLVITUDE® statement (Nightingale College), 174
executive culture, 333
executive presence, 408–409
executive sponsor, 327, 339, 367, 368
executive summary, 335, 384–390
expenses
expense and revenue relationship, 112, 117
managing, 450–451
operating, 206–207
experiential knowledge, 404
failure modes and effects analysis (FMEA), 326
falls in hospitals, 97
False Claims Act of 1863, 299, 311
family foundation grants, 352
FASAB. *See* Federal Accounting Standards Advisory Board
FASB. *See* Financial Accounting Standards Board
Fast Healthcare Interoperability Resources (FHIR), 231
Federal Accounting Standards Advisory Board (FASAB), 200
Federal Business Opportunities, 354
federal government. *See also* Medicare
health financing, 31
health insurance, 29
federal poverty level (FPL), 28
fee-for-service (FFS) payment, 18, 32, 40, 44, 228
fee for value, 34
feedback, 176, 184, 237, 321, 327, 335, 339, 449
FFS. *See* fee-for-service payment
FHIR. *See* Fast Healthcare Interoperability Resources
fidelity, 297, 299
Financial Accounting Standards Board (FASB), 200
financial losses, 450
financial management, 441
AACN *Essentials*, 441, 442
communicable disease pandemics, 443–444
during crises, 452–459
financial impact of COVID-19 pandemic, 445–446
importance of leadership, 449
labor strikes, 448–449
natural disasters, 442–443
operational challenges, 449–452
staffing shortages, 446–447
financial modeling
of capital budgeting decisions, 191–194
pro-forma income statements, 192, 193
project valuation analysis, 192, 194
projected CapEx and cash burn budget, 192
financial ratios, 208, 209–211
financial statements, 199, 200–201, 383
balance sheet, 200, 201–205
cash flow statement, 207–208, 216
departmental operating report, 208, 211
financial ratios and ratio analysis, 208, 209–211
healthcare accounting, 200
profit and loss statement, 205–207
variance, 211–212

fiscal stewardship for outpatient care, 156
fiscal year-end cash bonuses, 182–184
5 Rights, 132
five-stage model of group development, 332
Five Whys method, 320
fixed assets, 204
fixed hours. *See* indirect care worked hours
fixed price payment, 33
flex budgeting, 117, 123
flexible schedules, 130–131, 144
floor (hospital performance), 41
Florence Nightingale Pledge, 296, 298
fluctuating workload UOS, 114
FMEA. *See* failure modes and effects analysis
Food and Drug Administration, 10
force field analysis, 334
Ford, Loretta, 60
forecasting, 324, 331, 380, 404, 469
foresight, 405–406
Foundation Center, 361–362
4- to 6-week budget plan, 132–133
FPL. *See* federal poverty level
fraud, 104, 299, 310–311
Free the Vaccine, 103
frequency distributions, 254–255
Frontier Nursing Service, 60
FT. *See* full-time staff
FTEs. *See* full-time equivalents
full-time equivalents (FTEs), 111, 118, 120, 121–122, 126–127
  budgeted, 116, 129, 130
  CORE, 136
  nonproductive, 129
  supplemental, 118
  total hired, 130
  total paid (annual), 130
  total worked (productive), 130
  translating into schedule requirements, 133
  and units of service, 112
full-time (FT) staff, 118, 131, 134, 135, 136, 137–140, 143
functional conflict, 331
functional nursing model, 454
fundamental rights, 303
funds flow statement. *See* cash flow statement
Future of Nursing: Leading Change, Advancing Health report, 345, 417, 420
  2010–2020, 418
  2020–2030, 418
Future Smart leadership, 407, 411–413
future value (FV), 189
FutureScan 2021-2026 report, 44
futurist mindset, 405–406
FV. *See* future value
GAAP. *See* generally accepted accounting principles
gains sharing, 182–184
Gantt chart, 329–330, 363, 385, 386, 388
gap analysis, 385, 387
GAPNA. *See* Gerontological Advanced Practice Nurses Association
garbage in, garbage out (GIGO), 250
GASB. *See* Governmental Accounting Standards Board
Gavi Alliance, 103
GCC. *See* Gulf Cooperation Council countries, pay disparities in
GDP. *See* gross domestic product
GDP per capita, 78, 79
Gender and Health Index, 103
generally accepted accounting principles (GAAP), 200, 203, 204, 206
Gerontological Advanced Practice Nurses Association (GAPNA), 47
GIGO. *See* garbage in, garbage out
GiveWell, 102
Global Health 50/50, 103
globalization of healthcare, 98–102
goal statement, 320–321
governing board, 171, 181
government grants, 353–356
Governmental Accounting Standards Board (GASB), 200
Grand Cayman, 100
grant listservs, 351
Grant Vine, LLC, 351
grant writing, 345–347
  barriers for faculty, 349
  databases, 350–351
  for healthcare programs, 347–350
  ingredients for implementation research proposals, 348
  literature on, 348–349
  process, 359–360
  project execution, 367–368
  project planning tools, 363, 366–367
  roles, 366–367
  style and format for applications/proposals, 360–363
  Vida Sana QUITS project work plan, 364–365
GrantForward, 351
grants, 347
  finding funding sources for healthcare grants, 350–351
  government, 353–356
  private foundation, 351–353
  private foundation decision matrix, 354, 355
  private industry, 357–359
  professional organization, 353
  research, 356–357

Grants.gov, 354
Grantsmanship Center, The, 350
gross domestic product (GDP), 30, 77
gross revenue, 206, 208
groupthink, 332
GuideStar, 351
Gulf Cooperation Council (GCC) countries, pay disparities in, 98

HAC. *See* Hospital-Acquired Conditions program
HAIs. *See* healthcare-associated infections
HAPUs. *See* hospital-acquired pressure ulcers
HCAHPS. *See* Hospital Consumer Assessment of Healthcare Providers and Systems
HCCI. *See* Health City Cayman Islands
HCL. *See* Human-Centered Leadership in Healthcare model
HCUP. *See* Healthcare Cost and Utilization Project
H/Del. *See* hours per delivery
Health Care Fraud and Abuse Control Program, 311
Health Care Fraud Prevention and Enforcement Action Team, 311
Health City Cayman Islands (HCCI), 100
Health Development Agency, UK, 241
health economics, 1
  changes in equilibrium, 6–9
  fundamental problem of healthcare policy, 12–13
  health insurance, 12
  healthcare in economic framework, 10
  imperfect competition in nursing labor markets, 10–11
  marginal utility and marginal costs, 3–4
  market equilibrium, 6
  occurrence of trade, 2
  perfect market, 9
  principles of economics, 2
  production decisions, 4–6
  role of preferences, 2–3
health insurance, 12, 13, 25–26, 27–29, 226. *See also* health reform; reimbursement
  Affordable Care Act of 2010, 14, 16, 17–18, 25, 29, 47–48, 227, 304–305, 306, 417–418, 465
  and changes in prices, 13
  claims, denying, 29
  employer-sponsored, 15, 16, 17, 26, 29, 465
  exchanges, 17–18
  fraud, 310, 311
  high deductible health plans, 20
  and lack of price controls, 16
  managed care insurance plans, 16, 17
  market-based, 20, 304
  and moral hazard, 12, 13
  in nonacute care settings, 42–43
  pre-paid, 26
  private, 15, 18, 28, 29, 89, 90, 91, 92, 93, 94, 446
  prospective payment system, 16
  routine care coverage, 12
  types of, 29
  uninsured people, 15, 29–30
Health Insurance Portability and Accountability Act (HIPAA) of 1996, 70
health literacy, 49
health maintenance organizations (HMOs), 16, 28
health reforms
  Affordable Care Act of 2010, 14, 16, 17–18, 25, 304–305, 306
  historical context of, 16–17
  and state regulations, 19–20
healthcare. *See also* healthcare financing
  as a right, 304
  accounting, 200
  asymmetry of information, 27
  care delivery models, 117
  corruption and waste in, 103–104
  cost-effectiveness of care, 51–52, 241–243
  in economic framework, 10
  effective care, 49
  efficient care, 49
  equitable care, 49
  financial crisis in, 156
  fraud, 310–311
  imperfect information in, 10
  influence of government in, 31–32
  integrated delivery system, 48
  international models of, 89–94
  Nation's Health Dollar calendar, 30–31
  nonmarketability of risks, 27
  patient-centered care, 49, 50
  price transparency, 20
  quality/finance concepts, 231–236
  quality/value organizations, 236–243
  spending
    and quality/safety outcomes, 95–96
    sources of, 14–15
    around the world, 77–79, 80
    U.S., 13–14, 15, 16, 17, 25, 30, 32, 45, 78, 105, 446
  timely care, 49
  uncertainty, 27
  universal healthcare, 92, 303–304, 305
healthcare-associated infections (HAIs), 38, 49, 97
Healthcare Cost and Utilization Project (HCUP), 236
Healthcare Financial Management Association (HFMA), 44, 397

healthcare financing, 13–15, 26, 31–32, 33, 295. *See also* ethics; international healthcare finance
  fraud, 299
  policy, 303–307
healthcare landscape, 395–396
healthcare policy, 12–13, 20, 303, 309
healthcare reforms, 303
healthcare system, 1. *See also* outpatient care
  aspects of innovation needed in, 379
  balance and homeostasis of, 321–322
  costs of, 15
  need for changes in, 15
  U.S.
    aims of, 221
    competition in, 446
HealthImpact, 429–431, 435
heatmaps, 278–279
heterogeneity of products/services, 10
HFMA. *See* Healthcare Financial Management Association
HHVBP. *See* Home Health Value-Based Program
hierarchy of needs, 180
high deductible health plans, 20
HIPAA. *See* Health Insurance Portability and Accountability Act of 1996
Hippocratic Oath, 298, 301
hiring plan. *See* position control
histogram, 255
HMOs. *See* health maintenance organizations
Home Health Value-Based Program (HHVBP), 227
homogeneity of products/services, 9
Honduras, healthcare corruption in, 104
horizon scanning, 404
hospice care, 298
Hospital Acquired Conditions (HAC) Reduction Program, 35–37, 227
hospital-acquired pressure ulcers (HAPUs), 274, 275
Hospital at Home model, 157, 473–475
hospital beds, 81, 118, 211, 472, 473
Hospital Compare, 39, 42, 238–239
Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), 38–39, 238, 252
Hospital Inpatient Quality Reporting Program, 19, 42
hospital librarians, 351, 380
Hospital Quality Alliance (HQA), 238–239
Hospital Readmissions Reduction Program (HRRP), 25, 35, 227
Hospital Value-Based Purchasing (HVBP) program, 19, 35, 227
hospitals. *See also* outpatient care; quality of care
  Achievement and Improvement scores, 41
  community hospitals, 156
  falls in, 97
  healthcare-associated infections, 38, 49, 97
  impact of natural disasters on, 442
  inpatient reimbursements, 37
  inpatient revenues, 155
  Magnet®, 97, 243
  mergers, 16–17
  multi-hospital networks, 466
  100,000 Lives Campaign, 239
  regulation by state governments, 20
  submission of cost reports, 62–63
  Total Performance Scores for, 37–38, 39, 42
hospitals, patient access and flow in, 465
  AACN *Essentials*, 466–468
  demand-based care delivery system, 474
  information and healthcare technologies, 468
  innovative demonstration projects, 473–475
  interprofessional partnerships and systems-based practice, 467
  nurse-to-patient assignment, 472–473
  patient placement, 472
  performance metrics, 470, 471
  quality of care and safety, 467–468
  robust rostering, 468–469
  workforce management, 470, 472–473
Hospitals Without Walls, 473
hours classification, 119, 123
hours per delivery (H/Del), 113
hours per patient day (HPPD), 113, 114–115, 123, 126, 145, 243, 260–261
hours per UOS (H/UOS), 118–120, 126–127, 145
hours per visit (H/Visit), 113
HPPD. *See* hours per patient day
HQA. *See* Hospital Quality Alliance
HRRP. *See* Hospital Readmissions Reduction Program
human capital, 178, 470, 471, 473
Human-Centered Leadership (HCL) in Healthcare model, 407
human needs, theory of, 174
Hume, David, 300
H/UOS. *See* hours per UOS
HVBP. *See* Hospital Value-Based Purchasing program
H/Visit. *See* hours per visit
hypertension, 95

ICD-10. See International Statistical Classification of Diseases and Related Health Problems, Tenth Edition
ICER. *See* incremental cost-effectiveness ratio
Idealist.org, 351
IDS. *See* integrated delivery system
IGLC. *See* Independent Grants for Learning and Change, Pfizer
IHI. *See* Institute for Healthcare Improvement
IHI Open School program, 239
I/LOS. *See* inverse of the length of stay
imperfect competition in nursing labor markets, 10–11
implementation gap, 320
implementation phase, project, 319, 327–331, 336
  change process, 333–335
  preparation for changes in project plan, 331
  team dynamics, 331–333
incentives, 182–184, 226
incident-to billing, 61–63
incidental overtime, 148
income statement. *See* profit and loss statement (P&L)
incremental cash-based projections, 190
incremental cost-effectiveness ratio (ICER), 234
independent contractors, 71
Independent Grants for Learning and Change (IGLC), Pfizer, 358
Independent Payment Advisory Board (IPAB), 47
independent practice associations (IPAs), 17, 40
independent practice of nurse practitioners, 312
India
  healthcare corruption in, 104
  healthcare model of, 91–92
  overall financial spending of, 79
Indiana University Learning Practice Partnership (IUNP), 421, 422
indirect care worked hours, 119, 126
individual mandate, ACA, 306
Industrial Revolution, 300
infant mortality, 83
inflation-adjusted wages, 11
infographics, 279, 280
informatics, 51, 222, 271, 285–286, 287
information, 272. *See also* data
  asymmetry of, 27
  vs. data, 250
  transformation of data into, 249–252
information and communication technologies, 51, 222, 321, 327, 346, 452–453, 468
innovation, 18, 52, 105, 317, 324, 378, 382. *See also* entrepreneurship
  AONL guiding principles, 383–384
  aspects, needed in healthcare systems, 379
  decision innovation process, 334
  during crises, 452–453
  indicators for innovative opportunity, 378
  responding to constant change, 405
  skills and knowledge necessary for innovators, 378–379
  and strategy, integration of, 402, 404, 405
inpatient ancillary, 206
inpatient bed occupancy rate, 211
Inpatient Prospective Payment System (IPPS), 37, 311
Inpatient Quality Indicators (IQIs), 238
Institute for Healthcare Improvement (IHI), 68, 223, 236, 239, 317, 321, 326, 336, 337–338
institutional research, 176
insurance. *See* health insurance
intangible assets, 201
integrated delivery system (IDS), 48
intensity of services, 233
internal rate of return (IRR), 188, 191, 192
Internal Revenue Act of 1935, 357
International Covenant on Economic, Social, and Cultural Rights, 304
international healthcare finance, 77
  corruption and waste, 103–104
  global healthcare philanthropy, 102–103
  healthcare models, 89–94
  healthcare spending around the world, 77–79, 80
  hospital beds per 1,000 patients, 81
  infant mortality, 83
  international business of U.S. healthcare models, 98–102
  life expectancy at birth, 82
  maternal mortality, 86
  number of doctors, 88
  number of nurses/certified nurse midwives, 87
  nursing outcomes, 96–98
  pay disparities, 98
  prevalence of undernourishment, 85
  quality/safety outcomes, 95–96
  suicide rate, 84
International List of Causes of Death, 66
International Statistical Classification of Diseases and Related Health Problems, Tenth Edition (*ICD-10*), 33, 64, 66
  codes, 64, 65–66
  ICD-10-CM codes, 33–34
  ICD-10-PCS codes, 34
interpersonal skills, 317, 318, 332

Interprofessional Competency Model version 2.1, 400
interprofessional partnerships/collaboration, 51, 222, 320, 396, 397, 405–406, 447, 467–468
interprofessional teams, 396
interval data, 253, 263
intrapreneurs, 378
inventory, 203, 452
inverse of the length of stay (I/LOS), 115
investment decisions, 189–191
IPAB. *See* Independent Payment Advisory Board
IPAs. *See* independent practice associations
IPPS. *See* Inpatient Prospective Payment System
IQIs. *See* Inpatient Quality Indicators
IRR. *See* internal rate of return
IUNP. *See* Indiana University Learning Practice Partnership

Johns Hopkins Medicine, 171, 172, 173
Johns Hopkins University, 103
Joint Commission, The, 231
Joint Commission International, 97
jointly appointed nurse scientists, 432–433, 434
justice, 299, 309

Kaiser Family Foundation, 49
Kant, Immanuel, 300
keep it super simple (KISS), 149
key performance indicators (KPIs), 149, 156, 175–176, 212–214, 470
KISS. *See* keep it super simple
knowledge, 450, 466
  anticipatory, 404
  and entrepreneurship, 380–381
  experiential, 404
  necessary for innovators, 378–379
  nursing, 50, 247–248, 266
KPIs. *See* key performance indicators

labor costs, 117, 149, 212
Labor Management Institute, Inc. (LMI), 111, 115, 116, 117, 118, 119, 124, 128, 129, 131, 135, 141, 142, 144, 148
labor market, 6
  changes, reaction of employers to, 11
  demand and supply relationships, 6–9
  imperfect competition in, 10–11
  number of buyers/sellers, 9, 10
  staffing regulations, 11
labor standards, 150
labor strikes, 448–449
labor unions, 448
leadership coaching, 410
leadership development, 409–410
Lean transformation, 409
Leapfrog Group, The, 96
legal liability, 307–309
length of stay (LOS), 49, 114–115, 162, 233
liabilities, 200, 204–205
liability claims of nurses, 307
librarians, 351, 380
Licensed Practical Nurses (LPNs), 145, 448
Licensed Vocational Nurses (LVNs), 145, 448
licensing, 10–11, 301
  laws, 10
  licensing board complaints, 307
  and state governments, 20
life expectancy at birth, 82
lifelong learning, 179, 380, 412
limited liability protections, 307
line chart, 255, 256, 274
liquidity ratios, 208
listening sessions, 176
LMI. *See* Labor Management Institute, Inc.
long-term care, 43
long-term liabilities, 205
LOS. *See* length of stay
Louise Herrington School of Nursing, Baylor University, 427
LPNs. *See* Licensed Practical Nurses
LVNs. *See* Licensed Vocational Nurses

machine learning, 284–285, 472
MACRA. *See* Medicare Access and CHIP Reauthorization Act of 2015
Magnet® hospitals, 97, 243
Magnet® model, 243
maintenance CapEx, 192
MakerNurse, 383
makerspace, 383
malpractice, 242
  claims, 307–308
  coverage, 71
  insurance, 307
  liability, 20
managed care, 28
managed care insurance plans, 16, 17
management reports, 149–150
map of dependencies, 327
margin, 207, 241–242, 446
marginal costs, 3–4, 5–6, 12–13, 16
marginal revenue, 4–6
marginal utility, 3, 4, 9

market, 20–21
  equilibrium, 6
  free entry/exit in, 9, 10
  global healthcare market, 98–99
  and health insurance/reimbursement, 27
  market-based health insurance, 20, 304
  perfect, 9
market analysis, 383, 385, 388
market basket, 238
master budget, 126
maternal mortality, 86
Mavenlink, 363
Mayo Clinic, 100–101, 171, 172, 173, 175
McMaster University, 431
MDM. *See* medical decision-making table
MDSave, 21
mean, 256–257, 272
Meaningful Measures, 230–231, 232
meaningful use, 252
Meaningful Use (MU) program (CMS), 284
measurement
  levels of numerical measurement, 252–253
  of quality of care, 234, 243–244
measures of association. *See* correlation
measures of central tendency, 256–259
measures of dispersion, 259–261
median, 257–258, 272
Medicaid, 15, 16, 17–18, 25, 26, 28, 29, 31, 32, 62, 94
  dual-eligible patients, 43
  funding, 305–306
  for long-term care, 44
medical assistants, 68
medical decision-making (MDM) table, 64
medical errors, 40, 148, 226
Medical Expenditure Panel Survey (MEPS), 236
Medical Group Management Association, 44, 67
Medicare, 15, 16, 18, 19, 26, 28, 29, 30–31, 32, 40, 45, 69, 155–156, 162, 226, 228, 230
  APRN reimbursement, 44
  billing, 62–63
  diagnosis related group-based reimbursement, 212–213
  dual-eligible patients, 43
  fraud, 311
  Fraud Strike Force, 311
  hospital insurance (Part A), 29
  for long-term care, 44
  Medicare + Choice (Part C), 29
  Patient-Driven Payment Model, 43
  prescription drug coverage (Part D), 29
  reimbursement to nurse practitioners, 60
  Shared Savings program, 40
  supplementary medical insurance (Part B), 29, 41, 63, 229
Medicare (Australia), 89, 94
Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), 19, 45, 228
Medicare Payment Advisory Commission (MedPAC), 61
Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003, 19
Medicare Shared Savings Program, 19
MedPAC. *See* Medicare Payment Advisory Commission
Memorial Sloan Kettering Cancer Center, 428–429
MEP. *See* mission effectiveness plan
MEPS. *See* Medical Expenditure Panel Survey
merge activity, 322
mergers and acquisitions, 16–17, 46, 353
Merit-based Incentive Payment System (MIPS), 19, 41, 45, 228, 229
metrics, 156
MFV. *See* most frequent volume
midnight census, 114–115, 469
midwives, 60
milestones, 324
Military Health System, 31
Mill, John Stuart, 300
mindfulness, 409
Minnesota Council on Foundations, 361–362
Minnesota Nurses Association, 448
MIPS. *See* Merit-based Incentive Payment System
MIPS eligible clinicians, 229
mission, 172, 174, 175, 319
mission effectiveness plan (MEP), 175–176
mission fulfillment, 170, 188
mission statement, 172
MMA. *See* Medicare Prescription Drug, Improvement, and Modernization Act of 2003
mode, 258–259, 272
modified decentralized scheduling and staffing, 132
Monthly Operations Review (MOR), 150, 151
MOR. *See* Monthly Operations Review meetings
moral distress, 301–303, 312
moral hazard, 12, 13, 27
moral theories, 300
mortality, 38
  infant, 83
  maternal, 86
  rate, 95
most frequent volume (MFV), 113, 116

most likely time (MT), 330
Mount Saint Mary's University, 429–431
MT. *See* most likely time
MU. *See* Meaningful Use program (CMS)
Mubadala Healthcare, 100
multidisciplinary teams, 101, 322
My Health Record (Australia), 89

NACNS. *See* National Association of Clinical Nurse Specialists
NAM. *See* National Academy of Medicine
NAPNAP. *See* National Association of Pediatric Nurse Practitioners
Narayana Health, 100
NAs. *See* nursing assistants
National Academy of Medicine (NAM), 221, 244
National Association of Clinical Nurse Specialists (NACNS), 346
National Association of Nurse Practitioners in Women's Health (NPWH), 47
National Association of Pediatric Nurse Practitioners (NAPNAP), 46
National Center for Health Statistics, 66
National Center for Healthcare Leadership, 400
National Centers for Environmental Information, 442
National Commission on VA Nursing, 424
National Council of State Boards of Nursing (NCSBN), 297
National Database of Nursing Quality Indicators (NDNQI), 96, 239
national general-purpose grants, 352
National Health Service (NHS), UK, 93, 241
National Healthcare Quality and Disparities Report, 94
National Healthcare Safety Network, 37
National Institute for Health and Clinical Excellence (NICE), 241
National Institutes of Health (NIH), 351, 356, 358
National Insurance Scheme (NIS), Norway, 92
National Labor Relations Act of 1935 (NLRA), 448
National Oceanic and Atmospheric Administration (NOAA), 442
National Organization of Nurse Practitioner Faculties (NONPF), 46
National Patient Safety Foundation (NPSF), 239
national provider identifier (NPI), 70
National Quality Forum (NQF), 37, 240–241
National Quality Strategy (NQS), 227, 236–237, 284
National Voluntary Consensus Standards for Nursing-Sensitive Care, 240
natural disasters, 442–443
NCSBN. *See* National Council of State Boards of Nursing
NDNQI. *See* National Database of Nursing Quality Indicators
negative variance, 211–212
negligence, 308
negotiating skills, 333
Neil Hodgson Woodruff School of Nursing (NHWSN), 422–423
  Academic-Clinical Partnership Committee (A-CPC), 422, 423
  partnership activities, 423
Neonatal Quality Indicators (NQIs), 238
net assets, 200, 203
net present value (NPV), 189, 192
  considerations, 190
  of projects, 189–190
  risk-adjusted, 189
net revenue percentage, 207
never events, 37, 226
New Future skills, 412
New York-Presbyterian Hospital, 432
Newly Cooperative Medical Scheme (China), 91
Next Jump, 180
NHC. *See* Norton Health Care
NHS. *See* National Health Service, UK
NHWSN. *See* Neil Hodgson Woodruff School of Nursing
NICE. *See* National Institute for Health and Clinical Excellence
Nightingale College, 171, 172, 174, 175
NIH. *See* National Institutes of Health
NIS. *See* National Insurance Scheme, Norway
Nixon, Richard, 16
NLRA. *See* National Labor Relations Act of 1935
No Surprise Act, 446
NOAA. *See* National Oceanic and Atmospheric Administration
nominal variables, 252–253
non-personnel costs, 163
nonacute care settings
  health insurance and reimbursement in, 27, 42–43
  revitalized settings, 43
  traditional settings, 43
noncompete clauses, 72
nonmaleficence, 297–298, 302, 308
nonmarketability of risks, 27

nonparametric statistical testing, 262
NONPF. *See* National Organization of Nurse Practitioner Faculties
nonproductive budget, 124–125
nonproductive hours, 119, 126, 129
NonProfit Times, The, 351
normal curve, 262–263
Norton Health Care (NHC), 421–422
Norway
  falls in hospitals, 97
  healthcare model of, 92
  healthcare spending of, 78
  nurse-to-patient ratios in, 98
Norwegian Medicines Agency, 92
nosocomial infections. *See* healthcare-associated infections (HAIs)
NPI. *See* national provider identifier
NPs. *See* nurse practitioners
NPSF. *See* National Patient Safety Foundation
NPV. *See* net present value
NPWH. *See* National Association of Nurse Practitioners in Women's Health
NQF. *See* National Quality Forum
NQIs. *See* Neonatal Quality Indicators
NQS. *See* National Quality Strategy
numerical measurement, levels of, 252–253
nurse anesthetists, 60
nurse midwives, 60
nurse pair/nurse extender model, 454
nurse practitioners (NPs), 1, 2, 60, 225
  acute care-based, 63, 70
  application for new position, 72
  billing codes, 64–66
  billing under name of, 70
  business skills of, 66
  contracts, 71–72
  contribution of, 69–70
  incident-to billing *vs.* direct billing, 61–63
  independent practice, 312
  inpatient-based, 63
  negotiations, 71–72
  patient satisfaction and quality of care, 69
  reimbursement to, 60–61
  scope of practice, 69
  in skilled nursing facilities, 63
  worth, calculation of, 66–67
Nurses Service Organization, 307
nurse-to-patient assignment, 472–473
nurse-to-patient ratios, 97–98, 454
nursing assistants (NAs), 117
Nursing Ethics for the 21st Century conference, 297
Nursing Practice Act (California), 301
Nursing Role Effectiveness Model, 223
OB-CE. *See* Outcome-Based Education Model
Obama, Barack, 16
occupancy rate, 211
occupational communities, 332–333
Occupational Safety and Health Administration (OSHA), 448
occupied bed, 118
occurrence-based policies, 71
OECD. *See* Organization for Economic Cooperation and Development
Oncology Nursing Society (ONS), 353
1-day budget, 111
1-month budget, 111
100,000 Lives Campaign, 239
ONS. *See* Oncology Nursing Society
open communication, 325, 326
Open Philanthropy Project (OPP), 102
operating budget, 181, 349
operating expenses, 206–207
operating margins, 150
operating revenue, 206
operating room nurses, shortage of, 426–431
operator culture, 333
OPP. *See* Open Philanthropy Project
opportunity cost, 2, 13, 190
optimistic time (OT), 330
ordinal variables, 253
Organization for Economic Cooperation and Development (OECD), 103
organizational agility, 405
organizational alignment, 175, 178–179
organizational culture, 324, 332, 396
organizational fit, 194
OSHA. *See* Occupational Safety and Health Administration
OT. *See* optimistic time; overtime
out-of-network care, 28
Outcome-Based Education Model (OB-CE), 285
outliers, 257, 272–273
outpatient ancillary, 206
outpatient care
  ambulatory care, 157–161
  community-based settings, 163–165
  indicators and fiscal stewardship for, 156
  postacute settings, 161–163
  shifting from acute settings to, 155–157
overhead costs, 67–68, 71, 190
overpayments, 311
overtime (OT), 116, 118, 133, 135, 145, 148, 212, 387
owner equity, 200

p value, 266
P&L. *See* profit and loss statement

P4P. *See* pay-for-performance
paid claims ratio (PCR), 214
paid time off (PTO), 136
pandemics, 443–444. *See also* COVID-19 pandemic
parametric statistical testing, 262
part-time (PT) staff, 118, 131, 132, 134, 135, 136, 137–140, 143
partnership(s), 450. *See also* academic-practice partnerships
  antifraud public-private partnership, 311
  clinical, 398, 420
  interprofessional, 51, 222, 320, 396, 397, 405–406, 447, 467–468
  professional dyad partnerships, 398–399
passion skills, 179, 185
paternalism, 298
patient acuity model, 454
patient-centered care, 49, 50, 248, 345, 449
Patient-Centered Medical Care Home model, 304
Patient Centered Medical Homes (PCMHs), 67
Patient-Centered Outcomes Research Institute (PCORI), 356
patient days, 112–113
Patient-Driven Payment Model (PDPM), 43
patient placement, 472
Patient Protection and Affordable Care Act. *See* Affordable Care Act of 2010 (ACA)
patient-reported outcome (PRO) measures, 231
Patient-Reported Outcomes Measurement Information System (PROMIS), 231
patient revenue, 203
patient safety, 38, 46, 48–49, 51, 95, 222–223, 248, 346, 447, 450, 451, 467–468. *See also* quality of care
patient safety attendants (PSAs), 117
Patient Safety Indicators (PSIs), 238
patient satisfaction, 69, 251, 450
pay-for-performance (P4P), 25, 34–35, 226
payback model, 322
Paycheck Protection Program and Health Care Enhancement (PPHCE) Act (2020), 444
payer mix, 43–44, 67
payroll leakage, 148–149
PCE. *See* person and community engagement domain
PCMHs. *See* Patient Centered Medical Homes
PCORI. *See* Patient-Centered Outcomes Research Institute
PCR. *See* paid claims ratio
PCS. *See* Procedure Coding System
PDCA. *See* plan–do–check–act
PDIs. *See* Pediatric Quality Indicators
PDPM. *See* Patient-Driven Payment Model
Pearson product moment correlation coefficient, 263–264, 276
Pediatric Quality Indicators (PDIs), 238
peer reporting, 150–151
peer-to-peer fundraising campaigns, 358
pent-up demand, 157
people outcomes, 178
people strategy, 178, 450
per-diem/casual staff, 118, 135, 136, 143
percentage of indirect total worked hours, 129
percentage total worked hours distribution by shift, 130
perfect health, 235
perfect market, 9
performance-based scenario systems, 404
performance improvement plans, 184, 185
performance management, 184–185
performance metrics, 470, 471
performance models, 214–217
performance period, 42
performance snapshot report, 186
performance standards, 41
periodic feedback, 184
perioperative nursing, 426–431
permanent shifts, 143
person and community engagement (PCE) domain, 38–39
person-centered care. *See* patient-centered care
personal dashboards, 186, 187
personal development, 408–409
personality traits, 179
personnel costs, 163
PERT. *See* project evaluation and review technique
pessimistic time (PT), 330
Peter G. Peterson Foundation/Kaiser Family Foundation partnership (Peterson-KFF), 95
Peterson-KFF. *See* Peter G. Peterson Foundation/Kaiser Family Foundation partnership
Pfizer, Inc., 357–358
Pharmaceutical Benefits scheme (Australia), 89
pharmaceutical corruption, 104
pharmaceuticals, 357
PHE. *See* Public Health Emergency
philanthropy, 102, 357
pie chart, 255, 256, 281
plan–do–check–act (PDCA), 224–225, 326, 388
plan–do–study–act (PDSA). *See* plan–do–check–act (PDCA)
planned absences, 132, 144

planning phase, project, 319, 322–323, 333
  cost of quality, 323–324
  mapping, 322
  organizational culture, 324
  project readiness, 324–325
  risk management, 325–326
PMI. *See* Project Management Institute
point-of-service (POS), 156
population health, 50, 68–69, 99, 248, 346
POS. *See* point-of-service
position control, 134–142, 137–140
  and nurse staffing, 136, 141–142
Position Statement on the Practice Doctorate in Nursing (AACN), 345
positive variance, 211–212
postacute settings, 161–163
poverty thresholds, 28
power/interest grid, 327–329
PPHCE. *See* Paycheck Protection Program and Health Care Enhancement Act (2020)
PPOs. *See* preferred provider organizations
PPS. *See* prospective payment system
PQIs. *See* Prevention Quality Indicators
practical significance, 266
practice management, 225
pre-paid health insurance, 26
preapproval (health insurance), 29
predictive analytics, 284–285, 472
preferences, 2–3
preferred provider organizations (PPOs), 28
premium, insurance, 29
present value (PV), 189, 190
Press Ganey, 252
pretax, 207
preventative medicine, 95
Preventing Medication Errors report, 226
Prevention Quality Indicators (PQIs), 237–238
primary nursing model, 454
principal investigator, 366
principled negotiation, 333
private foundation grants, 351–353
private health insurance, 15, 18, 28, 29, 89, 90, 91, 92, 93, 94, 446
private industry grants, 357–359
PRO. *See* patient-reported outcome measures
pro forma balance sheet, 214–217
pro forma cash flow statement, 216–217
pro-forma income statements, 192, 193
Procedure Coding System (PCS), 33
product line budget. *See* service line budget
production costs, 4
production decisions, 4–6
production function, 4
productive cost, 124
productive hours. *See* total worked hours
productivity, 212, 233
  ambulatory care, 157–161
  keep it super simple (KISS), 149
  and quality of care, 243
  reports, 129
productivity credit, 113, 115–116
professional development, 179, 286, 408–409
professional dyad partnerships, 398–399
professional grant writer, 367
professional organization grants, 353
professional presence, 408
professionalism, 51, 222, 249, 311, 312, 406–407, 449
profit and loss statement (P&L), 200, 205–207, 213, 252
profit margin, 162
profit sharing. *See* gains sharing
profitability ratios, 208
progress reports, 188
project charter, 319
project evaluation and review technique (PERT), 330–331
project management, 317, 339–340
  agile, 335, 336
  analysis/design phase, 319–322
  concluding phase, 319, 335–336
  DNP as project manager, 318–319
  implementation phase, 319, 327–335, 336
  planning phase, 319, 322–326, 333
  sociocultural side of, 318
  spread, 337–339
  structure, 322
  technical side of, 318
  traditional, 335–336
Project Management Institute (PMI), 317
project management plan, 319
project manager (grant writing), 367
Project Plan 365 Online, 363
project scope statement, 319
project team, 321, 322, 327
  conflicts, 331, 332
  dynamics of, 331–333
  five-stage model of group development, 332
  group process, 331
  groupthink, 332
project valuation analysis, 192, 194
project(s)
  crash time, 331
  definition of, 317–318
  design, 336–337
  duration, changes in, 331
  executive summary, 335
  grant project planning/execution, 366–368
  readiness, 324–325
  selection of, 322
  sustainability, 336–337

PROMIS. *See* Patient-Reported Outcomes Measurement Information System
property and equipment. *See* fixed assets
prospective payment system (PPS), 26, 33, 62, 63, 66
provider-sponsored health plans (PSHPs), 40
PSAs. *See* patient safety attendants
PSHPs. *See* provider-sponsored health plans
PSIs. *See* Patient Safety Indicators
psychological safety, 334, 398
PT. *See* part-time staff; pessimistic time
PTO. *See* paid time off
Public Health Emergency (PHE), 61, 62
PV. *See* present value

QALYs. *See* quality-adjusted life years
QHS. *See* Queen's Health System
QPP. *See* Quality Payment Program
qualitative data, 272
quality-adjusted life years (QALYs), 234, 235
quality of care, 46, 51, 69, 221–223, 248, 252, 306, 346, 447, 467–468. *See also* patient safety
  business case, 243
  cost-effectiveness of care, evaluation of, 241–243
  cost of quality, 226–227, 323–324
  definition of, 221, 223, 244
  economics/finance principles, 226–231
  evidence-based practice, 310
  healthcare quality/finance concepts, 231–236
  healthcare quality/value organizations, 236–243
  high, maintaining, 451
  Magnet® model, 243
  outcomes, and healthcare spending, 95–96
  pay-for-performance, 226
  plan–do–check–act (PDCA), 224–225
  practice management, 225
  and productivity, 23
  structure–process–outcomes framework, 222–224
  value-based purchasing, 226–231
  What's in it for Me? (WIIFM), 225, 243
Quality Payment Program (QPP), 19, 228, 229
QualityNet, 238
quantitative data, 272
Queen's Health System (QHS), 432, 433
QueensCare, 353
quick ratio, 209

Ramsay Health Care Limited, 100
range, 259
range of staffing elasticity, 145
rankings, 253
ratio analysis, 208
ratio data, 253, 263
RBS. *See* risk breakdown structure
reasonable person standard, 298
referrals, 159, 160
reflection, 179, 299, 323, 335
refresher, 457
registered nurses (RNs), 112, 295, 452
  direct RN percentage, 127, 128
  indirect, 128
  and LPN/LVNs, 145
  perioperative training courses for, 429–431
  RN to patient ratios, 111, 115, 127, 128, 145
  shortage of, 11
  workforce, 447
regular overtime, 148
rehabilitation at home model. *See* SNF at Home model
reimbursement, 25–26, 244. *See also* billing
  AACN essentials related to, 26–27
  to APRNs, 44, 60
  CARES Act (2020), 444
  clinical outcomes domain, 38
  during COVID pandemic, 45
  current issues and trends, 44–45
  diagnosis related group-based, 33–34, 37, 212–213
  economic macrosystem, 30, 31
  efficiency and cost domain, 39
  general trends and issues, 45–46
  Hospital Acquired Conditions Reduction Program, 35–37
  Hospital Readmissions Reduction Program, 35
  Hospital Value-Based Purchasing program, 35
  models, 32–37
  Nation's Health Dollar calendar, 30–31
  for never events, 37
  in nonacute care settings, 42–43
  to nurse practitioners, 60–61
  optimization and calculation of, 37–39
  patient safety domain, 38
  payer mix, 43–44, 67
  person and community engagement domain, 38–39
  political and economic environment, 46–48
  politics regarding, 71
  PPHCE Act, 444
  revenue cycle, 44
  role of DNP related to, 48–50
  for SNFs, 162
  value-based payment, 34–35, 39–41
relationship management, 408
relative frequency, 254

reliability, data, 251, 272
remote monitoring technology, 459
remote work, 459
RePORT (Research Portfolio OnLine Reporting Tools), 351
research. *See also* grant writing
  building nursing research capacity, 431–433
  institutional, 176
  proposals, 348
  translation into practice, 431–433
research assistants, 367
research grants, 356–357
responsibility chart, 325
retired nurses, 455
return on assets, 209–210
return on investment (ROI), 322, 386, 390–391, 435
revenue, 160
  expense and revenue relationship, 112, 117
  forecasts, 112
  gross, 206, 208
  inpatient, 155
  marginal, 4–6
  net revenue percentage, 207
  operating, 206
revenue cycle, 44
review of assignments, 458
review of contracts, 451
Rewarding Provider Performance: Aligning Incentives in Medicare report, 226
risk-adjusted net present value, 189
risk adjustment, 235–236
risk breakdown structure (RBS), 331
risk control, 381
risk financing, 381
risk management, 325–326
risk priority number (RPN), 326
risk taking, and entrepreneurship, 381
risk–benefit analysis, 236
RNs. *See* registered nurses (RNs)
Robert Wood Johnson Foundation, 240, 352
ROI. *See* return on investment
role alignment, 175, 179
Roosevelt, Eleanor, 304
Roosevelt, Franklin Delano, 304
rotating shifts, 143
routine services, 206
RPN. *See* risk priority number
rural settings, academic-practice partnerships at, 433, 435

safety education, 387, 391
salary, 206, 233. *See also* wages
  disparities, 98
  structure, of nurse practitioners, 71
Sanford World Clinics, 100
Saudi Arabia, overall financial spending of, 79
scatter chart, 275–276
scatter plots. *See* scatter chart
scenario planning, 404–405
schedule request, 144
schedule/scheduling, 111, 118, 130–131, 386, 388, 469, 472
  accountability, 130–131
  4- to 6-week budget plan, 132–133
  leakage, 135, 148
  models, 132
  nurse leader hours spent on, 142–143
  and patient outcomes, 131
  position control, 134–142
  principles, 131–132
  project, 323
  requirements, 134, 136
    translating FTEs into, 133
  schedule holes, 132
  scheduling order, 143–144
  20–80 rule, 143
scholarship for nursing practice, 50, 248, 431
School of Nursing and Dental Hygiene (SONDH), University of Hawaii at Manoa, 432, 433
Science of Improvement: Tips for Setting Aims, 321
SCLC. *See* Smoking Cessation Leadership Center, University of California
scrum, 336
search engines, grant, 350
SEC. *See* U.S. Securities and Exchange Commission
Second Bill of Rights (1944), 304
secondary workload, 113
Seeding Progress and Resources for the Cancer Community (SPARC): Metastatic Breast Cancer Challenge, 357–358
self-actualizing individuals, 174
self-assessment by employees, 179
self-awareness, 408, 409
self-determination, right to, 298, 300
self-governance organizational models, 185
self-interest, 357
self-management, 408
self-reflection, 51, 70, 184, 185, 299
service line budget, 162
SGR. *See* sustainable growth rate
shadowing experience, 457
shared risk, 40, 45
Shared Savings program, 40
"shared visit" rule, 63
Shewhart chart. *See* control chart
Shewhart cycle. *See* plan–do–check–act (PDCA)

shifts of convenience, 133
shifts of need, 133
short-term budget, 145
Sigma Theta Tau International (STTI), 353
Silver, Henry, 60
simulation, 380
SIP. *See* strategic initiatives plan
Sistema Único de Saúde (*SUS*), Brazil, 89
site-of-service migration, 155
situational awareness, 452
skill mix, 116, 118, 124, 126, 127, 134, 447
skilled nursing facilities (SNFs), 60, 63, 161–163
Skilled Nursing Facility Value-Based Program (SNFVBP), 227
skills, 2, 10, 345, 347. *See also* grant writing
  business skills, 66, 384, 450
  communication, 195, 320, 326, 327, 335
  critical thinking, 348, 406
  data analysis, 249
  interpersonal, 317, 318, 332
  necessary for innovators, 378–379
  negotiating, 333
  New Future, 412
  passion skills, 179, 185
  training, 455
  upskilling, 455
SMART goals, 320–321
Smoking Cessation Leadership Center (SCLC), University of California, 358
snapshot review, 186
SNF at Home model, 161–163
SNFs. *See* skilled nursing facilities
SNFVBP. *See* Skilled Nursing Facility Value-Based Program
social awareness, 408
social media grant giving, 358
solvency ratios, 208
SONDH. *See* School of Nursing and Dental Hygiene, University of Hawaii at Manoa
South Africa, healthcare model of, 92–93
SPARC. *See* Seeding Progress and Resources for the Cancer Community: Metastatic Breast Cancer Challenge
special purpose budget, 163
special-purpose foundations, 352
split shifts, 131
spread, 337–338
  foundation, laying, 338
  plan
    development of, 338–339
    refining, 339
spread leader, 338
staff dissatisfaction, 111, 116
staff feedback, 176
staffing, 11, 469, 470
  annual staffing budget basic formulas, 120–123
  appropriate, 455
  based on surge capacity, 456, 457, 458
  central staffing office, 132
  clerical, 158–159, 160
  creative, 453–455
  during crises, 453–459
  daily, 145
  models, 117, 132, 454
  nurse leader hours spent on, 142–143
  and position control, 136, 141–142
  range of staffing elasticity, 145
  regulations, 11
  requirements, calculation of, 114–115
  shortages, 446–447, 450
  supplemental, 136, 141
  temporary staffing plans, 455–459
  understaffing, 98
  unit staffing budget, 117–118, 126–130
stakeholder analysis, 329
stakeholder map, 328
standard deviation, 261–262, 273
standard orientation checklist, 456
Stark law, 63
State Children's Health Insurance Program, 15, 17
state governments. *See also* Medicaid
  health financing, 31
  health insurance, 29
  regulations, and ethics, 300–301
  regulations, and health reforms, 19–20
statement of cash flows. *See* cash flow statement
statement of comprehensive income. *See* profit and loss statement (P&L)
statement of financial position. *See* balance sheet
statistical significance, 266
statistician, 367
statistics, 247, 249. *See also* data analysis
Stony Brook University, School of Nursing, 428–429
storytelling, 287, 449
straight-line method, 204
strategic fit, 194
strategic initiatives, 176, 177, 178
  substrategies for, 177, 178
strategic initiatives plan (SIP), 176
strategic thinking, 450
strategy
  competencies and tools, 404–405
  definition of, 170
  director of strategy, 171, 174, 188
  and innovation, integration of, 402, 404, 405

people strategy, 178, 450
strategy committee, 171, 188
strategy execution and monitoring, 182
accountabilities, 182, 184
achievement recognition programs, 184
communication, 185–186
incentives, 182–184
monitoring and close-the-loop tools, 186–188
performance management, 184–185
personal dashboards, 186, 187
snapshot review, 186
tactical reviews and progress reports, 188
strategy formulation, 171
developmental alignment, 175, 180
employee alignment, 174–175, 178–180
environmental evaluation, 176
mission, 172, 174, 175
mission effectiveness plan, 175–176
organizational alignment, 175, 178–179
people outcomes and people strategy, 178
role alignment, 175, 179
strategic initiatives plan, 176
SWOT analysis, 177
values, 172–174, 175
vision, 171, 174, 175
strategy operationalization, 180
budgeting, 181
tactical planning, 180–181
structure–process–outcomes framework, 222–224
STTI. *See* Sigma Theta Tau International
suicide rate, 84
sunk costs, 190
superior scenario planning, 404
supplemental full-time equivalents, 118
supplemental staffing, 136
total central float or resource pool commitment goals for, 141
total unit and/or service line commitment goals for, 141
supply chain management, 158, 160, 450–451, 452
support staff, 67, 68
surprise billing, 446
SUS. See Sistema Único de Saúde, Brazil
sustainability, project, 336
external factors, 337
organizational factors, 337
project design, 336–337
sustainable growth rate (SGR), 228
SWOT (strengths, weaknesses, opportunities and threats) analysis, 161–162, 177, 334, 382, 385
systematic abandonment, 317
systems-based practice, 26, 51, 77, 222, 248, 402, 404, 467
systems theory, 321–322

tactical maps, 181, 188
tactical planning, 180–181, 188
tactical reviews, 188
tail coverage, 71
talent optimization, 178, 180
tangible assets, 201, 204
target budget, 212
team nursing model, 454
teamwork, 112
technology, 285–286, 459, 468, 469. *See also* big data; data analysis
DRG-based reimbursement, 34
informatics, 51, 222, 271, 285–286, 287
information and communication technologies, 51, 222, 321, 327, 346, 452–453, 468
and nursing, 286–287
and outpatient care, 155
use during crises, 452–453
use in workforce management, 470, 472
telehealth, 44, 459, 470
telemedicine, 156
temporary staffing plans, 455–459
terminal value, 194
therapeutic fibbing, 301
time value of money, 188
internal rate of return, 188, 191
net present value, 189–190
To Err Is Human: Building a Safer Health Care System, 221
Tom's Planner, 363, 366
total care model, 454
total direct worked hours/census (HPPD) or UOS, 130
Total HAC Score, 36
total hired full-time equivalents, 130
total indirect hours, 129–130
total margin, 209
total paid (annual) full-time equivalents, 130
total paid hours, 119, 123, 126
Total Performance Scores (TPS), 37–38, 39, 42
total worked dollars, 124
total worked (productive) full-time equivalents, 130
total worked hours, 119, 123, 126, 130
town hall meetings, 176
TPS. *See* Total Performance Scores
trade, occurrence of, 2
transdisciplinary leadership model, 399–401
transparency-in-coverage final rule, 67

Triple Aim, 46, 68, 236
Trump, Donald, 16, 18, 20
12-hour shifts, 132, 133
  total positions for, 137–140
20–80 rule, 143
24-hour budget, 111, 145
2020 Consent Manual (California Hospital Association), 299

U.A.E.
  Cleveland Clinic in, 100
  overall financial spending of, 78, 79
  pay disparities in, 98
UICC. *See* Union for International Cancer Control
UKCON. *See* University of Kentucky College of Nursing
UM UCH. *See* University of Maryland Upper Chesapeake Medical System
UMSON. *See* University of Maryland School of Nursing
uncertainty, 12, 27, 449
undernourishment, 85
Uniform Code of Pharmaceutical Marketing Practices, 104
Unihealth Foundation, 353
Union for International Cancer Control (UICC), 357
unit staffing budget, 117–118, 126–130, 134
United Kingdom
  care experience in, 97
  Cleveland Clinic London, 100
  falls in hospitals, 98
  healthcare-associated infections in, 97
  healthcare model of, 93
  nurse-to-patient ratios in, 98
  Wellcome Trust, 102
United Nations, 304
United States
  access to health services, 304
  Bill and Melinda Gates Foundation, 102, 351, 352
  falls in hospitals, 97
  health insurance system of, 304, 465
  healthcare model of, 93–94
    international business, 98–102
  healthcare spending of, 13–14, 15, 16, 17, 25, 30, 32, 45, 78, 105, 446
  healthcare worker shortage in, 447
  natural disasters in, 442
  nurse-to-patient ratios in, 97
  Open Philanthropy Project, 102
  overall financial spending of, 78
  quality/safety outcomes in, 95–96
United Way, 351
UnitedHealth Group, 100
units of service (UOS), 111, 112–114, 123, 124
Universal Declaration of Human Rights, 304
Universal Health Services, 100
universal healthcare, 92, 304, 305
University of Alabama at Birmingham, 424, 426, 427
University of Hawaii at Manoa, 432, 433
University of Kentucky College of Nursing (UKCON), 421–422
University of Maryland School of Nursing (UMSON), 433, 435
University of Maryland Upper Chesapeake Medical System (UM UCH), 433, 435
University of Pittsburgh Medical Center (UPMC), 101–102
unplanned absences, 132, 144
UOS. *See* units of service
UPMC. *See* University of Pittsburgh Medical Center
upskilling, 455
Urban Employee Basic Medical Insurance (China), 91
U.S. Bureau of Labor Statistics, 28
U.S. Department of Health and Human Services (DHHS), 31, 67, 237, 311
  Measurement Policy Council, 237
U.S. Securities and Exchange Commission (SEC), 200
useful life of asset, 204
utilitarianism, 300
utility, 2–3, 300
  marginal, 3, 4, 9
utilization review nurses, 311

VA. *See* Department of Veterans Affairs
vacation time, 136, 144
validity, data, 251, 272
Valley Memorial Health System, 448
valuation analysis, 192, 194
value-based purchasing (VBP), 18, 19, 33, 34–35, 39–41, 226–231
Value Driven Outcomes framework, 46
Value Modifier (VM) program, 227
values, organizational, 172–174, 175
values statements, 172–174
VANA. *See* Veterans Administration Nursing Academy
VANAP—GE. *See* Veterans Affairs Nursing Academic Partnership—Graduate Education
Vanderbilt University School of Nursing, 171, 172, 173–174

variable budgeting, 117, 123
variable costs, 451
variable hours. *See* direct care worked hours
variable staffing plan (VSP), 111, 145, 146–147
variance, 211–213
variation (data analysis), 259, 261, 282
VBP. *See* value-based purchasing
veracity, 298, 299, 301–302
Veterans Administration Nursing Academy (VANA), 423–426
  partnerships
    additions to, 425
    goals of, 424
  program goals, 424
  successes and challenges, 425–426
Veterans Affairs Nursing Academic Partnership—Graduate Education (VANAP—GE), 426, 427
Vida Sana QUITS (QUality Interventions to Transition Smokers) project, 364–365
Virtual Nurse (VN), 459
vision, 171, 174, 175, 319, 467
vision statement, 171
visual cue, 455
visual representations of data, 255–267
VM. *See* Value Modifier program
VN. *See* Virtual Nurse
Voice Over Internet Protocol (VoIP), 459
VoIP. *See* Voice Over Internet Protocol
volume forecasts, 112–114
VSP. *See* variable staffing plan

WACC. *See* weighted average cost of capital
wage index, 41
wages, 11, 117, 233
  and demand and supply relationships, 6–9
  disparities, 98
  inflation-adjusted, 11
  and market equilibrium, 6
  and number of buyers and sellers, 9
wait time, 158, 160
waste in healthcare, 103
WBS. *See* work breakdown structure
weighted average cost of capital (WACC), 191
"Welcome to the Unit" document, 456
Wellcome Trust, 102
What's in it for Me? (WIIFM), 225, 243
WHO. *See* World Health Organization
wicked problems, 432, 434
WIIFM. *See* What's in it for Me?
work breakdown structure (WBS), 325
work intensity, 114–117
workforce management. *See* staffing
workload units of service. *See* units of service (UOS)
World Bank, 94
World Health Organization (WHO), 66, 97, 445, 447
Writing Center, The (University of North Carolina, Chapel Hill), 359–360, 361–362

y-axis, manipulation of, 282–283
year-end bonuses, 182–184
year-to-date (YTD), 214
Yemen
  healthcare model of, 94
  overall financial spending of, 79
YTD. *See* year-to-date