



Government of the Republic Malawi

Ministry of Health

**CERTIFICATE IN COMMUNITY HEALTH
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Part 2: Semester 1 Block 2 Modules

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MODULE 7: COMMUNITY-BASED PRIMARY HEALTH CARE

Primary Health Care (PHC)

Primary Health Care is the first level of contact with the national health system that forms an integral part of the country's overall social and economic development. It is an approach that brings health care closer to where people live and work. This section discusses the historical background of the PHC concept, its principles as well as elements. It also highlights its relationship with the Essential Health Package and challenges associated with its implementation.



ACTIVITY

- Review the definition of Primary Health Care
- Identify the PHC priority health interventions

15.1.7 Definition of Primary health care (PHC)

- The World Health Organization (1978) defined PHC as "**essential health care** based on practical, **scientifically sound** and **socially acceptable** methods and **technology** made **universally accessible** to individuals and families in the **community** through their **full participation** and at a **cost** that the community and the country can **afford to maintain** at every stage of their development in the spirit of **self-reliance** and **self-determination**".
- In Malawi, PHC is an essential preventive, promotive and curative health care made available to all individuals and families in the community by means acceptable to them,

through their full participation and at a cost that the community and country could afford in a spirit of self-reliance and self-determination.

- It encompasses health promotion and disease prevention interventions, as well as curative services, particularly for the vulnerable groups living in rural and hard-to-reach areas.

15.1.8 Universal Health Coverage (UHC)

- Universal health coverage is defined as ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user the financial hardship (WHO, 2020).
- The World Bank (2016) define UHC as a situation where everyone – irrespective of their ability-to-pay – gets the health services they need in a timely fashion without suffering any undue financial hardship because of receiving the care.
- UHC ensures that people have access to needed health services without being pushed into poverty because of the cost of health care.
- Malawi is moving towards UHC through implementation of the essential health package, which Government and its development partners will endeavor to make accessible to every Malawian free at the point of care.
- The objectives of UHC is to ensure:
 - equity in access to health services: those who need the services should get them, not only those who can pay for them;
 - that the quality of health services is good enough to improve the health of those receiving services; and
 - Financial-risk protection: ensuring that the cost of using care does not put people at risk of financial hardship.
- Therefore, implementation of PHC entails provision of Universal Health Coverage (UHC) as stipulated in the international Sustainable Development Goals especially SDG 3.
- UHC addresses the aim of equity in access to good health for all to achieve sustained economic and social development and poverty reduction.

15.1.9 Historical background of PHC

- In the 1960s the focus of the health system globally was on curative services where most governments placed much emphasis on disease treatment.
- Later on, efforts were made to introduce basic health services in order to bring adequate health care closer to consumers/users.
- In 1977, the PHC movement officially began when the 30th World Health Assembly adopted a resolution accepting the goal of attaining a level of health that permitted all citizens of the world to live socially and economically productive lives.
- In September 1978 at the international conference in Alma Ata (then Soviet Union), it was determined that this goal was to be met through PHC.
- Therefore, the concept of PHC was adopted with member states endorsing several declarations.
- The main aim of PHC was to move away the emphasis of health care from curative care to preventive care and reduce gross disparities in health noted among the poor and rich between countries.

15.1.10 PHC Declarations

The Alma-Ata Declaration of 1978

The Declaration of Alma-Ata is a set of statements that were adopted at the International Conference on Primary Health Care (PHC) in Alma-Ata, Kazakhstan (formerly Kazakh Soviet Socialist Republic) from 6–12 September 1978.

The landmark 1978 Declaration of Alma-Ata was the first time that world leaders committed to prioritize primary health care and a pivotal milestone for "*Health for All*."

The Alma-Ata Declaration emerged as a major milestone of the twentieth century in the field of public health as it identified primary health care as the key to the attainment of the goal of ***Health for All*** around the globe.

The following are excerpts from the Declaration:

- The Conference strongly reaffirms that health, which is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is

a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector.

- The existing gross inequality in the health status of the people, particularly between developed and developing countries as well as within countries, is politically, socially, and economically unacceptable and is, therefore, of common concern to all countries.
- The people have a right and duty to participate individually and collectively in the planning and implementation of their health care.
- Primary health care is essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family, and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first elements of a continuing health care process.
- An acceptable level of health for all the people of the world by the year 2000 can be attained through a fuller and better use of the world's resources, a considerable part of which is now spent on armaments and military conflicts.

Astana Declaration

The Global Conference in Astana was hosted by WHO, UNICEF and the Government of Kazakhstan from 25-26 October, 2018.

The Declaration of Astana reaffirms the historic 1978 Declaration of Alma-Ata, the first time world leaders committed to primary health care.

In pursuit of “Health for All” all World Health Organisation (WHO) member States reaffirmed the commitments expressed in the ambitious and visionary Declaration of Alma-Ata of 1978 and the 2030 Agenda for Sustainable Development.

Members unanimously endorsed pledges in four key areas:

- To make bold political choices for health across all sectors.
- To build sustainable primary health care;
- Empower individuals and communities; and
- Align stakeholder support to national policies, strategies and plans

Heads of State and Government, ministers and representatives of States and Governments, Malawi inclusive, participating in this Global Conference on Primary Health Care made the following Declaration:

- We strongly affirm our commitment to the fundamental right of every human being to the enjoyment of the highest attainable standard of health without distinction of any kind
- We are convinced that strengthening primary health care (PHC) is the most inclusive, effective and efficient approach to enhance people's physical and mental health, as well as social well-being, and that PHC is a cornerstone of a sustainable health system for universal health coverage (UHC) and health-related Sustainable Development Goals
- We acknowledge that in spite of remarkable progress over the last 40 years, people in all parts of the world still have unaddressed health needs
- We will continue to address the growing burden of non-communicable diseases, which lead to poor health and premature deaths due to tobacco use, the harmful use of alcohol, unhealthy lifestyles and behaviours, and insufficient physical activity and unhealthy diets. Promotive, preventive, curative, rehabilitative services and palliative care must be accessible to all.
- We reaffirm the primary role and responsibility of Governments at all levels in promoting and protecting the right of everyone to the enjoyment of the highest attainable standard of health
- PHC will be implemented in accordance with national legislation, contexts and priorities. We will strengthen health systems by investing in PHC

15.1.11History of PHC in Malawi

- Following the international conference, a national seminar for all ministries and non-governmental organisations was held in November, 1978 to brief them on the PHC concept.

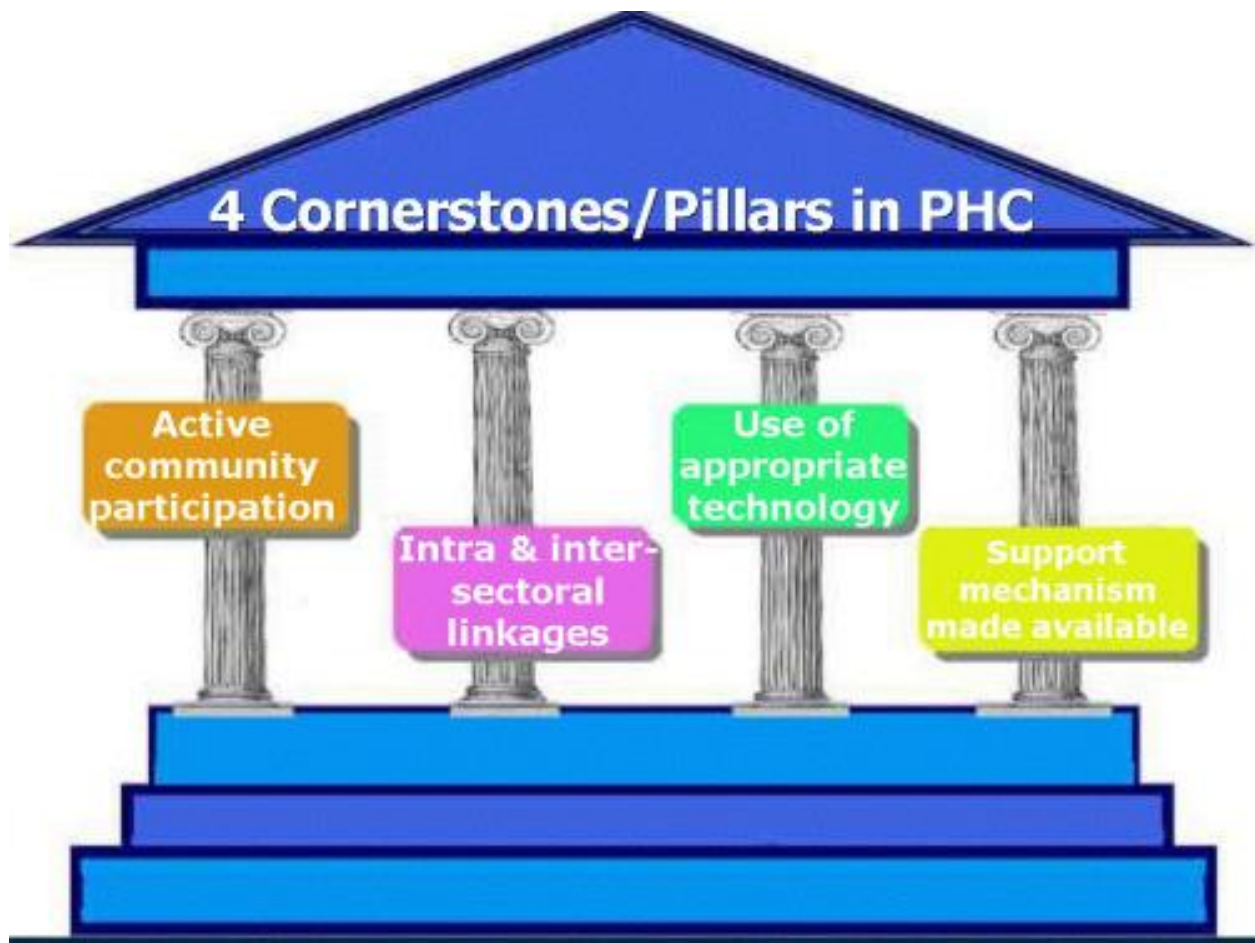
- The PHC concept was primarily implemented by community health workers who existed in Malawi since the 1970s as Cholera Assistants to help in prevention and control of cholera outbreaks.
- Later on, this cadre was changed into HSAs, with their job description mostly concerned with providing prevention and health promotion services.
- The MOH and CHAM adopted the 1978-1988 health plan with the PHC as an approach to improving the effectiveness and efficiency of existing services and programmes through community involvement.
- HSAs, who account for more than half of the Ministry of Health workers play a greater role in PHC activities since they provide essential preventive, promotive and curative health services to the majority Malawians who live in rural areas.
- This is why HSA's role has expanded beyond provision of preventive, family health, family planning and immunisation services to include running of the village clinics due to human resource constraints.

15.1.12 The six Principles/ Pillars of Primary Health Care of PHC

- These are cornerstones or conditions that must be observed in order to effectively plan, practice and carry out the basic health related activities in the community to motivate them to take up their roles.
- As summarised in Figure 1.1 these pillars include:
- **Equity:** This means that the basic essential services provided should be equally distributed among the community members
- **Multi-Sectoral Collaboration:** This principle encourages the involvement of other community based workers in carrying out health related community activities.
- **Appropriate Technology:** This principle looks at the provision of health services and implementation of activities using methods and materials that are locally available within the community.
- It promotes the concept of affordability, accessibility, sustainability and self-reliance.
- **Community participation/ Community involvement:** This means that the community should actively participate in identification, and prioritization of the problem areas, planning, implementation, monitoring and evaluation of the health interventions.

- This principle provides an opportunity to allow the communities own the services and health related activities.
- It also promotes the concept of sustainability, acceptability and self-determination.
- **Integration:** PHC should use an integrated approach of preventive, promotive, curative and rehabilitative services for the individual, family and the community.
- The focus of care should be on prevention rather than curative
- PHC activities should be fully integrated with the activities of other sectors involved in community development.
- **Referral system:** Each level of the system should know the limits of its competence and be able to refer matters/cases to the next level.

Figure 5.1 Pillars of Primary Health Care



15.1.13 Models of PHC

There are three models of implementing PHC, namely:

- Medical
- Selective
- Comprehensive

Comprehensive PHC

- The Alma Ata comprehensive PHC approach is a multi-disciplinary strategy for organising health care systems that aims at addressing social determinants of health to promote society's health
- The initial WHO 1978 vision of Primary Health Care (PHC) was comprehensive, viewing health services as part of a new international economic order that would benefit all nations,

especially low income and disadvantaged groups that would encourage democratic participation in health, and help improve social and economic wellbeing.

- Comprehensive PHC involves full participation and active involvement of the people starting from planning stage till the delivery of health service.
- Proponents of a comprehensive approach argue that it is needed to address the underlying causes of ill health and improve health outcomes sustainably.
- Thus, the 1978 adopted comprehensive PHC:
 - increased equity in access to health care
 - reduced vulnerabilities due to community empowerment
 - reduced exposure to risks by addressing social determinants of health
- Although the approach covers all elements of health, it is expensive to implement.

Figure...outlines advantages and disadvantages of comprehensive PHC approach.

Figure 5.2 Advantages and disadvantages of Comprehensive PHC

Comprehensive PHC	
<u>ADVANTAGES</u>	<u>DISADVANTAGES</u>
1. Looks at total health care	1. More costly to implement
2. Involvement of community	2. Takes long time to see impact
3. Covers all elements of PHC	3. Long time to process
4. Ensures equitable distribution of resources	4. Lack of specialized treatment
5. Facilitates effective referral system	5. Expensive
6. Government goal	6. <i>Inefficient referral system ???-- misuse</i>

Selective PHC

- There was some difficulty experienced in initiating comprehensive primary health care services, particularly in countries with authoritarian leadership.
- Critics of The Alma-Ata Declaration (comprehensive) PHC also argued that the declaration did not have clear targets, and that the slogan "Health for All by 2000" was not possible.
- It was argued that until comprehensive primary health care can be made available to all, services that are targeted to the most important diseases may be the most effective intervention for improving health of a population.
- Critics proposed a Selective PHC approach which presented the idea of obtaining low-cost solutions to very specific and common causes of death.

- Therefore, in 1979 (a year after Alma-Ata) a conference was held to specify the goals of PHC and to achieve more effective strategies.
- Selective PHC focused on diseases that have the:
 - highest prevalence and morbidity
 - highest risk of mortality
 - greatest possibility of control in terms of cost and effectiveness of the intervention
- These focus areas were known as GOBI (growth monitoring, oral rehydration treatment, breastfeeding, and immunization).
- Later the focus changed to GOBI-FFF (adding food supplementation, female literacy, and family planning).
- This selective approach was considered as being more feasible, measurable, rapid and less risky as it took away decision making and control away from the community
- The limitation of selective PHC are that it:
 - Misrepresents some core principles of the original declaration.
 - Is a restrictive approach to health?
 - does not contribute toward integral care (globality) and
 - does not address social determinants as a fundamental aspect of illness and thus essential to health care planning

Medical model PHC

- The model focuses on disease eradication through medical interventions by trained health personnel.
- It is very popular model which includes a set of procedures like patients' complaints, history, physical examination, ancillary tests if needed, diagnosis, and treatment.
- The physician is traditionally seen as the expert, and patients were expected to comply with the advice given.
- The model is well recognized and incorporated by the health services because of its benefits in providing relief from pain and treatment of various diseases that afflict humanity.
- Fertoni et al. (2015) pointed out the following limitations of the medical model PHC:
 - predominant interventions on the body, and on the affected part
 - the emphasis on curative action and on treatment of diseases, injuries and damage

- the emphasis on hospital care, with intensive use of the material technological apparatus
- little emphasis is placed on the analysis of the determining factors of the health-disease process
- the incapacity to understand the multi-dimensionality of the human being
- Table 5.1 summarises the characteristics of the 3 models of PHC

Table 5.1 Characteristics of PHC models

Models of primary health care

	Comprehensive	Selective	Medical model
View of health	Positive wellbeing	Absence of disease	Absence of Disease
Locus of control over health	Communities and individuals	Health professionals	Medical practitioners
Major focus	Health through equity and community development	Health through medical interventions	Disease eradication through medical interventions
Health care providers	Multidisciplinary teams	Doctors plus other health professionals	Doctors
Strategies for health	Multi-sectoral collaboration	Medical interventions	Medical interventions

Rogers W. & Veale, B. (2000).

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15.1.14 The 9 Elements of PHC

- Elements of PHC are functions or the essential health services that are designed to be provided to every community.

- Primary Health Care approach emphasizes the use of priority health interventions as an entry point to strengthen national health system in order to achieve the Sustainable Development Goals (SDGs).
- The Primary Health Care elements are as outlined in Box 1.1

Box 5.1: Elements of Primary Health Care

1. Health education for the identification and prevention/control of prevailing health problems
2. Promotion of maternal and child health services, including family planning
3. Child survival, growth and development
4. Expanded program on immunisation against most childhood diseases
5. Promotion of adequate food supply and proper nutrition
6. Provision of adequate supply of safe water and basic environmental sanitation
7. Appropriate treatment of common diseases and minor injuries using appropriate technology
8. Provision of essential basic medication
9. Prevention and control of locally endemic diseases
10. Promotion of mental health and prevention of mental disorders
11. Promotion of oral health care

15.1.15 Basic requirements for a sound PHC (8As and 3 Cs)

- **Appropriateness:** whether the service is needed at all in relation to essential human needs, priorities and policies.

- The service has to be properly selected and carried out by trained personnel in the proper way.
- **Adequacy:** The service proportionates to requirement; that is, sufficient volume of care to meet the need and demand of a community.
- **Affordability:** The cost should be within the means and resources of the individual and the country.
- **Accessibility:** Reachable, convenient services in terms of geographic, economic, and cultural accessibility
- **Acceptability:** Acceptability of care depends on a variety of factors, including satisfactory communication between health care providers and the patients, whether the patients trust this care, and whether the patients believe in the confidentiality and privacy of information shared with the providers
- **Availability:** Availability of medical care means that care can be obtained whenever people need it.
- **Assessability:** Assessability means that the health care can be readily evaluated.
- **Accountability:** Accountability implies the feasibility of regular review of financial records by certified public accountants.
- **Completeness:** Completeness of care requires adequate attention to all aspects of a health problem, including prevention, early detection, diagnosis, treatment, follow up measures, and rehabilitation.
- **Comprehensiveness:** Comprehensiveness of care means that care is provided for all types of health problems.
- **Continuity:** Continuity of care requires that the management of a patient's care over time be coordinated among providers.

Table 5. 2 Summary of Basic Requirements for Sound PHC (The 8 A's and the 3 C's)

Appropriateness	Assessability
Availability	Accountability
Adequacy	Completeness
Accessibility	Comprehensive
Acceptability	Continuity
Affordability	

15.1.16 Achievements of PHC in Malawi

- More people are made accessible to medical care at all levels.
- Makes use of unused resources and appreciate technology available to the community.
- Eradication of major preventable diseases such as polio.
- Reduced morbidity and mortality of communicable diseases such as measles and cholera.
- Increased coverage of immunization
- Improved collaboration with NGO and other stakeholders resulting in achievements, like food security.
- Establishment of community based organisation such as microcredits
- Availability of essential drugs at community level e.g. CIMCI and village clinics.
- Has contributed to addressing the majority of people's health needs across a lifetime using most cost-effective approaches
- Contributed to empower individuals and communities to respond to day-to-day needs and boosted resilience and response during crisis times.

15.1.17 Constraints of PHC in Malawi

- PHC is the most overlooked and under-resourced part of a country's health system resulting in:
 - Shortage of health personnel
 - Financial problems

- Inadequate transport to go around sensitising people in the community
- Lack of commitment by the government
- Selective approach in the implementation rather than comprehensive
- Increased disease burden- HIV and AIDS
- Emerging of new strains of disease- causing organisms such as SARS, Ebola, and COVID-19.
- Growing disparities between the rich and the poor.
- Other constraints include:
 - Weak health systems
 - Rising inequality
 - Ageing populations
 - The expanded toll of non-communicable diseases
 - The globalization of health threats
 - Increased pressures from urbanization
 - Rising health care costs

15.1.18 Recommendations for quality PHC

- Global health and development partners and donors should support and align with local and national policies and strategies to strengthen PHC and improve community-based care
- Governments must make bold policy choices and invest in PHC towards UHC
- Address the underlying determinants of health and enacting policies to leave no one behind
- Health professionals must advance quality, comprehensive, people-centered primary care that is core to integrated services for all people across the life course.
- Communities should take an active role in their health care and hold decision-makers accountable for results.

ACTIVITY 5.1



Outline the successes and shortfalls of Primary Health Care (PHC)

15.2 The Essential Health Package (EHP)

Essential Health Care Essential Health Package (EHP) is one of the approaches which is currently being utilized by the Malawi Health Sector in providing comprehensive health care. EHP is Malawi's brain child approach designed to promote bottom up approach in the implementation of health interventions. The strategy guides both planning and funding of health service delivery towards the local burden of disease and mortality. This section discusses the objectives as well as the intervention areas that EHP focuses on. In addition, challenges encountered in the implementation of the strategy are highlighted.

Activity 5.2



- Read Sections 1 and 2 of “Guidelines for Integrated Community Essential Health Package (EHP) Interventions”
- Discuss the roles and responsibilities of Community Health Workers on each community EHP intervention

15.2.7 The concept of Essential Health Package (EHP)

- EHP is a package of basic health care interventions that aims at addressing the leading causes of morbidity and mortality that mainly affect the poor and vulnerable sections of the society (Phiri, et al, 2006).
- Wright (2015) define an Essential Package of Health Services as the package of services that the government is providing or is aspiring to provide to its citizens in an equitable manner.
- The EHP is a strategic and cost-effective means to address key causes of morbidity and mortality in Malawi, and is based on the country's implementation of PHC strategy

- EHP consist of a cluster of cost-effective interventions delivered together in-order to reduce the total cost of the interventions by reducing the cost to patients as well as service providers (MOH, 2004).
- EHP comprises a set of evidence-based interventions accessible to all Malawians at the first level of contact for individuals, families and communities to address the 13 major causes of illness and mortality (Palmer, 2006).

15.2.8 Objectives of EHP

The aim of the EHP is to ensure timely universal free access to a quality Essential Health Package, irrespective of ability-to-pay, to all the people in Malawi.

Specifically, the EHP concept was developed in order to:

- Guide on EHP interventions that maximizes service benefits to the community.
- Categorize services into priority classes using relevant criteria
- Expand coverage for high-priority services to everyone
- Ensure that disadvantaged groups are not left behind with health service coverage
- Contribute to Reduction of Poverty
- Improve the Efficiency of Public Funded Health Delivery Institutions
- Improve Equity of Access to Health Services

15.2.9 The 4 levels of health delivery system for EHP

The EHP health services will be delivered at different levels, namely community, primary, secondary and tertiary. These different levels are linked to each other through a comprehensive referral system that has been established within the health system.

Community Level

- This level consists of community initiatives, health posts, dispensaries, and maternity facilities.
- Health services are provided by community-based cadres such as HSAs, community-based distributing agents (CBDAs), VHCs and other volunteers, mostly from NGOs.

- HSAs provide promotive and preventive health services including HIV testing and counseling (HTC) and provision of immunization services.
- Some HSAs have been trained and are involved in community case management of acute respiratory infections (ARIs), diarrhoea and pneumonia among children under five years of age.
- Services at this level are conducted through door-to-door visits, village clinics and mobile clinics.
- Community health nurses and other health cadres also provide health services through outreach programs.
- VHCs promote PHC activities through community participation and they work with HSAs on preventive and promotive health services such as hygiene and sanitation.

Health post

- Health posts are integrated community health service delivery structures which are staffed by HSAs and community health team members
- It serves 3-5 catchment areas in all hard-to-reach areas to increase access to comprehensive care for people who do not currently live within 8km of a health facility.
- These Health Posts should be built with local materials, where possible, to promote sustainability.

Health Center Level

- Health Centers support HSAs at primary level.
- Health Centers are responsible for providing both curative and preventive EHP services

Rural hospitals

- Above the health Centre, there are community hospitals, also known as rural hospitals.
- These provide both primary and secondary care, and each has an admission capacity of 200 to 250 beds.

District Hospital Level

- District hospitals and CHAM hospitals constitute the secondary level of health care and each district should have a district hospital.
- They are referral facilities for both health Centers and rural hospitals, and district hospitals have an admission capacity of 200 to 300 beds.
- They also deliver both inpatient and out-patient and general services
- District hospitals also provide in-service training for health personnel and other support to community-based health programs in the provision of EHP.

Tertiary level

- Complicated EHP cases will be referred from the secondary to tertiary levels as necessary.

15.2.10 Focus areas of Essential Health Package

- Table 5.3 below summarises the focus areas of Essential Health Package

Table 5.3 Focus areas of Essential Health Package

1.	HIV and AIDS Care and support, including Mother infant pair follow up, door-to-door HIV testing and counseling
2.	Screening for Sexually Transmitted Infections (STIs)
3.	Tuberculosis (TB) including sputum collection points
4.	Early Infant Diagnosis (EID)
5.	Promotion of optimal sanitation and hygiene
6.	Malaria prevention and control
7.	Community Case Management (CCM) which includes treatment of acute respiratory infections (ARIs), diarrhoea, and pneumonia and nutrition assessment among under five children
8.	Community-based Maternal and Newborn Health (CBMNH) focusing on antenatal and postnatal visits by HSAs
9.	Family Planning (FP)
10.	Child care including growth monitoring and promotion and Expanded Program on Immunization (EPI+)
11.	Promotion of optimal maternal, Infant and young child Nutrition

12. Community Based Management of Acute Malnutrition (CMAM)

15.2.11 Selected essential health interventions

In Malawi the focus of essential health interventions is on the following areas:

Family Health Interventions

- Family Planning
- Antenatal Care
- Care during Delivery
- Care after Delivery
- Immunizations
- Improving Nutrition
- Growth Monitoring
- Elimination of Harmful Reproductive Health Practices

Environmental health Interventions

- Vector and Vermin Control
- Water, Sanitation and Hygiene
- Food Hygiene practices

Common Community Diseases Interventions

- Prevention and Control of Common Community Diseases
- Provision of essential drugs for minor ailments

Community health interventions

- Promotion of Community Participation in Health Related activities
- Community Home Based Care

Table 5. 4 provides a detailed list of interventions in Essential Health Package, and the level where that intervention is provided.

Table 5.4 List of interventions in Essential Health Package

Category	Intervention Package	Intervention	Level of Care
RMNCH	ANC Package	Tetanus toxoid (pregnant women)	Community/Primary/Secondary
		Deworming (pregnant women)	Community/Primary/Secondary
		Daily iron and folic acid supplementation (pregnant women)	Community/Primary/Secondary
		Syphilis detection and treatment (pregnant women)	Community/Primary/Secondary
		IPT (pregnant women)	Community/Primary/Secondary
		ITN distribution to pregnant women	Community/Primary/Secondary
		Urinalysis (4 per pregnant woman)	Primary/Secondary
	Modern Family Planning	Injectable	Community/Primary/Secondary
		IUD	Primary/Secondary
		Implant	Primary/Secondary
		Pill	Community/Primary/Secondary
		Female sterilization	Secondary
		Male condom	Community/Primary/Secondary
	Delivery Package	Clean practices and immediate essential new-born care (in facility)	Primary/Secondary
		Active management of the 3rd stage of labour	Primary/Secondary
		Management of eclampsia/pre-eclampsia (Magnesium sulphate, Methyldopa, Nifedipine, Hydralazine)	Primary/Secondary
		Neonatal resuscitation (institutional)	Primary/Secondary
		Caesarean section with indication	Secondary
		Caesarean section with indication (with complication)	Secondary
		Vaginal delivery, skilled attendance (including complications)	Primary/Secondary
		Management of obstructed labour	Primary/Secondary
		Newborn sepsis - full supportive care	Primary/Secondary
		Newborn sepsis – injectable antibiotics	Primary/Secondary
		Antenatal corticosteroids for preterm labour	Primary/Secondary
		Maternal sepsis case management	Primary/Secondary
		Cord Care Using Chlorhexidine	Primary/Secondary
		Hysterectomy	Primary/Secondary
		Post-abortion case management	Secondary
		Treatment of antepartum haemorrhage	Primary/Secondary
		Treatment of postpartum haemorrhage	Secondary
		Antibiotics for pPROM	Primary/Secondary

List of interventions in Essential Health Package (continued)

Category	Intervention Package	Intervention	Level of Care
Vaccine Preventable diseases	Essential Vaccines Package	Rotavirus vaccine	Community/Primary/Secondary
		Measles Rubella vaccine	Community/Primary/Secondary
		Pneumococcal vaccine	Community/Primary/Secondary
		BCG vaccine	Community/Primary/Secondary
		Polio vaccine	Community/Primary/Secondary
		DPT-Heb-Hib / Pentavalent vaccine	Community/Primary/Secondary
		HPV vaccine	Community/Primary/Secondary
Malaria	First Line uncomplicated Malaria treatment	Uncomplicated (adult, <36 kg)	Community/Primary/Secondary
		Uncomplicated (adult, >36 kg)	Community/Primary/Secondary
		Uncomplicated (children, <15 kg)	Community/Primary/Secondary
		Uncomplicated (children, >15 kg)	Community/Primary/Secondary
	Complicated Malaria treatment	Complicated (adults, injectable artesunate)	Primary/Secondary
		Complicated (children, injectable artesunate)	Primary/Secondary
	Malaria Diagnosis	RDTs	Community/Primary/Secondary
Integrated management of childhood illnesses (IMCI)	ARIs	Pneumonia treatment (children)	Community/Primary/Secondary
		Treatment of severe pneumonia (Oxygen)	Primary/Secondary
	Diarrhoeal Disease	ORS	Community/Primary/Secondary
		Zinc	Community/Primary/Secondary
		Treatment of severe diarrhoea (IV Fluids)	Primary/Secondary
	Nutrition	Community management of nutrition in under-5 - Plumpy Peanut	Community/Primary
		Community management of nutrition in under-5 - micronutrient powder	Community/Primary
		Community management of nutrition in under-5 - vitamin A	Community/Primary
	Malaria Diagnosis		Community/Primary
		RDTs for under-5	
Community Health	Community Health Package	Growth Monitoring	Community/Primary
		Vermin and Vector Control & Promotion	Community/Primary
		Disease Surveillance	Community/Primary
		Community Health Promotion & Engagement	Community/Primary
		Village Inspections	Community/Primary
		Promotion of hygiene (hand washing with soap)	Community/Primary
		Promotion of Sanitation (latrine refuse, drop hole covers, solid waste disposal, hygienic disposal of children's stools)	Community/Primary
		Occupational Health Promotion	Community/Primary
		Household water quality testing and treatment	Community/Primary

List of interventions in Essential Health Package (continued)

Category	Intervention Package	Intervention	Level of Care
		Home-based care of chronically ill patients	Community/Primary
		Child Protection	Community/Primary
NTDs	Treatment and MDA	Schistosomiasis mass drug administration	Community/Primary
		Case finding and treatment of Trypanosomiasis	Primary
		Trachoma mass drug administration	Community/Primary
HIV/AIDS	HIV Prevention	Cotrimoxazole for children	Community/Primary/Secondary
		PMTCT	Community/Primary/Secondary
	HIV Testing	HIV Testing Services (HTS)	Community/Primary/Secondary
	HIV Treatment	HIV Treatment for all ages – ART & Viral Load	Community/Primary/Secondary
Nutrition		Vitamin A supplementation in pregnant women	Community/Primary/Secondary
		Management of severe malnutrition (children)	Community/Primary/Secondary
		Deworming (children)	Community/Primary/Secondary
		Vitamin A supplementation in infants and children 6-59 months	Community/Primary/Secondary
TB		Isonized Preventive Therapy for children in contact with TB patients	Primary/Secondary
		First line treatment for new TB Cases for adults	Primary/Secondary
		First line treatment for retreatment TB Cases for adults	Primary/Secondary
		First line treatment for new TB Cases for children	Community/Primary/Secondary
		First line treatment for retreatment TB Cases for children	Community/Primary/Secondary
		Case management of MDR cases	Primary/Secondary
	TB Testing	LED test	Primary/Secondary
		Xpert test	Primary/Secondary
		MGIT test	Primary/Secondary
		LJ test	Primary/Secondary
NCDs		Treatment of Injuries	Primary/Secondary
	Mental Health treatment	Basic psychosocial support, advice, and follow-up	Community/Primary/Secondary
		Anti-epileptic medication	Community/Primary/Secondary
		Treatment of depression (first line)	Community/Primary/Secondary
		Testing of pre-cancerous cells (vinegar)	Primary/Secondary
	Diabetes treatment	Diabetes Type I	Primary/Secondary
		Diabetes Type II	Primary/Secondary
		Hypertension	Primary/Secondary

List of interventions in Essential Health Package (continued)

Category	Intervention Package	Intervention	Level of Care
Oral Health	Tooth pain treatment	Management of severe tooth pain, tooth extraction	Primary/Secondary
		Management of mild tooth pain, tooth filling	Primary/Secondary

Source: Government of the Republic of Malawi (2017). Health Sector Strategic Plan 2017-2022, pp. 36-39

15.2.12 Challenges in implementing EHP

Inadequate resources:

- Available EHP budget not matching with planned activities.
- Financing and payment is not linked to EHP interventions

Lack of awareness about EHP among stakeholders

- Only 33% of managers for health centres knew about existence of the EHP.
- This does not encourage EHP strategy promotion and implementation.

Lack of EHP policy enforcement

- EHP policy has lacked the enforcement necessary to translate the policy decisions into implementation.
- This constrains delivery of the EHP.

Inequalities in EHP utilization

- While the EHP is theoretically available to all Malawians free at the point of access, there remain large variations in its utilization.
- Rural, uneducated and poor populations continue to underutilize health care services.

Linking health systems inputs to EHP provision

- Health systems inputs and standards do not explicitly link to the EHP.

15.3Community Health

Community health is essential to improving health and livelihoods in Malawi. Community health activities have contributed to historical improvements in Malawi's health outcomes, especially for women and children, such as the decline in child mortality and malaria fatality rates. Going forward, community health will help Malawi to achieve its commitment to the Sustainable Development Goals (SDG); in particular, SDG 3 on universal health coverage. Therefore, building a strong community health system is core to Malawi's development agenda, to which the HAS is instrumental. This section discusses the components and key interventions in community health.

15.3.7 Definition of community

- Allender (2015) define the term community as a collection of people who interact with one another and whose common interests or characteristics form the basis for a sense of unity or belonging.
- A community can be a society sharing the same geographic area, common interests, and health problems or solutions.

15.3.8 Definition of Community Health

- Community health refers to basic preventive, promotive, curative, and rehabilitative health services delivered at the community level with participation and ownership of rural and urban communities.
- This package of services consists of the community components of Malawi's Essential Health Package.

15.3.9 Community Health Package

Community Essential Health Package

- Community Essential Health Package as outlined in HSSP 2011-2016 comprises a set of evidence-based interventions in malaria; maternal and newborn care; child health; family planning; nutrition; HIV/AIDS; TB; and Water and Sanitation that are delivered at primary health care level.
- The core components of community EHP focuses on preventive, promotive, curative and rehabilitative services.

15.3.10High impact C-EHP interventions

- The community Essential Health Package of high impact interventions is a basket of integrated EHP services that should be delivered to people at community level.

- Delivery of high impact EHP interventions as an integrated whole is promoted, rather than individual service or only through vertical programs.
- The interventions should be available to all, even to those living in remote and underserved areas.
- The EHP is a strategic and cost-effective means to address key causes of morbidity and mortality in Malawi
- The Ministry of Health and its implementing partners have identified the components of a “Community Essential Health Package” (C-EHP), with emphasis that they are:
 - of greatest impact on community’s major health problems;
 - Cost-effective, so that they could be delivered to give equal access to all target populations.
 - Delivered by community health workers with HSAs as front line health workers.

15.3.11 Priority C-EHP interventions

The following are the priority EHP interventions:

- Community Based Maternal and newborn care (CBMNC)
- Child Health
- Nutrition
- Family Planning (FP)
- HIV Counseling and Testing (HCT)
- HIV Care for Child
- TB case finding and treatment
- Water, Sanitation and hygiene (WASH)
- Malaria

15.3.12 EHP delivered at community level

The following services are delivered at community level:

Promotive activities include:

- Community mobilization for health activities
- Information, Education and Communication including Behaviour change communication

- Environmental management
- Water and Sanitation services
- Nutrition
- Distribution of Insecticide Treated Nets

Preventive measures include:

- Health Immunization of children under one year of age
- Provision of basic Antenatal Clinic services
- Family Planning
- Growth monitoring
- Educating the community on the importance of Intermittent Preventive Treatment in pregnancy
- Re-treatment of bed nets
- Creating awareness among the communities on Safe motherhood

Curative activities include:

- Basic diagnosis of minor ailments
- Home treatment of minor ailments
- Provision of presumptive treatments with SP to pregnant women
- Overseeing community based care services e.g. Directly Observed Treatments
- Treating some opportunistic infections and palliative care of HIV and AIDS patients
- Mass treatment where indicated

Rehabilitative activities:

- Home-based care of chronically ill patients
- Patients and clients follow-up

15.3.13 Roles and responsibilities of HSAs on each community EHP intervention

- The HSA should provide whole community high impact EHP intervention with support from various cadres and stakeholders in a manner that maximizes service benefits to the community.
- These roles under each priority EHP interventions include:

15.3.13.1 Community Based Maternal and Newborn Care

- Conduct three visits to pregnant women during ANC:
 - The first visit should be as soon as the pregnancy is confirmed (when the woman misses at least 2-3 periods).
 - The 2nd visit should be between 4th to 6th month
 - Make a third visit during the 7th to 9th month of pregnancy
- Provide health education and counsel the pregnant woman on the importance of attending ANC (including early start of ANC and attending 4 visits), identification of danger signs, maternal nutrition and infant feeding and birth preparedness messages, malaria prevention and control, PMTCT (available services and where to get them) and conducts HTC
- Conduct follow up on low birth weight neonates
- Visit postnatal women and their newborns three times (Days 1, 3 and 8) to provide essential newborn care.
- Visit mothers with pre-term babies and encourage Community KMC
- Provide Health Education and counsel the mother and family on:
 - Importance of KMC for preterm babies and how to do it
 - Exclusive Breastfeeding and lactation management e.g. (Correct positioning and attachment of the newborn to the breast, prevention and management of breast conditions and breastfeeding problems, how to ensure adequate milk supply in the breast)
 - Maternal nutrition during lactation
 - Maternal and Newborn danger signs and what to do
 - Importance and schedule for Immunizations and Growth monitoring and promotion
 - Sleeping under long lasting insecticide treated net (LLIN)
 - Infection prevention practices (including hand washing, general home care)
- Conducts checks for:
 - correct positioning and attachment of the baby to the breast, breast conditions, breastfeeding problems and counsel accordingly
 - maternal danger signs and refer clients with danger signs to health facility

- newborn danger signs
- Identifies and follow up HIV-exposed newborns
- Counsels on family planning and dispense appropriate methods to mother if wanted or refer
- Refers to health facility clients with danger signs or FP complications
- Provides Vitamin A supplementation to the mother immediately after delivery or within 8-weeks post-partum
- Provides ongoing care for mother and baby
- Observes Infection Prevention practices
- Conducts maternal death autopsies

15.3.13.2 Child Health

- Conduct growth monitoring
- Provide health education on child care
- Counsel the caregiver on Infant and young child feeding
- Provide immunization
- Deworm children 12-59 months and provide Vitamin A supplementation to children 6-59 months every 6 months.
- Conduct Integrated Community Case Management according to community IMCI guidelines

15.3.13.3 Nutrition

- Promote maternal, infant and young child feeding.
- Promote micronutrient supplementation to eligible clients, consumption of micronutrient rich food, and use of fortified foods e.g. iodized salt and fortified sugar and Likuni Phala
- Provide de-worming tablets according to protocols
- Promote dietary diversification and modification based on the six food groups for Malawi.
- Identify children with acute malnutrition and manage accordingly (CMAM).
- Conduct nutrition assessment, interpretation and case management or refer
- Promote optimal practices for improving nutrition for pregnant, lactating women and People Living with HIV (PLHIV).

15.3.13.4 Family Planning

- Provide information, education, counseling on Family Planning methods
- Provide selected family planning contraceptives to eligible clients (Oral pills, condoms and injectables according to protocols)
- Facilitate establishment of community youth centers and youth clubs
- Provide youth friendly services.
- Supervise provision of door to door counseling and selected contraceptives by CBDAs
- Refer clients for emergency contraception and long term contraceptive methods to the nearest health facility (Implants, IUCD, Tubal Ligation, Vasectomy)

15.3.13.5 HIV Testing and Counseling (HTC)

HIV care for adults and youths

- Provide information, education, counseling and testing on HIV/AIDS including VMMC
- Provide door to door HTC with opt out
- Establish and follow up Mother to mother support groups
- Establish community youth centers and youth clubs according to guidelines
- Provide youth friendly services and STIs screening.

HIV Care for Child

- Identify HIV exposed infants (EID) and link them to other services like HTC.
- Refer client for DBS collection at health center for investigations and provide feedback
- Provide CPT for exposed infants
- Follow-up HIV exposed infants

15.3.13.6 TB Case Finding and treatment

- Provide health education on TB (transmission, treatment adherence, infection control, relation of TB and HIV)
- Conduct screening for TB including sputum collection
- Provide TB treatment under observation (DOT) for both drug susceptible and MDRTB
- Conduct defaulter tracing and refer
- Conduct contact tracing and refer for further investigation and proper management
- Facilitate establishment of sputum collection points according to guidelines.
- Supervise transportation of sputum from community to health facility
- Maintain records and report accordingly

15.3.13.7 Water, Sanitation and hygiene (WASH)

- Provide health education on personal, food, water and environmental hygiene
- Promote household water treatment and safe storage (HWTS)
- Promote use of two-cup system when using water at household level
- Prepare and distribute 1% stock solution of chlorine-based products
- Inspect water points for maintenance of sanitation and hygiene
- Mobilize household to construct and use toilets/pit latrine
- Promote open defecation free communities (ODF)
- Promote hand washing practices with soap at critical occasions and times (after visiting the toilet, before food preparation, before breastfeeding baby and after removing bay napkin)
- Promote hand washing through use of running water or by pouring
- Conduct village inspection on maintenance of sanitation and hygiene
- Promote proper disposal of waste
- Collect water samples for water quality testing
- Give feedback to communities on water quality testing results

15.3.13.8 Malaria

- Provide health education on Malaria prevention and control
- Identify malaria cases using MRDTs
- Promote consistent use of long lasting insecticide treated nets (LLINs)
- Distribute LLINs during mass campaigns
- Conduct community mobilization on indoor residual spray (IRS)
- Provide community malaria case management through village clinics
- Maintain records on Malaria cases
- Encourage pregnant mothers to receive IPT
- Promote integrated vector management
- Provide pre- referral treatment for severe malaria and refer to nearest health facilities

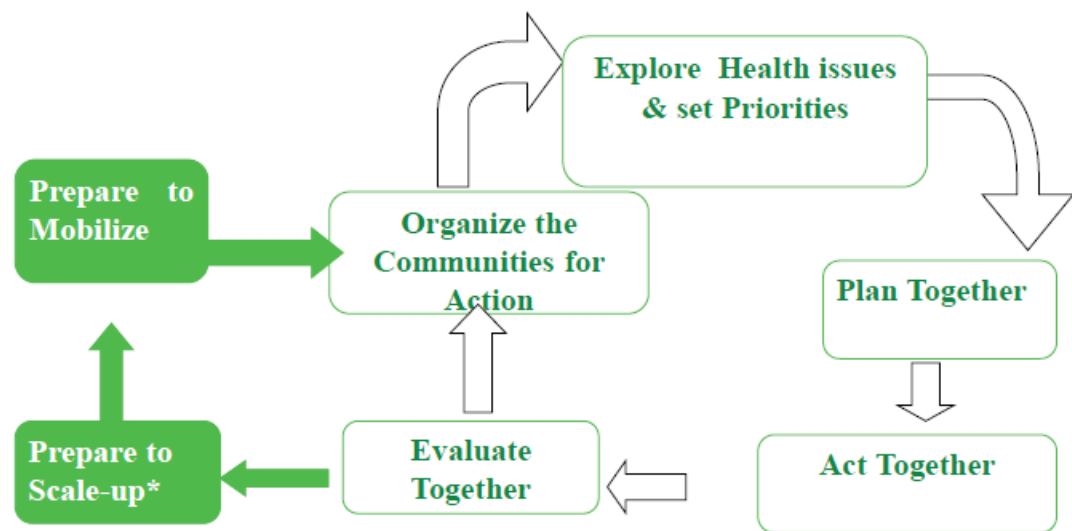
15.3.14 Implementing C-EHP using community action cycle

- The CAC is a multiphase process as shown in Figure 5.2.

- Community leaders, community based organizations, community health workers and other community members at large collectively identify health priorities, design interventions according to MoH policies, strategies and objectives.
- Then, the interventions are implemented, monitored and then the results evaluated.

Figure 5.2 The Community Action Cycle

The Community Mobilization Approach: The Community Action Cycle



The steps in the CAC process are as follows:

1. Prepare to Mobilize

- Select a health issue and define the community
- Put together a community mobilization Team
- Gather information about the health issue and the community
- Identify resources and constraints
- Develop a community mobilization plan
- Develop your Team

2. Organize the Community for Action

- Orient the community
- Build community support for the health issue
- Invite Community Participation
- Select the members of the Community Action Group and build their capacity

3. Explore Health Issues and Set priorities

- Explore the health issue with the Community Action Group (CAG)
- With the CAG, explore the health issue in the broader community
- Analyze the information
- Set priorities

4. Plan Together

- Determine who will be involve
- Design the planning session
- Conduct the planning session and develop the community action plan
- Share plan with community at large, solicit feedback and make changes

5. Act Together

- Redefine the roles and responsibilities of the CM team in accompanying action plan
- Support implementation of the action plan
- Monitor community progress
- Problem -solve, trouble shoot advice and mediate conflict

6. Evaluate Together

- Form a representative of all the interested parties in the community
- Determine what participants want to learn
- Develop evaluation plan and instrument
- Conduct participatory evaluation
- Analyze result with team members
- Provide feedback to the community
- Document and share lessons learned
- Prepare to reorganize

15.3.15 The National Community Health Strategy (NCHS)

- The NCHS is a strategy developed for the period of 2017-2022 by the Ministry Health (MoH) in collaboration with its stakeholders in order to address resource constraints and inconsistencies around quality of service faced by the community health system.
- The aim of the NCHS is to ensure quality, integrated community health services which are affordable, culturally acceptable, scientifically appropriate, and accessible to every household through community participation.
- Key stakeholders for community health system include the community, CHWs, health facilities, government, partners, financiers, and civil society.
- CHWs employed by the government, including: HSAs, Senior HSAs (SHSAs), Community Health Nurses (CHNs), Community Midwife Assistants (CMA), and Assistant Environmental Health Officers (AEHOs), as well as an active network of Community Health Volunteers (CHVs)

15.3.16 The NCHS strategic objectives for the community health system

- To deliver the Essential Health Package at community level through integrated services provided by CHWs in Community Health Teams (CHTs).
- To build a sufficient, equitably distributed, well-trained community health workforce.
- To promote a harmonised community health information system with a multi-directional flow of data and knowledge
- To provide sufficient supplies, transport, and infrastructure for CHWs in the CHT.
- To strengthen community engagement in and ownership of community health.
- Ensure sufficient policy support and funding for community health and that community health activities are implemented and coordinated at all levels.

15.3.17 Guiding principles

The NCHS is based on the following cross-cutting guiding principles for its success:

- Integration
- Community leadership
- Equity,
- Gender equality

- Learning
- Transparency and accountability

15.3.18 Community engagement

- *Community engagement* refers to the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people
- It is the involvement and participation of the community for their welfare.
- Community participation, engagement, and ownership form the essential foundation for a strong community health system, an integral part of the health system.
- The main purposes of community engagement are to:
 - generate awareness of and demand for services;
 - plan for community health;
 - help to improve services (e.g., via feedback mechanisms); and
 - support the enabling environment for community health
- Community engagement can be achieved by:
 - Collaborating with prioritised community structures, and
 - Strengthening leadership and accountability at community level

15.3.19 Structures for community health engagement

- Community Health Workers (CHWs) work collaboratively with community structures that exist to support community health as a Community Health Team (CHT)
- The community health team and the community structures work together to support community health engagement
- Figure 5.3 illustrate the structure for community health engagement

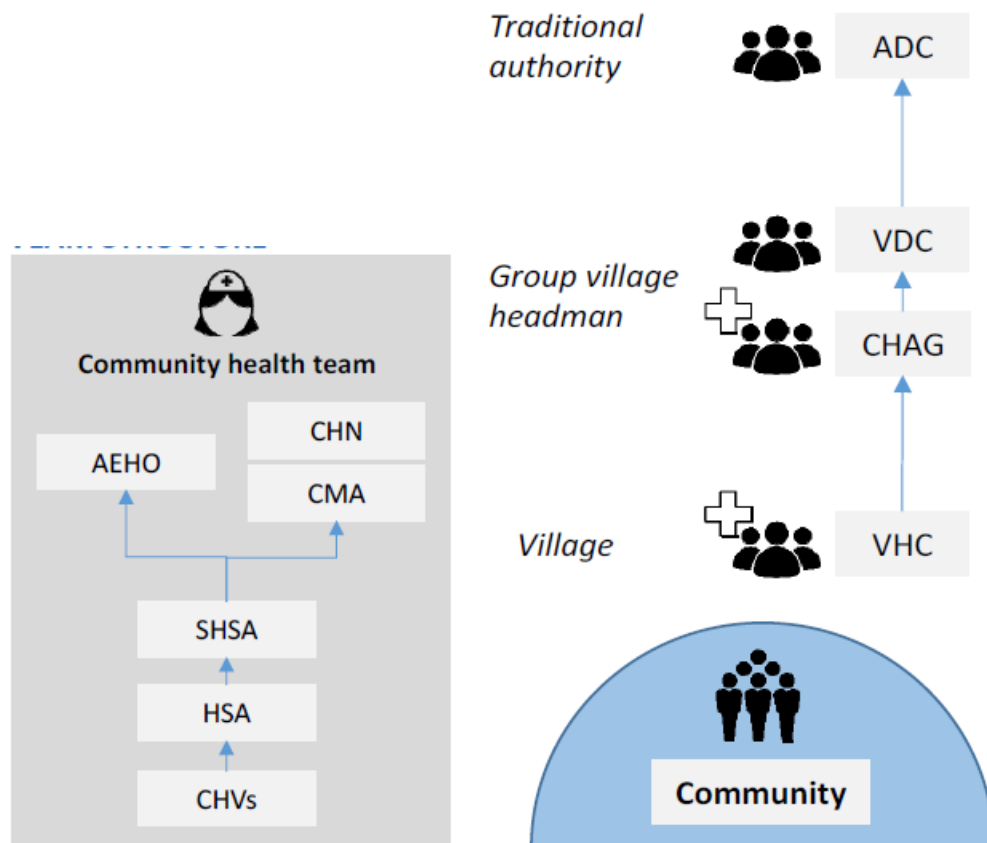


Figure 5.3 Community health team and Community Health Structure



Activity 5.3

Identify the relationship between the Essential Health Package (EHP) and PHC.

Summary

This module has described the following:

- The concept of PHC as an approach of providing comprehensive health care to the majority rural communities who need it most;

- The concept of the EHP and the community EHP as a comprehensive list of priority health interventions rendered at the community level to the vulnerable communities to achieve optimum health.
- The concept of community health as a package of basic preventive, promotive, curative, and rehabilitative health services delivered at the community level with participation and ownership of rural and urban communities.

16. Teaching and learning methods

- Lectures
- Group discussions
- Self-directed study
- Field visits
- Practicum

17. Teaching and learning materials

- Audiovisual resources
- LCD and laptop
- Stationery
- Library books
- Journals,
- Internet
- On-line resources

18. Time allocation

52 weeks (36 weeks teaching and practicum; 3 weeks examinations; 2 weeks mid-semester holidays; 3 weeks Christmas holiday; 8 weeks summer holiday)

19. Methods of assessment

Continuous assessment: 50%
Final Examination : 50%

20. Prescribed text and recommended text

20.1 Prescribed text

Fertonani, H. P., Pires, D. E. P. de, Biff, D., & Scherer, M. D. dos A. (2015). The health care model: Concepts and challenges for primary health care in Brazil. *Ciencia & Saude Coletiva*, 20, 1869–1878.

Government of Malawi. (2014). Guidelines for the Management of Health Surveillance Assistants in Malawi. Lilongwe, Malawi: Ministry of Health

Greenhalgh, T. (2009). Primary Health Care: Theory and Practice. Kindle Edition. New Jersey:

BMJ Books.

Ministry of Health. (2014). Guidelines for Integrated Community Essential Health Package (EHP)

Interventions.

20.2 Recommended text

Allender, J.A., Rector, C., Warner, K.D. (2015). Community and Public Health Nursing: Promoting

The Public's Health. (8th Ed.). Philadelphia: Lippincott Williams & Wilkins.

Government of Malawi. (2017). The Malawi Growth and Development Strategy (MDGS) III (2017-

2022): Building a productive, competitive and resilient nation.

Ministry of Health (2011). Malawi Health Sector Strategic Plan 2011 – 2016: Moving towards equity and quality.

Ministry of Health. (2004). Handbook and guide for health providers on the essential health package in Malawi: Understanding the EHP.

Ministry of Health. (2016). The Essential Health Package (EHP). Accessed on <https://www.health.gov.mw/index.php/essential-health-package>. Retrieved on 14 July, 2020.

PACAM. (2014) National Palliative Care Policy

Phiri, F. et al. (2006). Developing partnerships at the community level to promote equity:

Community based research in poor urban Lilongwe, Malawi Medical Journal 18 (2).

Wright, J. (2015). Essential Health Services: Malawi. Accessed on

<https://www.hfgproject.org/essential-package-of-health-services-country-snapshot-malawi/>. Retrieved 14 July, 2020.

MODULE 8: COMMON DISEASES AND MANAGEMENT

LEARNING OBJECTIVES

By the end of the module the learner should be able to: -

1. Describe the common community priority diseases in Malawi
2. Identify the agents responsible for causing common priority diseases and their mode of transmission
3. Describe signs and symptoms of common community priority diseases in Malawi
4. Explain community management of common priority diseases in Malawi
5. Describe diagnostics and sample handling of common community priority diseases in Malawi
6. Describe the prevention and control of common priority diseases in Malawi at community level

INTRODUCTION

Diseases can be divided into two major groups, communicable and Non communicable diseases. Communicable diseases occur at all ages but are most serious in childhood. Non communicable diseases tend to be of long duration, and may occur in all ages but are mostly associated with older age groups.

7.0 PRIORITY COMMUNICABLE DISEASES

- **Communicable diseases** are diseases that are the result of a causative agents spreading from one person to another or from animals to people.
- They are among the major causes of illnesses. These diseases affect people of all ages but more so children.

- Communicable diseases are preventable if interventions are placed at the various levels of transmission of the disease.

DISEASE CONDITIONS MANAGED UNDER IMCI AT COMMUNITY LEVEL

- Malaria
- Acute Respiratory Infections
- Pneumonia in under-fives
- Diarrhoeal diseases
- Conjunctivitis

7.1 Malaria

Malaria is an acute infection of the blood caused by protozoa of the genus plasmodium. Malaria parasites are spread to people through the bites of infected Anopheles mosquito. They bite mainly between dusk and dawn.

It is a major cause of illness and death in Malawi especially in children under-five and pregnant women.

Malaria parasites in humans develop in two stages: they first multiply in the liver before they escape into red blood cells

An incubation period for malaria (a period between infection with the parasites and the onset of malaria symptoms) ranges from 7 to 21 days.

7.1.1 Risk factors leading to the occurrence

The following are the risk factors leading to the occurrence and transmission of Malaria:

- Presence of the mosquito vector
- Presence of parasites which are drug resistance.
- Presence of stagnant water around the homes providing a habitat for mosquito breeding
- Low immune system like in pregnant women, children under –five years of age, people living with HIV and AIDS
- residing in non-malaria area
- Children with sickle cell anemia

7.1.2 The signs and symptoms of Malaria

The signs and symptoms of malaria are classified either as uncomplicated and complicated

a. Uncomplicated malaria in children under-five years and other risk groups

The following signs and symptoms are associated with malaria in young children:

- Fever or history of fever
- Refusing to feed including breast feeding

- Vomiting
- Diarrhoea

b. Uncomplicated malaria in older children and adults

- Fever or history of fever
- Rigors (shivering) and sweating
- Headache and joint pains
- Vomiting
- Diarrhoea
- Enlarged spleen in children

c. Severe or Complicated Malaria e.g. cerebral malaria.

- High fever
- Headache
- Vomiting
- Confusion
- Drowsiness
- Convulsions with or without loss of consciousness
- Irritability
- Neck stiffness
- Coma, shock, anaemia, jaundice may also be present

7.1.3 Danger signs of malaria

The following are danger signs of malaria and once identified, the patient should be urgently referred to a health facility:

- High fever
- Profuse vomiting
- Confusions
- Drowsiness
- Convulsions with or without loss of consciousness
- Neck stiffness
- Anaemia

7.1.4 Parasitological diagnosis of malaria

The parasitological diagnosis of malaria can be divided into microscopic and non-microscopic tests also known as Rapid Diagnostic tests (RDTs)

7.1.4.1 How RDTs work

RDTs test whether a person with malaria-like symptoms actually has malaria by testing the blood of the patient for chemical substances produced by malaria parasites.

6.1.4.2 How to use an RDT to get a malaria test result

Refer to the IMCI manual for the HSA.

7.1.4.3 Reading the test results

Refer to the IMCI manual for the HSA.

7.1.4 Village Clinic management of malaria

The home management of malaria comprises the following:

- Control fever by tepid (blood warm) sponging and give Paracetamol in appropriate doses
- Treat all under-five children with positive RDT by giving LA in appropriate doses
- Give patient more oral fluids
- Refer all cases with signs of severe malaria, not responding to treatment and adults with signs of malaria

7.1.4.1 Referring a child with danger signs

- Any child suspected of having malaria and is presenting with the following danger signs: fever with Convulsions, or is unusually sleepy or unconscious, or is vomiting everything or is not able to drink or feed anything and palmar pallor give first dose of rectal artesunate as you refer the child.

7.1.5 Intermittent Presumptive Treatment in Pregnancy (IPTp)

- Intermittent Presumptive Treatment in Pregnancy are malaria treatment doses taken during pregnancy to prevent adverse effects of malaria infection such as anaemia, abortion, still birth or low birth weight. The doses are given on the assumption that every pregnant woman is infected with malaria parasite; the drug is given to clear off the parasites from the woman's body.
- In Malawi, SP is still recommended for IPTp despite discontinued use in treatment of malaria episodes

7.1.5.1 Advantages of taking SP for IPTp

Pregnant women who take SP for IPTp are:

- Less likely to suffer from anaemia.
- more likely to have no abortions
- more likely to have no still births
- more likely to deliver normal weight babies
- more likely to have a healthy baby

7.1.5.2 Important health education messages on IPTp are:

- Every pregnant woman should take SP for IPTp at least twice during pregnancy
- Every pregnant woman should start ANC first trimester to receive important services including IPTp
- Pregnant women who react to SP should seek advice from a health worker regarding malaria prevention in pregnancy

7.1.6 Prevention and Control of malaria

The following are preventive and control measures of malaria:

- Proper use of impregnated bed nets.
- Cutting bush around homes
- Draining of all stagnant water
- Destroying water collecting vessels such as broken pots, Tires, jars e.t.c
- Closing, screening or covering breeding sites
- Spraying chemicals to standing waters to destroy mosquito larva
- Filling pits and burrows
- Use of mosquito repellents i.e. coils
- Indoor residual spraying (IRS).
- Chemoprevention for special groups: Chemoprevention is the use of antimalarial medicines for prophylaxis and preventative treatment i.e the giving of SP to infants and IPTp for pregnant women.

7.1.7 Long lasting Insecticides Treated Bed Nets (LLINs)

These are nets which have been treated with appropriate insecticide using a recommended formula. The use of these nets is a very important personal protective measure against mosquito bites as they act as a barrier between a person and mosquito. LLINs kill mosquitos that come into contact and also act as repellent preventing mosquito-person contact. It is therefore, the responsibility of Health Surveillance Assistants to motivate individuals, families and communities to use treated nets in order to prevent malaria.

7.1.7.1 LLIN distribution channels

a. Public Sector

The nets are distributed free of charge through health delivery system (ANC, Under-five clinic), and direct to the community through campaign.

ITNs can be distributed to household through:

- Under-five and Antenatal clinics.

- Special campaign where distribution is done via house to house visit, although this can be time consuming. Another option could be inviting people to central distribution points, where households are given ITNs based on the village register.

b. Commercial sector

The nets are sold by private sector where any person is free to buy

7.1.7.3 Advantages of using LLIN

- The major advantage of using LLINs is improved personal protection because Mosquitoes are repelled or killed
- Reduces exposure to mosquito biting
- The number of mosquitoes and population infected with malaria parasites are reduced
- People sleeping without a net in rooms where treated nets are present may also be protected
- Cases of malaria are reduced in children using a treated net compared with those not using a net or those using untreated net
- Treated nets reduce child deaths

7.1.7.6 Care of LLINs

- Avoid smoke and dust
- When it is torn, repair it immediately

7.1.7.9 Important health education messages on insecticide-treated nets

The following are the important health education messages that should be communicated to the community

- Demonstration on the proper use
- Use of treated nets every night
- Pregnant women and under-five children should get priority in the use of treated nets
- Sleeping under treated nets reduces mosquito biting
- Sleeping under treated nets reduces the frequency of malaria illness in the household.
- Use of Insecticide Treated Net saves expenditure on malaria treatment, travel to seek treatment and reduces work days loss
- Insecticide Treated Net kills mosquitoes and other nuisance insects such as ticks, bedbugs and head lice
- Ensure nets are retreated as recommended
- Old or torn nets provide protection if they are treated, but holes should be mended
- Washing nets frequently removes insecticides.
- Taking good care of LLIN to make it last

7.1.8 Indoor Residual Spraying of Houses

IRS is used to kill flying adult mosquitos.

7.1.8.1 How does IRS reduce the mosquito population?

By killing mosquitoes that rest on the walls that has been sprayed with insecticide. Insecticides also irritate mosquitoes, forces them to go outdoors where they are likely to die if the outside is dry and windy.

7.1.8.2 Conducting a house spray

All potential resting places for mosquitoes need to be sprayed. Resting places are all walls and ceilings in the house, window frames, and both sides of doors, furniture (beds, tables and chairs), animal shelters, latrines, stores and outhouses.

Maximum results can only be achieved with coverage of 85%

7.1.8.4 Timing of spray operation

- In areas where malaria transmission is seasonal, IRS should be completed just before the season begins.

7.1.8.4 How to prepare household for IRS

- Informing householders about the exercise in advance to increase IRS coverage in the community
- All food, cooking utensils, beddings and clothes must be protected from the insecticide by taking them outside the house before spraying starts.
- Alternatively, they should be placed in the center of a room and covered with a plastic sheet to stop the insecticide settling on them.
- All portable furniture should be moved away from the walls so that the walls and all sides of all the pieces of furniture can be sprayed.
- Animals should also be relocated

7.1.8.6 Correct IRS procedures

- Confirm that the house is ready for spraying
- Start with the outside of the front door if the door opens inside, if its opens outside only spray the inside of the door.
- After entering the house, close the front door and spray it on the inside, including all frames of the door.
- Maintain a body position of an average of 1 m from the surface to be sprayed.

- Maintain a distance of 45 cm between the spray nozzle and surface to be sprayed. This provides a spray pattern of swath which covers 75 cm.
- Maintain 5cm overlap in order to achieve an even coverage of adjacent spray pattern of swaths
- Start the next swathe of spraying from the bottom corner of the wall to the right of the front door and proceed clockwise. Spray all edges and corners of windows, as well as all niches and cracks where mosquitoes might rest.
- The backs, undersides and interiors of all cupboards, boxes, ovens, calendars, pictures, stools, beds, chairs and tables must be sprayed.
- Other household areas, i.e., kitchen, store, stable and latrine, should be sprayed next.
- After spraying, a final inspection is made by the spray operator to see that no surfaces on which mosquitoes might find a sheltered resting place remain unsprayed.
- Following inspection, if satisfied you can proceed to another house.
- After spraying, tell each householder:
 - Not to enter the house for 2 hours 30 minutes.
 - Not to re-plaster, mud-wash or white-wash inside the house for eight months.
 - The spraying is to control malaria vector species, not bed bugs, fleas, etc.
 - To clean the floor and bury or burn the dirt, which is contaminated with insecticide.

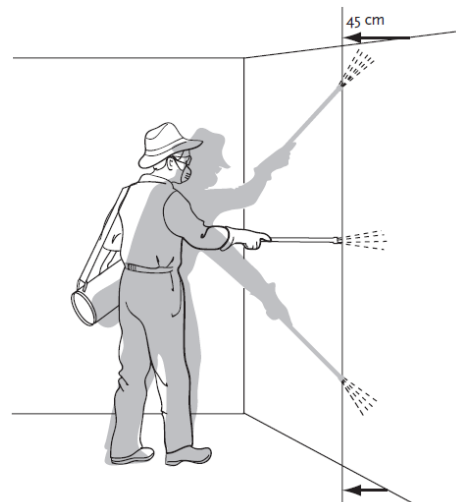


Figure 6. 3 Maintaining the distance spray nozzle and spray surface

7.2 Acute Respiratory Infections (ARI)

Acute Respiratory Infection (ARI) is an infection of the respiratory tract, caused by bacteria and virus. Most infections are transmitted through inhalation of droplets, which can be spread from one person to another by coughing or sneezing.

7.2.1 The common Acute Respiratory Infections in Malawi

1. Pneumonia
2. Otitis media
3. Bronchitis
4. Common cold

7.2.3 The risk factors for ARI

The risk factors leading to the occurrence and transmission of ARI are:

- Overcrowding
- Poor housing conditions i.e. dust, lack of ventilation
- Smoke
- Malnutrition
- Lack of immunization and Vitamin A supplementation
- Bottle feeding
- HIV and AIDS infections in a child
- Cold season

7.2.4 Pneumonia (Cough with fast breathing)

Pneumonia is a respiratory tract infection that mainly affects the lungs. The disease interferes with normal functioning of lungs by filling the lungs with fluid and pus, and leaves children fighting for breath. Pneumonia is caused by a number of infectious agents, mainly by certain bacteria, virus and fungi

Globally, more children under the age of five die from the disease. The disease burden is great in developing countries like Malawi. In Malawi, pneumonia is one of the leading causes of death among children under the age of five. Children are at an increased risk because of their weak immunity. Those with HIV/AIDS and malnutrition are particularly vulnerable.

Pneumonia in under-fives has two categories of case definitions as follows:

Pneumonia: This is diagnosed in any child aged 2 months up to 5 years of age with cough or difficult breathing and when the breathing is:

- 50 breaths or more per minute in an infant 2 months up to 1 year
- 40 breaths or more per minute for a child aged 1 to 5 years

Severe Pneumonia: This is diagnosed in any child aged 2 months up to 5 years with cough or difficult breathing with:

Any of the following general danger sign

- unable to drink or breast-feed
- vomits everything
- convulsions
- Lethargy or unconsciousness.
- Chest in-drawing
- Stridor in a calm child

7.2.4.1 Transmission of pneumonia

The most common modes of transmission are:

- Airborne droplets spreading when the sick person coughs or sneezes, and breathed in by a susceptible person
- Direct oral contact with someone who has pneumonia (e.g. through kissing).
- During or shortly after birth, babies are also at higher risk of developing pneumonia from coming into contact with infectious agents in the birth canal, or from contaminated articles used during the delivery.

7.2.4.2 Danger signs of pneumonia

Children with danger signs should be referred immediately and the danger signs of pneumonia requiring referral are:

a. In young infant (2 months)

In this age group, the danger signs include the following:

- Breathing rate more than 60/min
- Failure to breast-feed
- Convulsions
- Abnormally sleepy or difficult to wake
- Stridor in a calm child
- Grunting
- Apnea

b. In children from 2 months to 5 years

In this age group, the danger signs include:

- Chest in drawing
- Not able to drink
- Convulsions
- Abnormally sleepy or difficult to wake
- Stridor in a calm child

7.2.4.3 Management (fast breathing with no danger signs)

Give oral antibiotic, refer to the IMCI manual for the HSA

7.2.4.5 Referral of children

- All children with danger signs should be referred to a health facility

- Infants less than 2 months with fast breathing 60 breaths or more per minute(suspected of pneumonia) are referred to as serious bacterial infection and require admission therefore refer such children as quickly as possible.

7.2.5 Acute otitis media (AOM)

- AOM, a severe infection of the middle ear that may last less than two weeks.
- Very common in babies and young children.
- In each ear, the middle and inner ear are connected to the upper respiratory tract by a tube called the Eustachian tube, which leads to the pharynx. Upper respiratory tract infection reaches the middle ear if the infectious agents spread upwards along the Eustachian tubes.
- The disease is transmitted by airborne when droplets are projected into the air through coughs or sneezes.
- The infection begins with a common cold, sore throat, or measles.

7.2.5.1 Signs and Symptoms

Though signs and symptoms highly vary, in infants and young children. Common ones are:

- Ear pain, often manifested by irritability
- A change in sleeping or eating habits
- Runny nose
- Sneezing
- Hearing loss

7.2.5.2 Danger sign

Pus discharging from the ear for more than two weeks

7.2.5.3 Complication

- Permanent deafness.
- Bacterial meningitis.

7.2.5.4 Management

- If you see pus draining from the ear and discharge is reported present for less than two weeks, or if there is ear pain. Give a child with an appropriate antibiotic. Antibiotics for treating pneumonia are effective against the bacteria that cause most ear infections.
- Paracetamol may also be given to relieve the ear pain (or high fever).
- If pus is draining from the ear, dry the ear by wicking.
- Refer any child with danger signs

7.2.6 Acute Bronchitis

- Bronchitis is inflammation of the lining of the bronchial tube, which carries air to and from the lungs

- Acute bronchitis is often caused by a viral respiratory infection and improves by itself
- Typically, the same virus that causes colds and flu.

7.2.6.1 Signs and symptoms

- Cough
- Production of mucus (sputum)
- Fatigue
- Shortness of breath
- Slight fever and chills
- Chest discomfort

7.2.6.2 Home remedies

Antibiotics do not kill virus, so this type of medication is not useful in most cases

- Advise plenty of rest
- Drink plenty of fluid
- Breathe in steam from a bowl of hot water
- In case of mild fever give Paracetamol

7.2.7 Common cold

- An individual can expect to have one or more cold every year
- Factors influencing occurrence and severity include overcrowding, inadequate clothing, age, cold climate, especially high altitude areas.
- Common cold is caused by many viruses all giving the same clinical manifestations
- The virus is spread by droplets and by indirect transmission such as by infected articles i.e handkerchiefs

7.2.7.1 Signs and symptoms

- Begins with sneezing and nasal discharge; first watery then mucoid and purulent
- Fever
- Malaise
- Headache
- Dry or painful throat

7.2.7.2 Management

- Since the common cold is caused by a virus, no effective treatment is available
- Headache may be relieved by Aspirin or Paracetamol

7.2.8 Sore throat

- Sore throat is an acute inflammation of the throat.

- It is also known as tonsillitis
- Sore throat is usually common in common cold and may accompany it
- Most of them are caused by viruses
- Symptoms include painful swallowing and sometimes fever

7.3 Diarrhea diseases

- Diarrhoea disease is defined as the passage of three or more watery loose stools in 24 hours.
- If the episode lasts for less than 14 days, it is referred to as acute diarrhoea.
- Diarrhoea may also be distinguished into acute watery diarrhea which typically occurs in cases of cholera, and bloody diarrhea in cases of bacillary dysentery.
- Diarrhoea more likely results in dehydration because of the rapid loss of body fluids and important salts required for proper control of body functions, particularly in the brain, nerves and muscles.
- Children are highly susceptible to dehydration if they have diarrhoea even after only one day. They can quickly die if the fluid loss is continuous and cannot be replaced by drinking fluids.

7.3.1 Signs of dehydration

Dehydration is the loss of large amount of water and salts from the body.

The following are the signs of dehydration:

- Not able to drink properly
- Sunken eyes
- Sunken fontanel in infants
- Fast, weak pulse
- A pinch of the abdominal skin goes back slowly into shape (inelastic skin)
- Patient is sleepy and irritable
- Lethargic or unconscious

7.3.2 Assessment of the degree of dehydration

Assessment starts by looking at the appearance and the child's general condition, check to see if the child:

- is well and alert
- is lethargic or unconscious
- is restless and irritable
- has sunken eyes
- is able to drink or drinks poorly, drinking eagerly, thirsty

- abdominal skin goes back very slowly (longer than 2 seconds), or slowly (elasticity) when pinched

7.3.3 Classification of diarrhoea according to the degree of dehydration

Severity of diarrhoea can be classified according to the degree of dehydration.

a. No dehydration

- Appearance is well and alert
- Eyes normal
- Drinks normally, no thirst
- Skin pinch goes back quickly
- In infants, fontanel is normal

b. Some Dehydration (any two of the following signs)

- Patient is restless, irritable
- Eyes sunken
- In infants, fontanel is slightly sunken
- Thirsty and drinks eagerly
- Skin pinch goes back slowly

c. Severe Dehydration (any two of the following signs)

- Patient is lethargic or unconscious, floppy
- Eyes are very sunken and dry
- In infants, fontanel is very sunken
- Drinks poorly or unable to drink
- Skin pinch goes back very slowly
- Little or no urine

7.3.4 Management of diarrhoea

If the child has diarrhoea for less than 14 days, with no blood in stool and no other danger sign, the child can be treated at the village clinic. A child with diarrhoea receives **ORS solution and a zinc supplement**.

7.3.5 Home management of diarrhea should emphasize on the following recommendations:

- Give extra fluids as much as child will take to prevent dehydration
- Continue giving these fluids until the diarrhoea stops.

- Use recommended home fluids such as oral re-hydration salts (ORS) solution, food based fluids such as soup, rice water, thin porridge and clean plain water.
- Breast feed more frequently and longer at each feeding
- Give the child plenty of nutritious food to prevent malnutrition.
- Practice exclusive breast-feeding.
- Continue to breast feed frequently.
- If the child is not breast-fed, give the usual milk. If the child is 6 months or already taking solid food, give cereals or any starchy mixed food if possible, with green leafy vegetables, meat, and fish. Give fresh fruit juices, mashed bananas to provide potassium. Give freshly prepared foods. Encourage the child to eat. Offer food at least 6 times a day. (Give some food after diarrhoea stops and give an extra meal each day for two weeks.)
- Take the child to the health worker if the child does not get better in 3 days or develops any of the following: many watery stools, repeated vomiting, and marked thirst, eating or drinking poorly, fever, blood in stool.
- Advise take the child to the clinic if the child does not get better in 3 days or when the condition worsens

7.3.6 Materials and Procedure for preparing Oral Re-Hydration Solution

Refer to the IMCI manual for the HSA.

7.3.7 How to prepare homemade salt sugar solution, in the absence of ORS

1. Wash your hands with soap and water before preparing the solution.
2. In a clean container, mix:
 - a. 1 litre of safe water
 - b. ½ small spoon (3.5g) of salt
 - c. 4 big spoons (40g) of sugar
3. Stir the salt and sugar until they are dissolved in the water.
4. Give the sick child as much of the solution as it needs, in small amounts frequently, either using a cup or a spoon.
5. Alternately give child other fluids, such as breast milk, soup or yogurt-based drinks.
6. Continue to give solids if the child is six months or older.
7. If the child still needs Sugar-salt solution (SSS) after 24 hours, make a fresh solution.

7.3.8 Administration of Oral Re-Hydration Solution

ORS solution requires proper administration taking into consideration the dose and frequency and therefore mothers need to be taught on how to give ORS solution

Patients between 0-2 years: 50mls to 100mls after each loose stool

Over 2 years: 100mls to 200mls after each loose stool

Give frequent sips from a cup for an older child

If the child vomits

Wait for 10 minutes then give the solution more slowly (e.g. a spoonful every 2-3 minutes)

If the diarrhoea continues after the ORS packets are used up

The mothers should give other fluids. The patient should then be referred to the hospital

In case of danger signs, refer the child to the health facility

7.3.9 The faeco-oral transmission of diarrhoeal diseases

Diarrhoea diseases are transmitted through faeco-oral transmission route. The disease occurs as result of accessing food and water contaminated by faeces and flies or through contaminated fingers.

Ways through which food can become contaminated with faeces:

- Contaminated hands touching food during preparation or eating
- Using contaminated water to prepare food (e.g. washing fruit)
- Using contaminated utensils (knife, spoon, bowl, etc.) to prepare or eat food
- Feeding a baby with contaminated milk, or using a contaminated bottle
- Flies resting on food after crawling over faeces
- Serving inadequately cooked vegetables grown in soil contaminated with faeces.

Ways through which water can become contaminated with faeces.

- Sources of water (streams, wells, etc.) can be contaminated with faeces washed out of the soil by heavy rain if people defecate in open fields, or in poorly constructed latrines
- Hands or utensils for eating or drinking may be washed in contaminated water
- Contaminated containers may be used to fetch or store water.

Ways through which person's hands become contaminated with faeces.

- Using the toilet and not washing the hands afterwards

- Cleaning a child's bottom after defecation
- Shaking hands with someone whose hand is already contaminated
- When flies rest on the hand after they have crawled on faeces
- Accidentally touching faeces in the soil where people or animals have defecated in the open fields.

7.3.9.1 Prevention of faeco-oral transmission of diarrhoea

The following are the measures of interrupting the faeco-oral transmission route in order to prevent diarrhea diseases:

Sanitation: Proper disposal of faeces using deep pit latrines that are well maintained and prevent access by flies. The use of drop hole covers and hand washing facilities

Hand washing with soap: Hand washing with soap at all critical times

Food: Food should always be thoroughly cooked and milk thoroughly boiled. Good food handling practices should be followed. Leftover food should be re-heated before serving. Food should be well covered and served while hot. Eating utensils should be cleaned and dried after use

Flies and cockroaches: Flies can be controlled by proper disposal of refuse in pits and faeces in latrines. Latrines should be covered and toilets screened. To control cockroaches, food should be stored in tightly covered containers. Cleaning all eating and cooking areas to remove food fragment. Proper disposal of food remains is necessary i.e. Rubbish bins should be securely covered and emptied frequently.

Water: Protection and chlorination of public water supply should strictly be followed. Proper water storage to prevent access by children. In case of unprotected water source, household water treatment should be a must.

Health education:

- Educate mothers about the dangers of bottle feeding, instead encourage cup and spoon feeding methods and prolonged breast feeding
- Provide adequate nutrition to weaned nutrition and promotion of exclusive breast feeding in children less than 6 months as malnutrition increases the susceptibility of children to develop severe symptoms if they are exposed to infection
- Immunization against all the vaccine-preventable diseases and provision of Vitamin A supplements.

7.3.10 Common acute Diarrhoea diseases in Malawi

The following are some of the common acute diarrhoea diseases in Malawi:

- Childhood diarrhoea caused by Rota Virus
- Cholera
- Bacillary dysentery (Shigellosis)
- Amoebic dysentery (Amoebiasis)

7.3.10.1 Shigellosis (Diarrhoea with blood in the stool)

- Dysentery refers to diarrhoea containing blood and mucus.
- The bacteria infect and destroy cells lining the patient's large intestine (colon), causing ulcers and bleeding, which results in the characteristic appearance of blood and mucus in the stool.
- The disease rarely occurs in infants less than six months of age but most common in children aged two to three years. This age-distribution is unlike amoebic dysentery, which is rare in children less than five years of age.
- Like all diarrhoeal diseases, the effects are most severe in malnourished children.
- It can be easily transmitted from person to person and rapidly causing epidemics, especially where there is:
 - overcrowding
 - poor personal hygiene

As few as ten organisms are enough to transmit the infection.

Infected individuals can transmit the bacteria in their faeces even after recovery for up to four weeks after the illness.

7.3.10.1.1 Risk factors

The main factors influencing its occurrence are:

- Poor disposal of faeces
- Availability of water: In dry season, the amount of water available for cleaning purposes decreases. Cleaning of eating utensils and hand washing gets low priority
- Fly population: houseflies are more likely to transmit the disease. When the number of flies is high, the incidence of dysentery also increases.

7.3.10.1.2 Transmission

- Shigellosis multiply in food
- The food may be contaminated directly by flies or unwashed hands carrying the bacteria, or indirectly through dishes which are not washed properly

- The shigellae start to multiply, and if such food is ingested, dysentery may result.

7.4.10.1.3 Signs and symptoms

Symptoms usually appear after an incubation period of one to three days. The diarrhoea may start with large volumes, but then changing into frequent, small volume episodes of bloody and mucus-containing diarrhoea.

- Fever
- Abdominal pains
- Straining during defecation
- An irresistible urge to defecate, but only small quantities of blood and mucus come out
- Abdominal cramps and pain in the rectum, and is often too ill to leave their bed.
- Dehydration that may lead to shock should be bulleted
- In severe cases death

7.3.10.1.4 Management

- Prevention or treatment of dehydration is all that is necessary in mild infections as the disease is self – limiting.
- Care givers to be reminded that faeces of a patient are highly infectious and should be handled with care.
- Refer the child to health facility.

7.3.10.2 Amoebiasis (Diarrhoea with blood in the stool)

- Amoebiasis is an infection caused by pathogenic amoeba
- Infection with amoeba is in most cases asymptomatic.
- The disease is endemic in areas where sanitary conditions are poor.
- In severe cases, the onset is more sudden, with signs of fever and dehydration
- Asymptomatic host normally do not need treatment because in time they clear the infection
- Refer the child to health facility.

7.4 Conjunctivitis (Red Eye)

Definition: Conjunctivitis is an inflammation of the conjunctiva.

7.4.1 Causes

- Bacterial infections
- Allergy
- Virus

- Fungi
- Chemical

Note: The presentation and management of conjunctivitis varies depending on the cause. Two main causes are bacteria and allergy.

7.4.2 Bacterial conjunctivitis

Definition: This type of conjunctivitis is caused by bacteria.

7.4.2.1 Signs and symptoms

- Foreign body sensation
- Swelling of the eyelids
- Purulent /yellow/thick discharges
- Redness
- Usually the features are acute and in both eyes.

7.4.2.2 Management

- Treat any child with red eye for less than 4 days with an antibiotic eye ointment.
- Refer any child with red eye, if the child has had 4 days or more of treatment for it. Also refer a child with visual problem or history of trauma and any other child with red eye but without signs of conjunctivitis.
- Refer any adult with red eye to health facility after counseling on hygiene.

7.4.2.3 Prevention

Emphasize on personal hygiene particularly facial cleanliness and hand washing regularly.

7.4.3 Allergic conjunctivitis

Refer to the facilitator's manual for training HSA on primary eye care in Malawi

7.5 Cholera

A person over the age of five (5) years with severe dehydration or dies from acute watery diarrhoea is said to have or has died of cholera while a confirmed case is said to be any person with diarrhoea, vomiting, dehydration and has *Vibrio cholera* O1 or O139 isolated from the stool.

Cholera is endemic in Malawi with seasonal outbreaks during the wet season

In lay definition, a cholera case is said to be any person over the age of 5 years with lots of watery diarrhoea.

It is however very important to note that during an epidemic, a large proportion of cases of acute watery diarrhoea in persons aged 2 years and older will be due to Cholera.

7.5.1 Transmission of Cholera

The route transmission of cholera is Faeco-oral route which is through contaminated:

- Water
- Food during and after preparation
- Fruits and vegetables

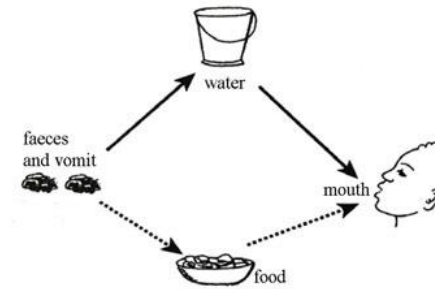


Figure 6.4 Transmission of cholera by the faecal-oral route

7.5.2 How Vibrio causes Diarrhoea

Vibrio cholera is ingested through water or food that is contaminated by faeces. Once the organisms are ingested, they are normally destroyed by acid produced by a normally functioning stomach. The organisms that escape this destruction produce toxins, these toxins will then attach themselves to the walls of the intestine. The intestine will then release a lot of water in response to the irritation caused by the toxins. This leads to the manifestation of acute watery Diarrhoea.

7.5.3 Symptoms of cholera

Symptomatic cholera will manifest with the following symptoms:

- Acute profuse watery diarrhoea
- The stools are like 'rice water', this is the common symptom
- Vomiting and leg cramps common
- Dehydration (can lose up to 10% body weight)
- Hypo-volaemic shock
- Renal failure and death may follow
- There is no fever or abdominal cramps

7.5.4 Risk factors for cholera

Risk factors for the occurrence of cholera are:

- Poor hand washing practice
- Areas without safe water (unprotected shallow wells)
- Areas without good sanitation (pit latrines, refuse pits)

- Rainy season
- Public feasting (weddings, funerals and other social events)
- Uncontrolled food vending in streets

7.5.5 Prevention and control of cholera outbreak

Cholera epidemic is a public health concern; health promotion is the foundation for control of cholera outbreak. It is therefore the responsibility of Health Surveillance Assistant to inform the authority of any suspected outbreak.

- Seeking care as quickly as possible
- Drinking ORS on the way to the health facility
- Observing water safety procedures in the home
- Observing strict hand washing
- Proper food preparation and storage
- Excreta disposal either in the latrine or toilet
- Use all channels of communication for health education

7.5.6 Collection and transportation of cholera specimens

Cholera should be suspected in any outbreak of diarrhoeal disease. Therefore, send a rectal or stool specimen to health facility lab using the following procedure:

- Collect specimen from fresh stool or rectum with a swab from a tube of Cary-Blair transport medium
- Insert swab back into the tube break stick and seal the tube
- Label the tube with specimen's number, patient's name and date of collection
- Send the specimen to the lab as soon as possible

7.5.7 Recording basic information in register

When recording the data consider using a separate 'epidemic register' during an epidemic. The basic information that needs to be recorded in the register should include the following:

- Date, name, age, sex, address
- Specimen collected
- The result
- Treatment given
- Outcome this includes whether the patient is alive, dead or referred

7.5.8 Data needed during cholera investigation

The data that needs to be recorded, if relevant, for each cholera case during cholera investigation includes:

- Recent travel history
- Contact with persons with diarrhea
- Recent attendance at a funeral and the cause of death of deceased should be noted
- Water sources for bathing, drinking, cleaning kitchen utensils
- Food history
- Occupation

7.5.9 Cholera case management

- Patients can be admitted to a temporary hospital (Camp). The essential cure for cholera is rehydration; even without any drugs many cholera cases can be saved, if started in time.
- 80-90% of cholera patients can be re-hydrate with Oral Rehydration Salts (ORS)
- Severe dehydration will require IV therapy, Ringers Lactate is the best IV solution
- In severe dehydration, antibiotics should be administered to reduce stool volume, duration of diarrhoea and infectivity
- Treatment procedures adopted should be explained to the patient or guardian
- The patient will require feeding as well.

7.5.10 Steps in cholera case management

The following are the steps to follow in cholera case management:

- Assess for level of dehydration
- Re-hydrate the patient and maintain hydration
- Monitor and reassess frequently
- Replace ongoing fluid losses
- Give antibiotics to severely dehydrated patients only
- Feed the patient
- Teach the patient and family about treatment and prevention of cholera

a. Cholera Patient with Severe dehydration

Plan C cholera management is the protocol that is used in managing severely dehydrated cholera patients and it starts by giving IV fluids immediately and Ringers Lactate is the fluid of choice. Antibiotics should be given to the patients who have severe dehydration, which is **DCN 300 mg stat** for adults, **Erythromycin 10 mg/kg, 3 times a day for 3 days** for children
For patients aged 1 year and over:

- In first 30 minutes give patient 30ml/kg of Ringers lactate then give 70ml/kg in 2 hours and 30 minutes

For infants less than 12 months:

In the first 1 hour give the patient 30ml/kg of Ringers lactate then give 70ml/kg in 5 hours:

- Give ORS if patient can drink (**5 ml/kg/hour**)
- Monitor very frequently by checking patient's condition and that the IV is running well
- After giving the first 30ml/kg body weight radial pulse should be strong and blood pressure should be returning to normal
- Re-assess adults after 3 hours and Reassess infants after 6 hours; If there is still severe dehydration, repeat Plan C, if some dehydration - start Plan B and if no dehydration, start Plan A

b. Cholera Patient with Some dehydration

Plan **B** cholera management is used in managing patients with some dehydration and this follows the following protocol:

- Give ORS according to how the patient is responding
- Maintain hydration by giving ORS for each loose stool

c. Cholera Patient with No dehydration

Plan **A** cholera management is the management protocol used for managing patients with no dehydration and this involves the giving of ORS

7.5.11 Procedures for discharging cholera patients

A well-managed patient can be discharged within 24hrs, however when discharging cholera patients, the following procedures should be followed:

- Suspected patients should remain at health facility until diarrhoea and vomiting have stopped
- After correcting the dehydration, the patient should be continuously monitored closely to replace ongoing losses of fluids
- The patient should be advised to return if:
 - There is increased number of stools
 - The patient is eating or drinking poorly
 - There is marked thirst
 - There is repeated vomiting
 - There is fever
 - There is blood in stools

7.5.12 Cholera response measures

In case of a suspected cholera case the following are the cholera response measures to follow:

- Collect a stool specimen from the first 5 suspected cholera patients seen, for confirmation of the diagnosis and for drug sensitivity.
- Isolate and treat all cholera patients using standard treatment guidelines.
- Avoid or limit community gatherings such as feasts, weddings and funerals.
- Provide safe domestic water to the community through water chlorination.
- Ensure proper faecal disposal.
- Ensure proper food hygiene
- Bury dead bodies immediately with supervision of health workers.

7.5.13 Management of cholera camps

The management cholera camps should follow laid down basic principles and these include:

- Site cholera camps where they can be accessible by as many villages as possible i.e. outskirts of villages. Where possible avoid schools, churches and mosques
- Observe strict barrier nursing techniques
- Restriction of visitors
- Use of Personal Protective Equipment (PPE) by health workers and guardians
- Hand washing observed every time a patient is attended to using chlorinated water
- Disinfect soiled linen, utensils and floors by use of 0.5% chlorine
- At the entrance put a rag soaked in 0.5% Chlorine solution and ensure that it is wet all the time
- Every camp should be supervised daily by the officer in charge of the nearest health facility
- Mop the floor at least every 6 hours or disinfect contaminated floors using 0.5% chlorine solution
- Ensure availability of safe and adequate water
- Provide emergency latrines (preferably for male and female) and waste disposal site.
- Ensure adequate light both during the day and night
- At any one time, a camp should have at least two health workers during an outbreak
- Ensure that every patient is recorded adequately
- Ensure availability of drugs and supplies all the time

7.5.14 Cholera burial

- Prepare 0.5% stock solution
- Close all necessary orifices with 0.5% stock solutions
- Decontaminate the dead bodies using 0.5% stock solutions

- Do not bath the dead body
- Bury the same day under supervision
- Limit number of people handling the dead body
- No feasting
- Disinfect all terminal materials
- Wash hands thoroughly after burial

7.5.15 How to make Water Safe

- Boiling for one minute when it attains a vigorous boil and storing safely
- Chlorinating drinking water by adding 1 teaspoon (5 mls) of chlorine solution to 20 litres of water. After mixing Let it sit for 30 minutes before drinking.
- Storing water in a clean container with a lid or with a small opening
- Using stored water within 24 hours
- Pouring water from the container using a two cup system

7.5.16 How to make stock solution of chlorine

Using high test Hypochlorite (HTH, 70%):

- Add 5.5 table spoons of HTH to 5 litres of water
- Mix them thoroughly by stirring to obtain 1% stock solution
- Wait for 30 minutes for the sediments to settle and for the powder to dissolve well
- Decant the 1% solution to separate it from the sediments
- Dispose of the sediments properly by burying
- Distribute the 1% stock solution to people for pot chlorination

7.5.17 How to store stock solution

- Store the solution in air-tight container
- Store the solution at dark places
- Keep the solution away from children
- Use the stock solution for 14 days only (2weeks)

7.5.18 Safety precautions for chlorine use

Chlorine is a very volatile chemical, therefore is potentially dangerous if not handled properly.

Make sure you are wearing the following protective personal equipment before you begin working with chlorine:

- Goggles
- A pair of thick rubber gloves
- Rubber boots

- Overalls or a full-length apron.

Only work with chlorine in a well-ventilated area.

7.5.19 Accidents with chlorine

If any chlorine is swallowed, drink milk and seek immediate medical help.

If chlorine splashes into the eye: wash out the eye with clean water for several minutes, then seek medical help.

If chlorine spills on clothes. Remove the clothes immediately, if possible; Rinse the affected area(s) with water.

7.6 Tuberculosis

Tuberculosis is an airborne infectious disease caused by a germ known as *Mycobacterium Tuberculosis*. The germs settle anywhere in the body but most commonly in the lungs, damaging them in the process. When the lungs are damaged by the germs, a person coughs

7.6.1 Modes of TB transmission

The most common mode of transmission is by inhalation of droplets containing tubercle bacillus, which can be spread from an infected person to another by coughing, sneezing, talking, laughing and singing.

7.6.2 Signs and Symptoms of TB

Signs and symptoms of TB occur when the body's immunity fails to contain the infection from spreading, so it is important for the person who has signs presumed to be TB to go to a health facility for a checkup and proper assessment. However, presume Pulmonary Tuberculosis on a patient presenting with the following signs and symptoms:

1. cough for
 - two weeks or more in the general population
 - one week or more in miners and ex-miners
 - any duration in people living with HIV
2. Fever for
 - Two weeks or more in the general population
 - One week or more in miners and ex-miners
 - Any duration in people living with HIV
3. Profuse night sweat, even when it is cold for
 - Two weeks or more in the general population
 - One week or more in miners and ex-miners

- Any duration in people living with HIV
4. a person may experience a noticeable loss of weight

Other signs and symptoms include

- Chest pains
- Shortness of breath
- loss of appetite
- Coughing up blood mixed with sputum
- Fatigue
- In children failure to gain weight, swelling of lymph glands frequently occur

7.6.3 The classification of TB

TB is classified according to the site of disease as follows:

A. Pulmonary

When the infection is in the lungs, it is the only form of tuberculosis which is infectious.

B. Extra Pulmonary

When the infection involves other parts of the body other than the lungs. E.g. Spine, pleural, lymph nodes, meninges, brain, bones, genitourinary tract, peritoneum and pericardium

7.6.3 Risk factors

Several factors can put a person at the risk of contracting tuberculosis.

- People who have HIV are at risk of developing active tuberculosis because HIV suppresses the immune system
- Tobacco smoking.
- Working in mines
- Those who are exposed to too much dust which they inhale, for example, informal miners.
- Age-especially old age and young children.
- People suffering from diseases, diabetes and those on cancer treatment have lowered immunity making them prone to TB
- People who have malnutrition have a lowered immunity making them susceptible to TB
- Duration of repeated exposure and nearness to exposure presents a certain percentage of risk to people to contract TB infection and TB disease

6.6.4 The main categories of TB patients

The following are the four main categories of TB patients:

I. New Patient

A patient who has never taken anti-tuberculosis drugs for more than one month

II. Relapse Patient

A patient who has previously been treated for TB, were declared cured or treatment completed at the end of their most recent course of treatment, and are now diagnosed with another episode of TB (either a true relapse or a new episode of TB caused by reinfection).

III. Failure of treatment

A newly diagnosed tuberculosis patient who is sputum-smear positive 5 months or more after the start of chemotherapy

IV. Treatment after loss to follow-up

A patient who interrupted treatment for more than 2 months after at least one month of chemotherapy and is subsequently found to have smear-positive tuberculosis

V. Transfer in

A patient who has been registered in another treatment centre and goes to another treatment centre to continue treatment.

7.6.5 Prevention and Control of TB

It is important for a TB patient to take all the TB drugs regularly, on schedule and for the full duration of the treatment or else the disease may become incurable and control may be difficult; however, the following are the methods of TB prevention and control:

- **BCG Vaccination:** This is given as early as possible in life preferably at birth
- **Case Finding and Treatment:** Case finding and treatment are considered to be one entity. This breaks the chain of tubercle bacilli and therefore controlling the spread of the disease. This also improves the burden of tuberculosis in the community
- **Contact tracing:** This is the form of active TB case find when a health worker actively looks for contacts of pulmonary TB patients or MDR-TB patient. It is initiated by the health care worker as soon as the index case is registered to receive TB treatment.

- **Isoniazid preventive therapy (IPT):** Isoniazid preventive therapy can prevent people who are at risks of developing TB disease such as people living with HIV (PLHIV) and under-five children who are contacts of pulmonary TB patients.
- Covering mouth and nose when coughing and sneezing
- Good ventilation (houses, minibuses)
- Avoiding overcrowding.

7.6.6 Diagnosis of TB

1. Pulmonary TB

Diagnosis of TB of the lungs is through sputum examination. The TB presumptive submits two sputum specimens (**Spot and spot**). For sample collection and submission refer to the Malawi National Tuberculosis Control Programme Manual.

2. Diagnosis of Extra Pulmonary Tuberculosis

Diagnosis of extra pulmonary TB (TB outside the lungs) depends on the site affected.

7.6.7 Management of TB

6.6.7.1 Drugs used in TB treatment for both adults and children

Refer to the Malawi National Tuberculosis Control Programme Manual.

7.6.7.2 Adherence to TB treatment

Treatment adherence refers to taking the correct amount of medication at the correct time for the recommended duration. Anti TB treatment is effective when taken correctly as prescribed. All TB patients must adhere to treatment.

7.6.7.3 Scheduling ARVs and CPT in the co-infected

TB/HIV patients are supposed to receive CPT and ARVs. All persons diagnosed with TB should be offered HTC and those found to be HIV sero-positive should be scheduled to start ARVs immediately (if not already started). CPT is also started immediately to reduce the risk of developing opportunistic infections.

7.6.7.4 Directly Observed Treatment (DOT)

This is where a supervisor watches the patient taking drugs especially during the intensive phase of treatment. A DOT monitoring form is used for treatment supervision and the actual number of

tablets is recorded every time the patient takes drugs. A supervisor can be a guardian or a community health worker e.g. HSA

7.6.7.5 Monitoring of TB Treatment

What is treatment monitoring?

Treatment monitoring is a regular assessment of patients' response to treatment.

For monitoring to be effective the patients diagnosed with TB should be properly documented on TB monitoring documents which includes;

- Facility TB register
- TB Treatment card
- TB DOT monitoring form

7.6.7.6 Steps and actions taken during TB treatment.

- For all pulmonary Tuberculosis patients, there is a need to check sputum at the following intervals:
 - New and re-treatment patients
 - At 2 months - if they have converted
 - At 5 and 6 months - if they are still negative.
- Appropriate action is taken in a situation whereby the results are positive

7.6.8. How does HIV fuel T.B.

- Promotes the progression to active TB in people with mycobacterium infections:
 - Recently acquired
 - Latent (most powerful known risk factor)
- Increased rate of recurrent TB (endogenous reactivation or exogenous re-infection)
- Increased TB cases in HIV infected people pose a risk of TB transmission to the general population
- Increased MDR-TB. *HIV does not cause MDR-TB but it can increase the spread of drug resistance strains by increasing susceptibility to infection*

6.6.9 Drug-Resistant TB

- MTB (*Mycobacterium tuberculosis*) which is resistant to any anti-TB drugs
- May be acquired or transmitted
- Anyone can be infected and get the disease – some groups at higher risk
- DR-TB can be cured but treatment is longer, drugs less effective, more expensive and poorly tolerated with severe side effects

7.6.9.1 Causes of Drug Resistance

- Poor quality of drugs/poor storage
- Wrong dosage/combination
- Stock outs
- Poor adherence
- Adverse or unpleasant side effects
- Lack of information
- Absence of guidelines
- No monitoring of treatment
- Poor training of health workers

7.6.10 Tasks of a treatment supervisor (HSA or Guardian)

A treatment supervisor is a very important person in TB treatment and the tasks of a treatment supervisor are as follows:

- Checking the drugs to make sure they are the correct drugs.
- Giving the patient the anti-TB drugs at each appointed according to the schedule.
- Observing the patient swallow the anti-TB drugs
- Record on the DOT monitoring form each time the patient takes the drugs.
- Encouraging patients to eat food with drugs to reduce nausea
- Observing for any possible side effects
- Refer the patient to a health facility if side effects continue.
- Encouraging the patient to continue TB treatment until the whole treatment duration is finished.
- Encouraging the patient to go to a health centre to collect a re-supply of drugs every 2 weeks of the intensive phase of treatment
- Making sure the patient submits sputum for follow up examination when due.

7.6.11 Possible side effects or Bad drug reactions and the response of HSAs

a. Non- dangerous side effects

- Nausea, Loss of appetite, Stomachache, gas
- Orange/Red urine
- Joint pains
- Burning sensation in the feet

Response to non-dangerous side effects

- Continue Treatment
- Reassure patient
- Give drugs with food, milk or porridge
- Refer to the health centre for further assessment and management

b. Dangerous side effects

- Itching skin rash
- Skin and or eyes turn yellow
- Vomiting repeatedly
- Deafness
- Dizziness
- Visual impairment

Response to dangerous side effects

- STOP treatment
- Send the patient immediately to a health facility

7.6.12 The role of the Health Surveillance Assistant on TB control at community level

At the community level HSA has following roles on TB control;

- Identification and referral of TB presumptive to HC for diagnosis
- Monitoring of DOT
- Tracing of TB lost to follow-up
- Referring of failure TB cases to health centres.
- Ensuring proper documentation
- Monitoring and evaluation

7.6.13 Information Education and Communication messages on TB control

The following are the important IEC messages on TB and should be communicated to the community:

- All babies born should receive BCG at birth.
- A person with a cough of 2 weeks or more should submit sputum for microscopy.
- Early TB diagnosis and treatment are essential.
- TB suspects should bury their coughed up sputum and the mouth and nose with their bent arm when coughing and sneezing to restrict the spread of the bacilli
- Irregular taking of TB drugs can lead to a patient develop Multi-Drug Resistance (MDR).
- The treatment supervisor's main role is to make sure that patients take all drugs regularly; on schedule and for the full duration of the TB treatment and watch the patient swallow the drugs each time they are taking a dose
- All sputum positive patients should submit sputum at the end of two and five months to confirm with the laboratory if they have converted to negative and at 6 months to confirm if they are cured or not.
- TB is curable even in the presence of HIV

- TB drugs are given free of charge.
- TB treatment may have side effects. The patient who notices the side effects should inform the treatment supervisors for appropriate action.
- The TB treatment supervisor is there to help the patient get well and prevent TB from spreading to the family and community.

7.7 Sexually Transmitted Infections

7.7.1 Common Sexually Transmitted Infection Syndromes in Malawi

The following are the common Sexually Transmitted Infections in Malawi:

- Urethral discharge
- Genital Ulcer disease
- Abnormal vaginal discharge
- Bubo
- Lower abdominal pains
- Acute scrotal swelling
- Persistent or recurrent urethral discharge
- Balanitis (itching or discharge on gland penis)
- Neonatal conjunctivitis.

7.7.2 The common signs of STI are:

- Genital discharge
- Genital ulcers.
- Itching of genitals

7.7.3 Complications of Sexually Transmitted Infections

The possible complications of STI are as follows:

- Congenital syphilis and neonatal abnormalities (Effects on the foetus and the neonate)
- Chronic lower abdominal pains (Pelvic Inflammatory Disease)
- HIV facilitation
- Infertility
- Urethral strictures.
- Cancer of the cervix

- Prostate cancer

The importance of partner notification on Sexually Transmitted Infections

Partner notification is very important because:

- This prevents re-infection and further, spread of the infection.
- It provides opportunity for identification of asymptomatic persons (particularly women) at an early stage and prior to development of complications

7.7.4 Contact tracing of Sexually Transmitted Infections

The process of contact tracing of Sexually Transmitted Infections is as follows:

- Take note of the name and address of the patient
- Ask the patient about name and address of his or her contacts or partners
- Visit or write the contact to ask them to come to the clinic.
- Use the partner notification slip to the client to be given to his or her contacts.

7.7.5 Information Education and Communication messages on Sexually Transmitted Infection

The individuals and families have to be educated on STI and the following are the key IEC messages:

- Tell the patient to inform his or her sexual partner to go for treatment
- Tell the patient on how to take medicine
- Tell patient to refrain from sex until all the signs and symptoms are gone and that they and their partners have fully completed their treatment
- Tell patients to return to the clinic if the disease reoccurs or treatment fails
- Let them use condoms and teach them on how to use it
- Explain the risk and complications of STI
- Strongly advise to have one faithful partner.
- Advise the patient on the benefits of Voluntary Medical Male Circumcision (VMMC) in relation to STI.

7.7.6 The role of the Health Surveillance Assistants in the management of Sexually Transmitted Infections in the community

The role of Health Surveillance Assistant in the management of STI in the community is that of:

- Educator
- Advisor
- Motivator
- Advocator
- Counselor
- Case identifier
- Referring of cases to the nearest health facility.
- Following up patients

7.8 HIV and AIDS

- HIV stands for Human Immunodeficiency Virus
- AIDS stands for Acquired Immune Deficiency Syndrome
- HIV damages the immune system and makes the body less able to fight infections. AIDS occurs when the immune system is no longer able to protect the body.

7.8.1 The Mode of HIV transmission,

The common modes by which HIV is transmitted are

- Having unprotected sexual intercourse with an infected person
- From an infected mother to the baby before and during delivery and through breastfeeding
- Transfusion with infected (unscreened) blood
- Sharing of skin piercing instruments infected by blood such as un-sterile needles, razor blades

7.8.2 Misconceptions and beliefs on HIV and AIDS transmission

The Clarification on common misconceptions or rumors about HIV/AIDS transmission is as follows:

AIDS cannot be transmitted through:

- Shaking hands with people
- Shaking hands with an infected Person
- Staying in the same room with a person who has AIDS
- Using the same public toilet, telephones, with an infected person
- Insect bite (mosquitoes, bed bugs)
- Stepping on infected persons clothes

- Air, water or the food we eat

Taking a capsule before sexual intercourse does not protect against AIDS.

AIDS has no cure.

7.8.3 Cultural practices leading to HIV and AIDS spread

Some of the cultural practices that may lead to HIV/AIDS spread and should be discourage among the communities practicing them are:

- *Chokolo*
- *Fisi*
- *Kuchotsa imfa*
- *Kuchotsa fumbi* etc.

7.8.4 HIV testing services

- a. Rapid Antibody Test (Rapid Test)
- b. DNA PCR (Dry blood test DBS)].
- c. Self-testing.

Rapid test

- Are used to diagnose HIV in persons 12 months or older
- They check for HIV antibodies in the blood
- It takes approximately 10-15 minutes for the result

Interpreting rapid test results

- a. **REACTIVE:** The person is HIV-infected.
- b. **NON-REACTIVE:** Does not mean the person is uninfected, it just means that there are no HIV antibodies in the blood at that time. If the person is at risk, the person should be tested again in the future according to guidelines.

DNA PCR test (DBS)

- Are used to diagnose HIV in persons younger than 12 months
- The tests check for the HIV virus directly, not antibodies
- May take 2 weeks to 2 months to get the results because the sample must be sent to the central lab

Interpreting results

- a. **POSITIVE:** Means that the infant is HIV-infected.
- b. **NEGATIVE:** Result means the child was not infected when the test was done. However, if the child is still breastfeeding, he or she can still become infected through breast milk. Therefore, the child should be tested again in the future 6 weeks after stopping breast feeding to get the final HIV status of the child.

7.8.5 Early infant diagnosis (EID)

- EID is a testing strategy used to ensure **HIV- exposed** infants are tested regularly so that HIV can be diagnosed as soon as possible.
- An HIV-EXPOSED infant is an infant of an HIV-infected mother who has been exposed to HIV during pregnancy, delivery, and/or through breastfeeding, but their true HIV status is not yet known
 - 1. A DNA PCR test is done at 6 weeks
 - 2. rapid tests at 12
 - 3. Rapid test at 24 months of age (or 6 weeks after finishing breastfeeding)
- A confirmatory DNA-PCR should be done for all children less than 24 months after an initial HIV-positive test.
- Do not delay ART initiation ART in HIV-infected infants and children as soon as possible

NOTE:

- There are several barriers to HIV testing. Try to understand barriers which prevent patients from wanting to be tested, provide counselling and support to clients in order to overcome them.
- Advise clients that it is important to be tested early and often for HIV to receive timely treatment and remain healthy, and also to help prevent spreading the virus to others.

7.8.6 HIV treatment

- Antiretroviral treatment (ART) is a combination of different medications (antiretroviral, ARVs) used to suppress HIV multiplication in the body.
- All HIV-positive clients are eligible for ART.
- Before a patient starts ART, they need to have a confirmatory test and to be counseled on appropriate issues.
- Counsel patients before starting ART so that they understand the commitment to ART is for life and that good adherence means taking ART as prescribed, every day. Ensure patients know how to take their medication, the need for a child to have two caregivers, and the difference between temporary and serious side effects of ART.

- Children's ART dosing is based on their weight. It is important that the weight of all children is recorded at every clinic visit and any case of major weight change should be noted and the patient referred for further nutritional assessment.
- Most patients will start on a first line ART regimen: Regimen 13A (for adults) and either Regimen 2P or 11P (for children). There are alternative first line regimens for those experiencing serious side effects. Second line regimens are available if first line regimens fail due to a resistant virus.
- HIV-infected mothers should be adherent to their ART and CPT *for life* for their own health and to prevent transmission to their children and sexual partner(s).
- Exposed infants should begin taking NVP syrup at birth and stop after 6 weeks. CPT should be given starting at 6 weeks and continued for life, unless the child is confirmed uninfected. Any child found HIV-infected should start ART as soon as possible.
- All HIV-infected patients should take CPT for life to protect them from opportunistic infections.
- All patients must take a dose of either IPT or 3HP in their course of ART treatment to reduce the risk of TB infection.

7.8.7 Adherence to HIV treatment

- All patients should have a goal of 100% adherence to their ART.
- There are a number of challenges people face with adherence including: challenges with the health facility, the medication, and other general issues.
- Work with patients including children and their care givers to help them find solutions to these problems.
- Monitor patient's treatment by checking on the patient's adherence to all their medications nutritional status signs and symptoms of illness.
- Counsel them if needed and refer them to the health facility
- Viral load (VL) monitoring is an important way of monitoring that ART is working. Check that patients get VL drawn on schedule and that action is taken for high VL results.

7.8.8 Opportunistic infections

- An opportunistic infection is one that occurs because of an already weakened immune system, like in a person living with HIV.
- Ask patients about any signs or symptoms of STIs they have at every visit. If you suspect your patient to have an STI, refer the patient and their partner to the health facility together for testing and treatment immediately.

- At every home visit, screen patients for TB using the five question screening tool. If you suspect that they have TB, refer them to the health facility immediately for further assessment.
- Counsel patients on:
 - Preventing STIs through condom usage
 - Different methods that STIs are transmitted
 - The serious risks of STIs if they are not treated quickly and appropriately
- To prevent OIs, encourage patients to:
 - hand wash
 - use clean water
 - prepare food properly
 - sleep under an ITN every night
 - use condoms during sex
 - avoid bad habits like drinking and smoking
 - Adhere to all their medications.

7.8.9 Common psychosocial issues associated with HIV/AIDS

- HIV impacts both PLWHA and their surrounding society. Provide support and encouragement to patients when they are experiencing some of the challenges and negative impacts.
- Stigma is a negative belief or feeling a person has against someone with HIV. Discrimination is an unfair action that reflects a stigma.
- Stigma and discrimination greatly impact PLWHA. Stigma and discrimination can affect an individual's mental health.
- Help to reduce stigma and discrimination through education and by setting a positive example.
- To provide psychosocial support, be aware of their own beliefs about HIV, do not be judgmental, be respectful, and listen to patients.

7.8.10 Prevention of HIV and AIDS

HIV and AIDS transmission can be prevented by:

- **ABC:** **A** - Abstinence from sex until marriage
B - being faithful to one's sexual partner
C - Use condoms
- Not having unprotected sex with an infected person
- Not becoming pregnant if infected - STIGMA

- Not sharing, piercing instruments such as needles, razor blades
- Avoiding having unnecessary injections from untrained health personnel.
- Voluntary Medical Male circumcision.

7.8.10.1 Prevention of mother to child transmission of HIV (PMTCT)

- To prevent mother-to-child transmission (PMTCT) of HIV counsel clients on:
 - Adhering to medication
 - Eating healthy foods,
 - Using condoms to prevent STIs,
 - Practicing proper infant feeding techniques
 - Having a supportive partner.
- Practice exclusive breastfeeding for the first six months
- Child should be weaned before 2 years
- An exposed infant to undergo EID
- All mothers and exposed and infected infants should receive CPT.
- Counsel patients on the importance of two caregivers, care-givers' responsibilities, the differences in dosing and medication, challenges their child may face and how to talk their child.

7.8.10.2 Health education messages on HIV and AIDS

The important health education messages that should be communicated to individuals, families and the community on HIV and AIDS are:

- The modes of transmission
- The methods of prevention with emphasis on having only one partner and condom use
- Youth abstinence from sex until marriage and use of condoms if they have sex
- The benefits of HIV testing counseling (HTC).
- The importance of viral load monitoring and adherence.
- The benefits and risks of VMMC.

OTHER VACCINE PREVENTABLE DISEASE

- Acute flaccid paralysis
- Measles
- Tetanus

7.9 Acute Flaccid Paralysis (AFP)

Acute Flaccid Paralysis is defined as a sudden weakness of a limb or limbs (acute paralysis). Even though AFP may be caused by many diseases, the most feared is poliomyelitis (usually called polio). The disease is rare due to strengthened immunization and surveillance but sometimes cases may occur from time to time. Polio is a notifiable disease, therefore, it is your role as an HSA to make sure that each AFP case that you may come across is well-reported and investigated.

Polioviruses are transmitted when people drink water or eat food contaminated with faeces (or stools) that carry the virus (faeco-oral transmission).

7.9.1 Signs and symptoms

- Fever
- Severe muscle pain
- Paralysis of one or both arms or legs
- Failing to breathe due to chest muscle paralysis

Most children infected with polioviruses never feel ill.

Less than 5% of those infected may have general flu-like symptoms such as fever, loose stools, sore throat, headache, or stomach ache.

A few children may develop AFP symptoms which are characterized by acute (rapidly developing, severe) loss of movement or weakness of the legs, arms or hands.

7.9.2 Management and prevention of polio

- No treatment can cure the weaknesses and paralysis if AFP develops. Regular physical exercise can help paralyzed children to resume some activity.
- Prevention is by vaccination.
- Send stool for viral studies in any with AFP or weakness

7.10 Measles

Measles is a highly transmissible infectious disease caused by the measles virus.

7.10.1 Mode of transmission

- The disease spread through contact with the nose and throat secretions of infected people and in airborne droplets released when an infected person sneezes or coughs.
- A person with measles can infect others for several days before and after he or she develops symptoms.

7.10.2 Signs and symptoms

- High fever which manifest approximately 10–12 days after exposure to the virus and lasts for several days.
- Runny nose
- Cough,
- Red watery eyes
- Small white spots inside his or her cheeks.
- Slightly raised rash that may develop on the face and upper neck. After about three days, the rash may spread to the body and then to the hands and feet. It lasts for five or six days and then gradually fades.

Average Incubation period

It may take 14 days from exposure to the onset of the rash

7.10.3 Complications / danger signs

- May be very severe in children with inadequate Vitamin A in their diet
- Pneumonia
- Clouding of the eyes or blindness

7.10.4 Management, control, and prevention of measles

- There is no specific treatment for an established measles infection
- The symptoms may disappear after two to three weeks
- Encourage children with measles to eat and drink.
- Treat any dehydration with oral rehydration salts (ORS)
- Manage fever with Paracetamol
- Antibiotics should only be prescribed for ear infections and Pneumonia if any

Signs	Classify as	Management
- Any general danger sign - Clouding of cornea - Deep or extensive mouth ulcers	Severely complicated measles	- Give vitamin A - Give the first dose of an appropriate antibiotic in case of pneumonia or otitis media - If clouding of the cornea or pus draining from the eye, apply tetracycline eye ointment - Refer urgently to the hospital
- Pus draining from the eye - Mouth ulcers	Measles with eye or mouth complication	- Give vitamin A - If pus draining from the eye, treat the eye infection with tetracycline eye ointment - If mouth ulcers, treat with gentian violet - Follow up in 2 days - Refer below
Measles now or within the last 3 months	Measles	

a. Vitamin A supplementation

- All children in developing countries who are diagnosed with measles should receive two doses of vitamin A supplements given 24 hours apart, at a dosage appropriate to their age

b. Measles vaccination

- All infants at nine months of age or shortly thereafter should be vaccinated through routine immunization services.
- All children should be provided with a second opportunity for measles vaccination.

7.11 Neonatal Tetanus

Tetanus is a neurological disorder (a disorder of the nervous system).

The disease is a result of a toxin (poison) produced by the bacteria called *Clostridium tetani*.

Unvaccinated persons are at risk of the disease, and people who have dirty wounds. It is more common in rural areas than in urban.

7.11.1 Symptoms of tetanus are:

- Tight muscles that are difficult to relax,
- Muscle spasms (muscle contractions that occur without the person wanting them to).

7.11.2 Mode of transmission

- Tetanus bacteria are commonly found in the soil.
- The bacteria can be transmitted directly from the soil, or through dirty nails, dirty knives, and tools, which contaminate wounds or cuts.
- A newborn baby can become infected if the knife, razor, or other instruments used to cut its umbilical cord is dirty or if the hands of the person delivering the baby are not clean.
- Tetanus is not directly transmitted from person to person.

7.11.3 Incubation

In Neonates, the infection starts soon after birth. The incubation period is commonly 6 days but ranges from 3 to 28 days.

The shorter the incubation period, the higher the risk of death

7.11.4 Risk factors

- Infants born from mothers who have not been given TT vaccine
- Infants born from mothers less than 15 days after the mother's second or subsequent dose of tetanus toxoid

7.11.5 Signs and symptoms

- Muscular stiffness in the jaws which makes it difficult to open the mouth
- Neck stiffness
- Difficulty in swallowing
- Sweating
- Fever
- Stiffness in the stomach muscles and muscular spasms

Babies infected with tetanus during delivery appear normal at birth, but they become unable to feed by suckling from the breast at between three and 28 days of age. Their bodies become stiff, while severe muscle contractions and spasms occur

7.11.5 Management of tetanus

Suspected cases must be referred to the health facility as quickly as possible

7.11.9 Prevention and control

- Vaccinating all females of childbearing age (approximately 15–45 years)
- Health education on completion and going for a subsequent dose of the TT vaccines for women of childbearing age
- Promoting clean delivery and childcare practices, through better hygiene and care of the newborn's umbilicus.
- Improving surveillance and reporting of cases of neonatal tetanus. Generally, all suspected cases of neonatal tetanus need to be investigated. The case finding and reporting will help in giving appropriate treatment and vaccination to children.

OTHER NEGLECTED TROPICAL DISEASES

- Schistosomiasis
- Worm infections
- Trachoma
- Lymphatic Filariasis
- Onchocerciasis
- Skin infections: scabies and ringworm

7.12 Bilharzia (Schistosomiasis)

Also known as Schistosomiasis is defined as a parasitic disease caused by flatworms Schistosomes. The worms live and affect the veins of large intestines or the urinary bladder. World Health Organization (WHO) recognizes bilharzia as one of the Neglected tropical diseases (NTDs) which are most persistent in poor communities.

7.12.1 The common types of Bilharzia

There are two types of bilharzia found in Malawi and these are:

- Urinary bilharzia caused by “Schistosoma haematobium”
- Intestinal bilharzia caused by “Schistosoma mansoni”

In Malawi, urinary bilharzia is highly prevalent in the lakeshore and southern region districts, while intestinal bilharzia is more common in the central and northern regions. Incidences of bilharzia are related to water use.

7.12.2 Signs and symptoms of the two types of Bilharzia

The following are signs and symptoms of Bilharzia;

a. Urinary bilharzia

- Pain on passing urine
- Blood in urine seen at the end of the stream of urine

b. Intestinal bilharzia

- Blood in faeces
- Stool with blood and slimy substance in stool known as mucus
- Abdominal pain
- Enlargement of the liver and spleen

7.12.3 The dangers of Bilharzia

Bilharzia can cause the following conditions which are dangerous to life:

- Anaemia
- Ascitis
- Infertility
- Cancer of cervix and bladder
- Portal hypertension
- Enlargement of Kidneys
- Impairing the cognitive performance and growth of children
- Reducing the work capacity and productivity of adults.
- Repeated secondary blood infections can occur
- Seizure
- Pain during sexual intercourse
- Vaginal bleeding in women.



Figure 6.5: possible complications of bilharzia

7.12.3 Risk groups in the communities

Groups of people who are at risk of getting bilharzia in the communities are:

- School-age children
- Fishermen
- People involved in irrigation
- Rice and sugar cane farmers



Figure 6.6: shows risk activities

7.12.4 The vicious circle of Bilharzia transmission

The vicious circle or transmission route through which the bilharzia is transmitted is as follows:

- Starts with an infected person urinating or defecating in or near water
- Eggs hatch into larva called miracidium
- The miracidium enters suitable snail
- In the snail the miracidium then develops into cercaria
- After development, the cercaria comes out of snail and goes into water
- Cercaria penetrates the skin of a person in contact with water of the river, stream or lake which is infested with cercaria

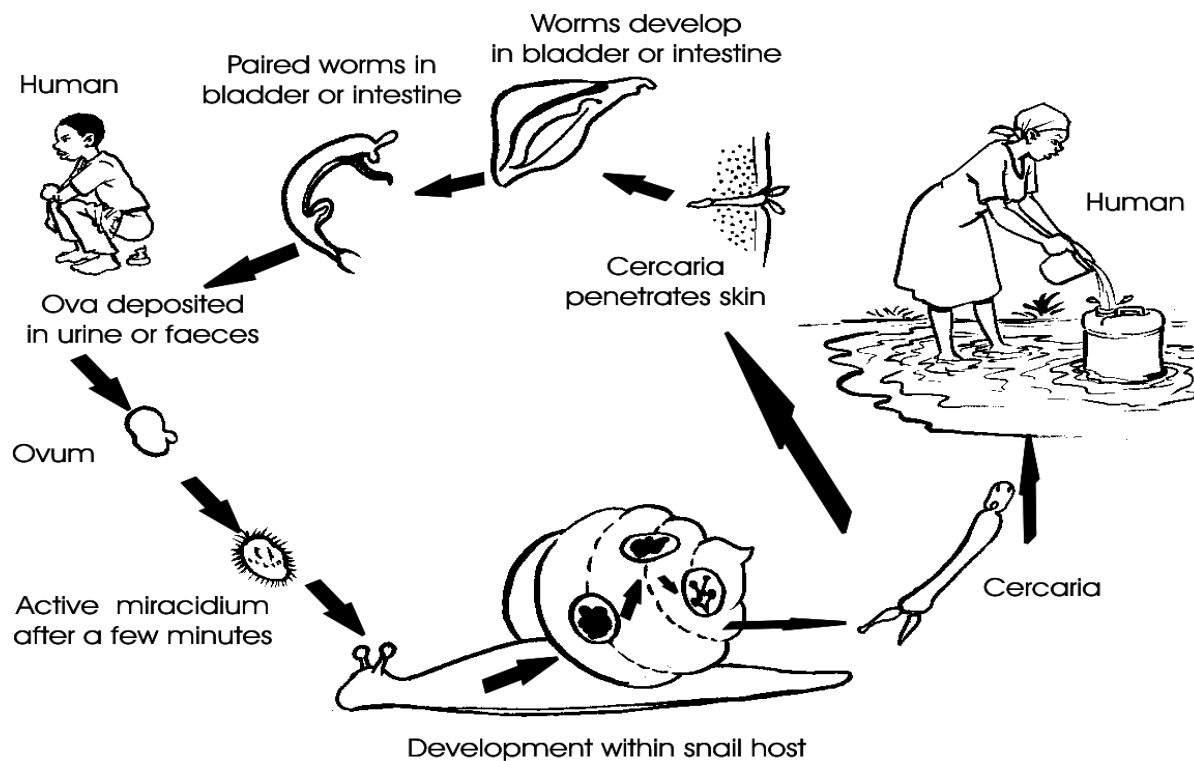


Figure 6.7 Life cycle of bilharzia

7.12.5 Management

- Mass treatment where prevalence is high
- Treatment of cases at health facilities with Praziquantel (Biltricide).
- Dose: 40 mg / kg body weight; each tablet is 600 mg given orally at bed time (to avoid the side effect of dizziness)
- Mostly community treatment does use dose poles or dose tapes or dose stripes which correlate height and dosages (this because taking weight in the community is not as easy as height)

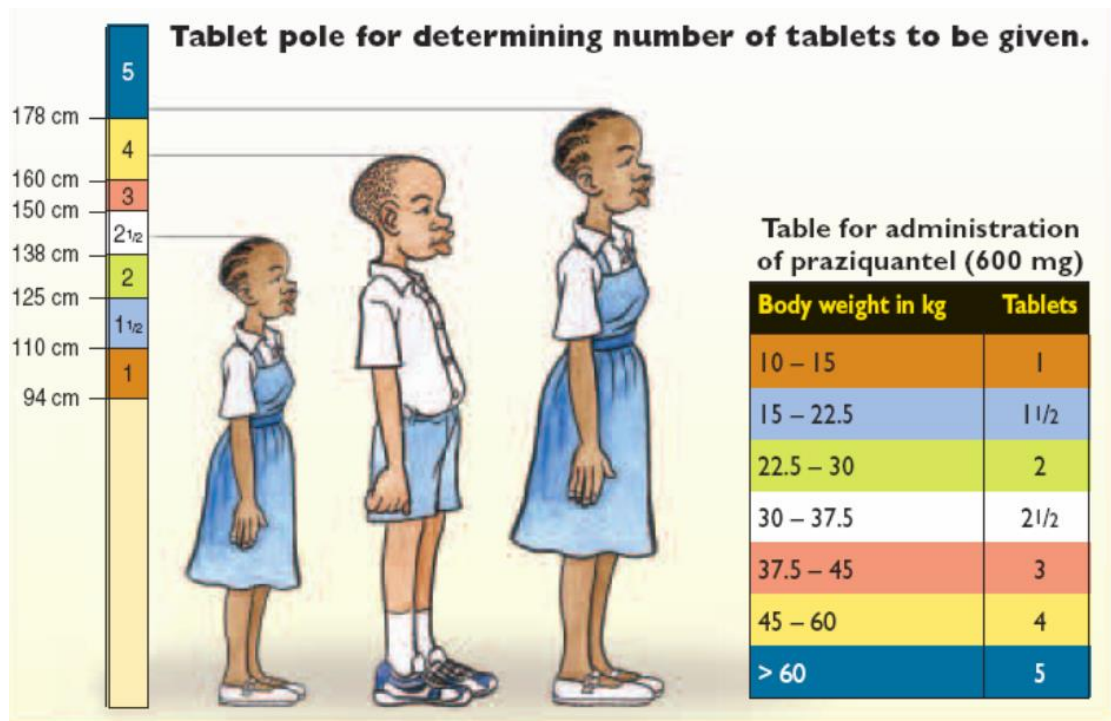


Figure 6.5: tablet pole for dosage of praziquantel

People who should not receive treatment

1. Sick children
2. Children under 94cm
3. Children who experience fits
4. Children and parents should consent to treatment
5. Any person with history of seizures or epilepsy
6. Note: drugs should never be given to take later

7.12.6 Prevention and control

- Preventative treatment through Mass Drug Administration (Praziquantel)
- Improve Water, sanitation and Hygiene
- Avoiding contact with infested water bodies
- Snail control through chemical, biological and environmental Intervention
- Intensifying health education activities on the following:
 - Proper use of latrines and toilets
 - Avoid walking through infested water
 - Avoid swimming in infested rivers, streams, ponds and canals
 - Use of safe water supplies
 - Rapid case detection and referral to the nearest health centre for effective treatment

7.13 Worm Infections

Parasitic worms are organisms that can live and replicate in the gastrointestinal system. The common infections are roundworms, hookworms, tape worms and pin worms

7.13.1 Round Worms / Ascariasis

- Ascariasis is caused by helminth parasite called **Ascaris lumbricoides**.
- Mature worms can measure up to 15–35 cm in length
- It mainly affects children, particularly between three to eight years of age. Children are more susceptible than adults because of their habit of putting all kinds of things in their mouths. Adult may develop some immunity.

7.13.1.1 Life cycle

- Eggs pass out with the faeces.
- The eggs are ingested together with contaminated food, water, etc.
- The eggs hatch and develop into larvae (immature stage) in the intestines.
- The larvae are carried in the bloodstream to the lungs, where they develop further.
- They migrate upwards from the lungs into the throat where they are swallowed – returning once again to the person's intestines.
- Male and female worms mate and the females lay eggs in the intestines, then the cycle starts all over again.

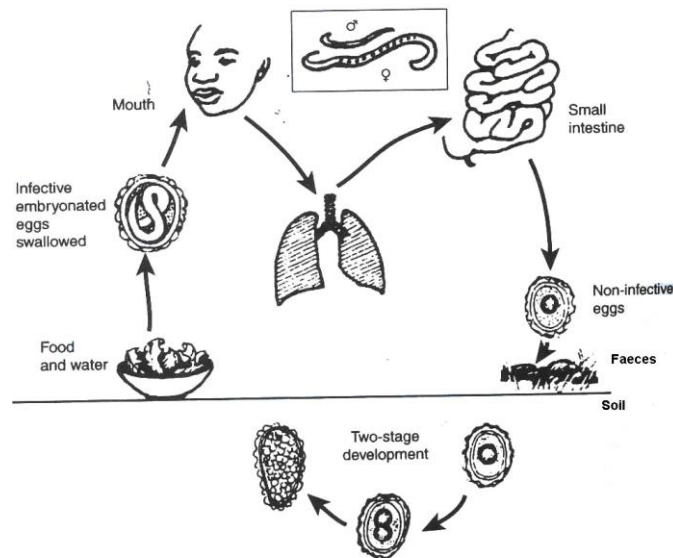


Figure 6.6 Life cycle of tape worm (*Ascaris lumbricoides*)

7.13.1.2 Signs and symptoms

- Abdominal discomfort
- Live worms in stools, vomit or occasionally emerging from the nose.

7.13.1.3 Management

A single dose of Albendazole or Mebendazole

Routine deworming every six months for children aged 24 months or older

7.13.1.4 Prevention and control

To prevent worms, there is a need to intensify health education to achieve the following:

- The need for and the proper use of latrines and toilets
- Washing hands after using the toilet and before handling food
- Avoidance of food which has fallen on floor
- Proper disposal of children's faeces into latrines
- Training of children to use the latrines
- Washing of fruits and vegetables before eating
- Mass treatment and periodic de-worming of children

Inspect latrines in schools and markets in your community; check on their use and cleanliness

7.13.2 Hookworm

- Hookworm infection is transmitted through contact with faeces.
- Hookworms live in the small intestines and suck blood from blood vessels in the intestinal walls.
- Risk factors include, walking barefooted and poor sanitary conditions that allow faeces to contaminate the soil.

7.13.2.1 Life cycle

- Immature parasites (larvae) in the soil enter the body by penetrating the skin, usually through bare feet.
- The larvae migrate to the small intestine, after passing through different body systems.
- In the small intestine, the adult worms mate and the females lay eggs which are excreted with the faeces.
- The eggs develop in the soil into larvae, then the cycle starts again

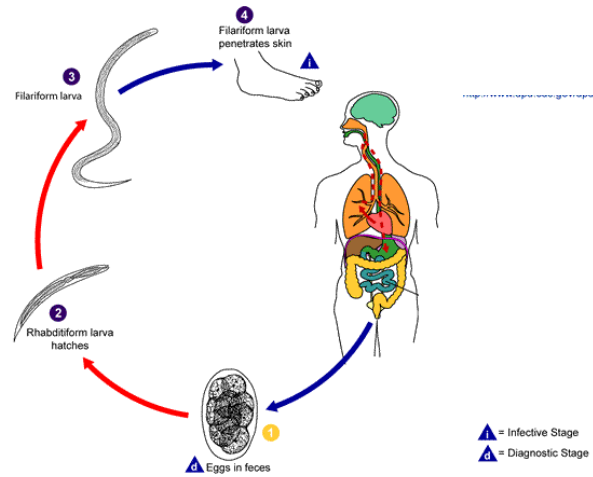


Figure 6.7 Life cycle of Hookworm

7.13.2.2 Signs and Symptoms

- Abdominal pain
- Anaemia as a result blood loss caused by the blood-sucking worms.

7.13.2.3 Management

The treatment is the same as for Roundworms

In case of anaemia give iron

- For 1 to 5 years of age: Ferrous Sulphate Tablets 100 mg (1/2 tablet) every 12 hours for 2 months.
- For children older than 5 years of age: Ferrous Sulphate Tablets 200 mg every 12 hours for 2 months.

7.13.2.4 Prevention and control

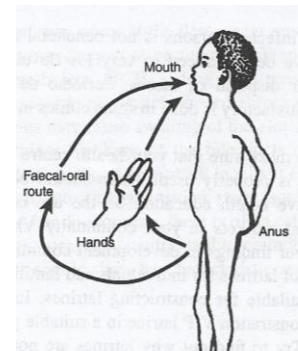
- Wearing shoes to prevent the parasites from entering through skin while walking barefooted.
- Using latrines, disposing of faeces safely and stopping open defaecation in fields, to prevent contamination of soil with the parasites.
- Mass treatment

7.13.3 Pinworm

- A pinworm is a benign intestinal parasite
- The parasite is common in school children
- The whole family may be infected
- Initial infection occurs by faeco-oral route. Infection is maintained by direct transfer of infective eggs from the anus to the mouth (auto infection) or indirect faecal-oral contact through clothing, bedding, food and articles i.e. door handle

7.13.3.1 Life cycle

- After ingestion eggs hatch in the stomach and small intestines.
- Young worms mature in the small intestines and upper colon.
- Gravid worms migrate to the rectum to discharge eggs on peri-anal skin especially during the night. This causes itching and consequent scratching (auto infection is established)



7.13.3.2 Management

Treat the whole family with Albendazole or Mebendazole in the doses stated earlier for round worms.

7.13.3.3 Prevention and control

- Personal hygiene
- Bathing and hand washing
- Cutting nails short
- Washing underwear, night clothes and beddings
- Proper disposal of faeces
- Treating the whole family
- Giving health education to infected individuals to prevent re-infection

Figure 6.8
Transmission of Pin
Worm (Auto
infection)

7.13.4 Tapeworm (Taenia)

Tapeworm is a zoonotic parasite. The adult stage of tapeworm lives in the intestines of human hosts.

The most common is the beef tapeworm, which has the cow as its intermediate host. The other is pig tapeworm which has pigs as its intermediate host

Risk factors includes: eating Raw beef or pork, eating undercooked beef or pork, poor latrine usage and the use of human manure.

7.13.4.1 Life cycle

- Adult tape worms live in the small intestines of human
- Broken segments of the worm containing the gravid uterus and/or the eggs are passed in faeces
- The eggs are ingested by cows and pigs when grazing and feeding respectively.
- In the gastro-intestinal tract of the animals the embryos hatch and penetrate intestinal walls and are carried through the bloodstream to muscles.
- Here the larva grows and forms cysts
- When a human ingests cysts, the cyst gets dissolved by gastric acid in the stomach to release embryos
- Tapeworm embryo attach itself to the wall of the small intestines by its head and grow into an adult worm

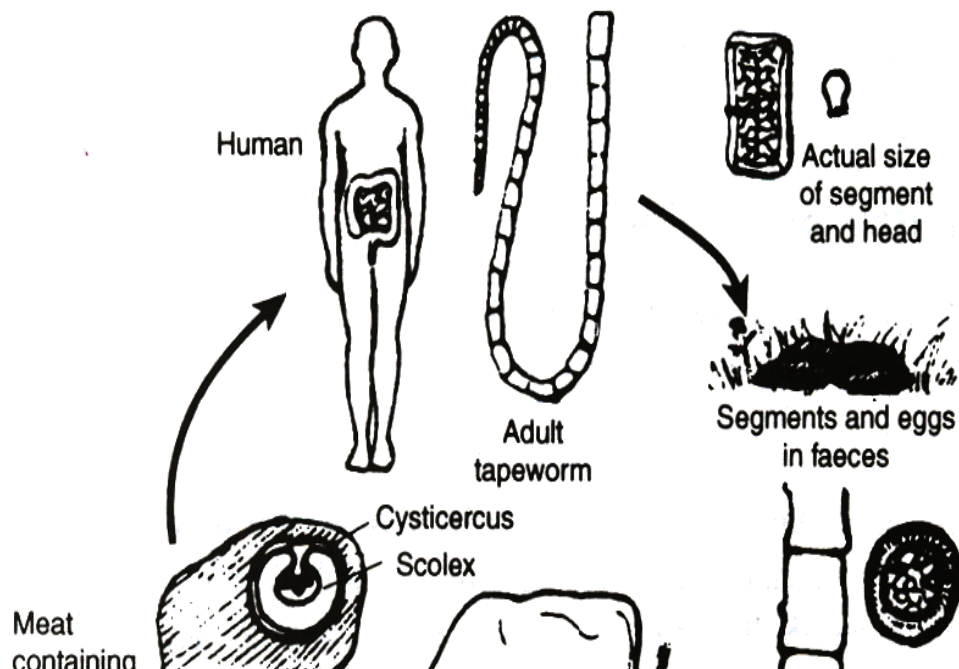


Figure 6.9 The life cycle of Beef Tapeworm

7.13.4.2 Signs and symptoms

- In some people it may be asymptomatic
- Loss of weight
- Abdominal discomfort
- Itching around the anus
- Nausea
- Change in appetite
- Weakness

7.13.4.3 Management

Treatment can be done on individual basis or mass drug administration.

Treatment can have done with single doses of praziquantel (10mg/Kg) or albendazole 400g

7.13.4.4 Prevention and control

- Proper faeces disposal
- Meat inspection: condemn all infected meat
- Thorough cooking of meat
- Health education
- Deep freezing infected meat (deep freezing can kill cysts in 24 hours)

7.14 Trachoma

- Trachoma is an infectious eye disease caused by *Chlamydia trachomatis* that can eventually cause blindness if left untreated.
- Infection usually occurs in childhood, but severe sight problems do not develop until adulthood.
- Blindness comes as a result of persistent scratching of the cornea from the eyelashes, which have turned inwards due to scarring in the conjunctiva
- It is common in women and it is also associated with poverty and scarcity of water

7.14.1 Contributing factors to developing trachoma (4 ds)

- (a) Dust
- (b) Dirty
- (c) Dry
- (d) Dung

7.14.2 Agents of Trachoma transmission

- Flies: Flies landing on the face of an infected person and then carrying the infected discharge to another person's face.
- Fingers: An infected person touching his/her eyes and then touching another person on the face or directly on their eyes.
- Fomites: Clothing used to wipe infected eyes and then contaminating the eyes of another person, for example towel or handkerchief.

After infection, the disease progresses very slowly, all the time destroying the cornea and the conjunctiva, until it eventually leads to permanent blindness in one or both eyes.

Because the early stages are the most infective, transmission is high among children.

7.14.3 Signs and symptoms

There are five grades of trachoma progression.

a. First grade: Trachomatous Follicles (TF)

- Eyes are red and watery (as in ordinary conjunctivitis).
- After 30 or more days, follicles (small pinkish-grey lumps) form inside the upper eyelids.
- Little pus in the eye, but if the pus is copious.

b. Second grade: Trachomatous Intense

- Intense inflammation in more than half of the upper conjunctiva.
- In severe cases, the blood vessels of the eyelids disappear.

Note: TF and TI are active phase of trachoma which can be transmitted

c. Third grade: Trachoma Scarring

- After several years the follicles on the conjunctiva slowly begin to disappear, leaving behind whitish scars on the conjunctiva.
- In the cornea, the small blood vessels degenerate.
- The vision becomes hazy

d. Fourth grade: Trachoma Trichiasis

- The scars gradually cause the eyelashes to turn inwards
- At least one eyelash rubs on the cornea.
- Painful and distressing for the person

Note: 'trichiasis' means when the eyelashes rub the cornea

e. Fifth grade: cornea opacity (CO)

The cornea becomes white and opaque (not transparent).

7.14.4 Management (SAFE strategy)

- S: Surgical correction of Trichiasis
- A: Antibiotic treatment for active trachoma
- F: Facial cleanliness to prevent the spread of disease
- E: Environmental Changes to improve personal household and community hygiene (Economic Empowerment)

7.14.5 Management

- First and second grade can be treated with tetracycline eye ointment.
- Refer suspected active cases to the health facility
- Trace patients to families and refer all suspected contacts
- Counsel and refer all patients with the following complications
 - Bent eye lashes /Trichiasis
 - Scarring of corneas
- Follow up patients on treatment

7.14.5 Prevention

- Improve personnel hygiene especially hand washing and face washing
- Environment improvements like:
 - Improve access to and use of safe water
 - Increase use of latrines and discriminate disposal of wastes
 - Proper siting and care of animal kraals and houses

7.15 Lymphatic Filariasis

- The disease is also known as elephantiasis because of its effects on the legs of infected people.
- Lymphatic filariasis is a parasitic disease caused by a worm that enters the lymphatic system.
- The disease is not fatal, but it is responsible for considerable disability and suffering, causing social stigma among men, women and children.

7.15.1 Mode of transmission

The parasites that cause lymphatic filariasis are transmitted from human to human through the bites of *Culex* mosquito in urban areas and *Anopheles* mosquitoes in rural areas.

- The female mosquitoes take the tiny forms of the parasitic worm (microfilaria) from an infected person during a blood meal

- The microfilaria develops into larvae, and when the mosquito feeds on another person, the larvae enter the skin through the mosquito bite.
- The larvae travel via the lymphatic vessels, where they develop into adult worms all over the body
- After mating, the females lay millions of eggs which develop into microfilaria, lifecycle starts again.

7.15.2 Signs and symptoms

Most infections do not produce symptoms, but in people where the lymphatic drainage is badly damaged the common symptoms include:

- Swelling of the scrotum
- Swelling of the legs and feet,
- Thickening of the skin into folds
- Sometimes fever and may develop kidney damage.

Suspected cases of lymphatic filariasis should be referred to the health facility

7.15.3 Prevention and control

- Integrated vector control measures to reduce the mosquito population
- Community-directed mass drug administration (MDA)
- Use of ITNs to reduce mosquito bites.
- Rapid case detection and referral to prevent cases from spreading.
- Health Education

7.16 Onchocerciasis

Onchocerciasis is a vector-borne disease transmitted through bites by *blackflies*. Blackflies are known locally under different names such as example ‘Chipwita’ or ‘Zipwita’ in Thyolo, ‘Mbudu’ in Mwanza and ‘Chinyiriri’ in Mulanje.

The disease is caused by a parasitic worm called *Onchocerca volvulus*. The parasite is spread from person to person by the bites of black flies which breed in fast-flowing rivers and streams. Onchocerciasis mostly affects the skin in its early stages but it progresses to affect the eyes of an infected person, eventually leading to blindness if the person remains untreated.

Because of the location of the breeding sites of the flies and the fact that the disease can cause blindness, onchocerciasis is commonly known as *river blindness*.

The lifespan of the parasite is very long, 10 to 15 years, hence treatment has also got to be long.

7.16.1 Transmission

- It is transmitted by a small black fly called *Simulium damnosum*, which lays eggs in fast-running rivers
- Its average flying distance is about 40 km
- The adult worm lives for 10 – 15 years and the female produces thousands of microfilaria which live for about 2 years.
- The female fly takes up microfilariae when it sucks blood from an infected person
- In the fly the microfilariae develop into an infectious larva which are passed to a new host when the fly bites again
- The fly attacks people outdoors during the day but not in bright sunlight. Most bites occur around sunrise and sunset, or on cloudy days and in the shade.

7.16.2 Signs and symptoms

Infected person may be without symptoms. Those with symptoms will usually have one or more of the three manifestations:

- Skin rash (usually itchy)
- Eye disease
- Nodules under the skin

7.16.3 Complications

- Changes in skin sometimes called lizard or leopard skin
- Lesion on the eye
- Altered vision
- Blindness

7.16.4 Management

- The recommended treatment is ivermectin, to be given every 12 months for life span of the adult worms.

Exclusion criteria:

Ivermectin should not be given to

- Pregnant women
- Mothers breastfeeding babies that are less than 1-week old
- Children under 5 years of age (in cases where the age of a child is unknown, the child should not be given Ivermectin if he/she is of a height of less than 90 cm)
- Gravely ill

This is to avoid misconceptions at the community level

7.16.5 Prevention and control

- Personal protective measure against the biting insects
- Mass drug administration of ivermectin
- Vector control

SKIN INFECTIONS

- Scabies
- Ringworm

7.17 Scabies

Scabies is a parasite infestation of the skin caused by itch mites, called **Sarcoptes scabiei**.

Individuals infested with scabies for the first time typically experience symptoms after 4 to 6 weeks. If a person has had scabies before, symptoms appear much sooner (1-4 days) after exposure

7.17.1 Life cycle scabies mites

- Male and female mites mate on the surface of the person's skin.
- The female mite enters the skin and makes a small tunnel or burrow
- Within the tunnel, it deposits its eggs and faeces.
- The eggs hatch in 4-5 days
- After the eggs are hatched, larvae migrate to the skin surface and eventually change into the adult form.

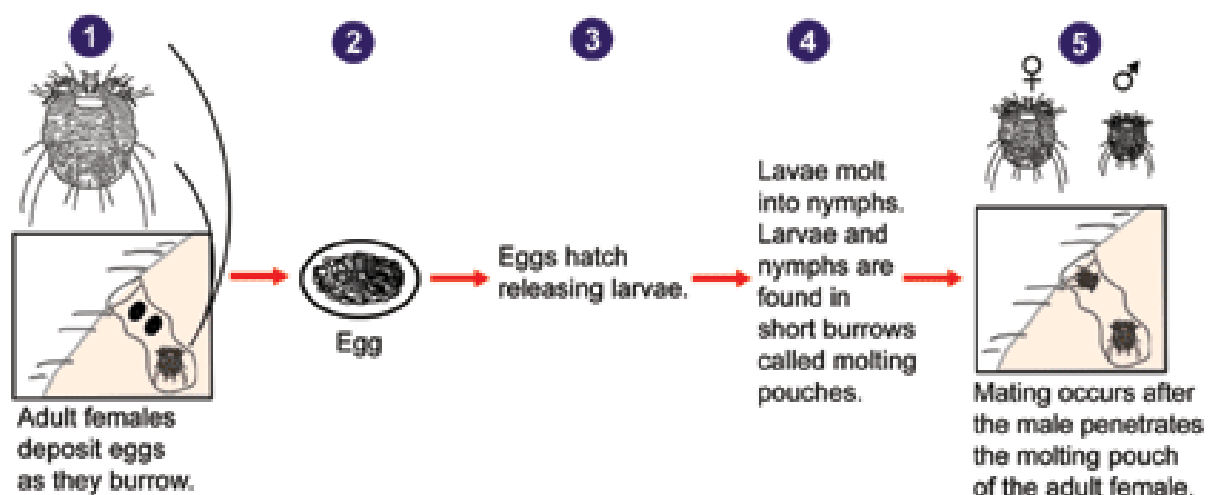


Figure 6.10 Life cycle of *Sarcoptes scabiei*

An adult mite can live up to about a month on a person, but they survive only two to three days once away from the human body.

7.17.2 Mode of Transmission

Scabies is spread through skin to skin contact, for example, between:

- Sex partners
- Children playing together
- Health workers providing care
- Mothers and children.

It is also transmitted indirectly when sharing blankets, bed sheets and clothing.

Poor living conditions and poor hygiene promote the spread of scabies.

7.17.3 Signs and Symptoms

- Severe itching of the skin, particularly at night caused by:
 - Mites when burrowing in the skin
 - The presence of faeces and eggs in the skin
 - Dead mites

- Threadlike burrows in the skin.

In infants, the palms, soles, face and scalp are most often affected. In older children and adults the rash is most often found in the spaces between fingers and toes, wrist, armpits, ankles, navel, 'belt line', groin, buttocks, genitals in men and breasts in women.

7.17.4 Management

Treatment of the whole family.

Bedding, clothing, and towels used by infested persons or their household, anytime during the three days before treatment should be decontaminated by washing in hot water and/or by sealing in a plastic bag for at least 72 hours. Scabies mites generally do not survive more than 2 to 3 days away from human skin.

Scabicide lotion or cream should be applied to all areas of the body from the neck down to the feet and toes.

Example of scabicides; Benzl benzoate

7.17.5 Prevention and control

- Regular bathing, washing of clothes and frequent use of soap
- Health education on use of soap, regular bathing and
- Early diagnosis and treatment of the whole household (contacts)
- Improvement of community water supplies

7.18 Ringworm

Ringworm is a common skin disorder otherwise known as *tinea*

It is not caused by a worm but a fungal infection of the skin caused by dermatophytes. The disease infects the skin, hair and nails without penetrating the deeper tissues.

The different types based on location of the infection on the body are:

- Feet (tinea pedis, commonly called “athlete’s foot”)
- Groin, inner thighs, or buttocks (tinea cruris)
- Scalp (tinea capitis)
- Beard (tinea barbae)
- Hands (tinea manuum)
- Toenails or fingernails (tinea unguium)
- Other parts of the body such as arms or legs (tinea corporis)

7.18.1 Transmission

Dermatophyte infection can be transmitted through

1. Person to person by fomites such as combs, brushes, etc. or direct contact;
2. Direct contact or by fomites with an infected animal
3. Direct contact with contaminated soils.

7.18.2 Signs and Symptoms

The affected region forms a flat ring-shaped patch which may be found on the head, dry body skin, between the toes or even other moist places like the mouth and genitalia region (private parts).

Tinea capitis (ringworm of the scalp):

- This is a round, ring-shaped patch which enlarges peripherally with central clearing.
- The hair in the affected area becomes brittle and breaks off easily.
- It occurs mainly in children under ten years of age and disappears after puberty.

Tinea corporis (ringworm of the body):

- This is characterised by flat, ring-shaped lesions. The lesion keeps expanding outwards, leaving normal skin in the middle.

Tinea pedis (ringworm of the foot or “athlete’s foot”):

- It presents with scaling and cracking of the skin between the toes.

7.18.3 Management

Application dermatophytes of the skin. They are available in powders, pastes, lotions, shampoos, creams and ointments. Examples include:

7.18.4 Prevention and control

- Health education on personal hygiene
- Wearing shoes that allow air to circulate freely around your feet.
- Not walking barefoot in areas like public toilet or public showers.
- Clipping fingernails and toenails short and keep them clean.
- Change your socks and underwear at least once a day.
- Not sharing clothing, towels, sheets, or other personal items with someone who has ringworm.

EMERGING INFECTIONS

- COVID 19
- Ebola Virus Disease

7.19 COVID-19

- Coronaviruses are a large family of viruses which may cause illness in animals or humans. The most recently discovered coronavirus strain severe acute respiratory disease corona virus 2 (SARS CoV2), causes a disease called coronavirus disease 2019 (COVID-19).
- Coronavirus disease 2019 (COVID-19) is a highly infectious viral disease that spreads from person to person through droplets. It is known to have originated from animals.
- The first human cases of COVID-19 were identified in Wuhan City, China in December 2019.
- The disease has spread from China to many countries around the world including Malawi
- The incubation period for COVID-19 ranges from 1-14 days, however, signs and symptoms most commonly show around five days.

7.19.1 Mode of transmission

- The main way the virus that causes the disease spreads is through respiratory droplets expelled by someone who is infected with COVID-19, such as coughing and/or sneezing; and then touching eyes, nose or mouth.
- The virus can also be spread through contact with contaminated surfaces and objects.

7.19.2 How likely is one to catch COVID-19?

The risk depends on where the person is - and more specifically, whether there is a COVID-19 outbreak unfolding there. Risk factors include:

- Overcrowding and standing in very proximity with infected people (less than 1 metre apart), for example: People in group residential settings;
- People in detention facilities;
- Market places;
- Shops or shopping centres or bottle stores;
- Schools;
- Hospitals;
- Community events such as weddings;
- Public transport facilities such as buses, etc.
- Travel/movement to and from infected areas.
- Taking care of infected person without proper protective wear and poor practice of preventive measures.
- Poor hygiene practices.

Note: an infected person without symptoms can still spread/infect other people with the corona virus.

7.19.3 Who is at risk of developing severe Corona virus (COVID-19) illness?

- People with compromised immune systems (e.g. cancer, transplant, HIV/AIDS);
- Elderly people (older than 60 in the general population);
- People with chronic medical conditions (e.g. heart, liver, lung, kidney disease, diabetes)

7.19.4 Signs and Symptoms

These signs and symptoms include:

- Fever
- Cough
- Difficulty breathing or fast breathing
- Sore throat

- Runny nose
- Body pains
- Tiredness

7.19.5 Diagnosis

Clinical: The characteristic clinical syndrome of a patient presenting with acute onset of fever (temperature >38 degrees C) and one or more of the following:

- Cough
- Sore throat
- Shortness of breath.

Besides, the patient may give a history of:

- Having been in contact during the last 7 days before the onset of symptoms with a confirmed case of COVID 19
- Having worked in laboratory testing samples from persons suspected of COVID 19.
- Travel to or residence in a location reporting community transmission of COVID-19

Laboratory test.

Sample collection: Naso-pharyngeal or throat swab, put in viral transport medium (VTM) and refrigerate at 4 degrees Celsius. If no VTM available, use sealed sterile container.

7.19.6 Management, prevention and control

All suspected or confirmed Coronavirus (COVID-19) cases should be isolated.

Majority of the suspected or confirmed Coronavirus (COVID-19) patients are treated/managed at home.

7.19.6.1 Recommendations for home care:

- The patient should be in a well-ventilated single room with open windows and doors.
- Minimize sharing the space with the patient.
- Minimize patient movement in the house.
- Ensured shared spaces such as kitchen and bathroom are well ventilated.
- Keep patients more than 1 metre away from other household members.
- Limit the number of care-givers to one person who is not immune-compromised or has co-morbidities.
- No visitors until patient has no signs and symptoms and has visibly recovered or has turned out negative on a repeat Covid-19 test.
- Hand hygiene must always be done after contact with patient, during food preparation and after using the toilet, using soap and water.

- Use disposable paper to dry hands after washing them.
- If available, the patient should be provided with a surgical mask to reduce contact with respiratory secretions.
- Caregivers should wear a properly fitting surgical mask when in the same room as the patient. Avoid touching the mask unnecessarily and remove it when it gets wet using the removal techniques described (as described under the PPE section above).
- Caregivers should avoid contact with respiratory secretions and body fluids and always use gloves where contact with hands might occur.
- Do not reuse masks and gloves.
- Use dedicated linen and utensils for the patient and wash these carefully with soap and hot water before re-using.
- Daily clean and disinfect frequently touched surfaces such as the bed frame, bedside tables and other furniture with regular soap or detergents then disinfect with a solution of 1-part bleach (chlorine) to 9 parts water.
- Clean and disinfect bathroom and toilet surfaces at least once daily.
- Disposal of masks and disposable linen from the patient should be discarded as infectious waste, i.e. burning.

7.19.6.2 Prevention and control

- Community awareness and health education
- Isolation of suspected and confirmed cases
- Contact tracing and isolation
- Frequent hand washing with soap and clean or use of hand sanitizer
- Avoid touching face to prevent introduction of the virus
- Cover the mouth with flexed elbow when coughing
- Avoid attending overcrowded places
- Report to health worker once one develops signs and symptoms of COVID-19
- Avoid greetings
- Adherence to quarantine

7.19.6.3 Prevention and control measure in public places

- Place Hand washing facilities with soap at strategic places.
- Avoiding overcrowding by limiting the number of people at a particular time
- Control movement of people
- Maintain social distance of one metre apart
- Public screening and testing
- Intensive health education utilizing all channels of communication

7.20 Ebola Virus Disease

Ebola Virus Disease is a rare and deadly disease in people and primates. The viruses are located mainly in sub-Saharan Africa and they have caused several outbreaks in the continent. The latest one being the West Africa outbreak that spread into several countries including Malawi.

Ebola virus was first recognized in 1976 near the Ebola River in the Democratic Republic of Congo and has been causing outbreak since.

7.20.1 Mode of transmission

The virus spreads to people initially through direct contact with the blood, body fluids and tissues of animals.

The virus then spreads to other people through direct contact with:

- Blood or body fluids of a person who is sick with or has died from Ebola virus disease.
- Objects contaminated with body fluids from a person who is sick with or has died from Ebola.
- Infected fruit bats or primates (such as baboons and monkeys).
- Semen from a man who recovered from Ebola

The virus gets in through broken skin or mucous membranes in the eyes, nose, or mouth

The incubation period of the disease is from 3 to 21 day

7.20.2 Signs and Symptoms

- Fever
- Aches and pains, such as severe headache, muscle and joint pain, and abdominal (stomach) pain
- Weakness and fatigue
- Gastrointestinal symptoms including diarrhea and vomiting
- Abdominal (stomach) pain
- (Unexplained) hemorrhaging, bleeding or bruising
- Other symptoms may include red eyes, skin rash, and hiccups (late stage)

7.20.3 Diagnosis

Suspect if a patient present with a history of fever and shows no response to usual causes of fever in the area, and at least one of the following signs: bloody diarrhoea, gum bleeding, purpura, nose bleeding, bleeding into eyes and urine.

7.20.3 Management

Symptoms of Ebola virus disease are treated as they appear. When used early, basic interventions can significantly improve the chances of survival. These include:

- Providing fluids and body salts.
- Oxygen therapy

7.20.4 Prevention and control

Isolation of suspected cases and confirmed cases

Avoid the following:

- Contact with blood and body fluids of persons who are ill.
- Items that may have come in contact with an infected person's blood or body fluids
- Funeral or burial rituals that require handling the body
- Contact with bats and nonhuman primates' blood, fluids, or raw meat prepared from these animals (bushmeat).
- Contact with the raw meat of an unknown source.

PRIORITY NON-COMMUNICABLE DISEASE IN MALAWI

- Diabetes
- Cardiovascular diseases
- Respiratory diseases: Asthma
- cancers
- Mental Health: depression

7.21 Introduction

- Non-communicable diseases (NCDs) are diseases and conditions that cannot be passed from one person to another. They are chronic conditions that do not result from an (acute) infectious process
- They are of long duration, progress slowly and major contributor to poverty
- NCDs are preventable.
- They share four major behavioral risk factors namely: tobacco use and exposure, unhealthy diet, physical inactivity and harmful use of alcohol.

7.21.1 The Role of health workers in NCD Prevention and Control

- Educate community members on the signs and symptoms of common NCDs

- Provide information on prevention of complications once diagnosis is made
- Provide health information on health lifestyle including healthy eating, exercising and not smoking as a way of lowering the risk of NCDs.
- Help in screening for diabetes and hypertension within the community
- Facilitate referral of community members suspected of having NCDs to the nearest health facility for appropriate management and follow-up.
- Assist in the follow-up of persons being managed for NCDs including tracing those who have defaulted on treatment. Support treatment adherence among community members on management for NCDs.
- Provide psycho-social support to community members being managed for NCDs

7.22 Diabetes

Diabetes is a lifelong condition characterized by high blood sugar.

7.22.1 Causes

- Lack or insufficient production of insulin and/or Insulin inaction
- Insulin is a chemical produced by the pancreas which acts like a key that opens the body cells for sugar to enter so that it can be used for energy production.

7.22.2 Simple classification of Diabetes Mellitus

There are 2 main types of diabetes mellitus; type 1 and type 2

a. Type 1

It occurs in young children and adolescents. It results from damage to the pancreas which leads in failure of Insulin production. Account for up to 10% of all cases of diabetes.

b. Type 2

It is the commonest type of diabetes accounting for up to 90% mostly in adults .it is due to reduced insulin production or resistance of body cells to insulin, or both.

c. Gestational diabetes mellitus

Diabetes detected for the first time during pregnancy. It occurs due to failure of the body to make and use all the insulin it needs for pregnancy.

d. Pre-diabetes state

This is a state where an individual has abnormally high blood sugar that has not reached levels categorized as diabetes. People with pre diabetes are at risk of developing diabetes or getting complications before overt diabetes sets in.

7.22.3 Fasting blood sugar levels

- Hypoglycemia <4mmols/L
- Normal 4.0-5.8mmol/L
- Pre Diabetes state 6.0-6.9mmol/L
- Diabetic >6.9 mmol/L

7.22.4 Signs and symptoms of Diabetes Mellitus

- Frequent urination
- Excessive thirst
- Extreme hunger
- Unexplained weight loss
- Increased fatigue
- Irritability
- Blurry (unclear) vision
- Impotence- failure to sustain an erection.
- Itching of private parts in women
- Slow healing of cuts and wounds
- Numbness or tingling sensation of the hands and feet

7.22.5 Risk factors for diabetes mellitus

- Advancing age
- Family history of diabetes
- Overweight and Obesity
- Alcohol use
- Tobacco use
- Physical inactivity
- Stress
- Unhealthy diet
- Pregnancy
- Long-term use of steroids (drugs used to relieve swelling and inflammation)

7.22.6 Complications of diabetes

- a. Short term
 - Low blood sugar /hypoglycemia
- b. Long term
 - Kidney damage
 - Nerve damage
 - Tooth decay
 - Foot problems
 - Heart and blood vessel problems
 - Eye problems
 - Damage to the brain

7.22.7 Prevention and control of diabetes

- Promotion of healthy diets (low fat, low salt, whole grains, roots and tubers cassava, arrowroots, sweet potatoes- avoid highly processed foods)
- Promotion of physical activity
- Maintenance of Healthy weight
- Avoid alcohol
- Avoid tobacco use
- Early detection and treatment of diabetes mellitus: very important early treatment can prevent or delay the complications of the disease
- Community support for people living with diabetes mellitus.

7.22.8 Management of diabetes mellitus

- Health education
- Proper nutrition
- Physical activity
- Weight control
- Stop smoking
- Stop alcohol intake
- Adherence to diabetes drugs intake

7.22.9 Diabetes Education

People with diabetes and their families need to know:

- That diabetes is serious chronic disease, has no cure, but can be controlled
- Diabetes complications are preventable
- That regular medical check-ups are very important and attending diabetic clinic

- When to seek medical help
- That the cornerstones of diabetic treatment include:
 - Individualized education and counselling
 - What foods to eat, how much and how often to eat.
 - How to exercise and the precautions (a light snack before and after the exercise)
 - How and when to take medications
- On physical exercises, it is important to stress the value of physical activity and exercises in the prevention, control and management of diabetes.
- Good nutrition is a key pillar of prevention, control and management of diabetes.
- Eat a healthy, balanced diet with food components from all the food groups
- Simple meal planning

7.23 Cardiovascular disease

- Cardiovascular disease or Heart disease is any disease or condition that affects or damages the heart or blood vessels.
- Persistent high blood pressure is one of the risk factors of stroke and heart attack.

7.23.1 What is blood pressure?

- Blood pressure is a measure of the force of blood pushing against the walls of blood vessels (arteries).
- Blood pressure is measured in millimetres of mercury (mm Hg) and is recorded as two figures. For example, 120/80 mm Hg which is said as 120 over 80.
- The top (first) number is the systolic pressure.
- The bottom (second) number is the diastolic pressure.

Hypertension or high blood pressure occur when either the top number (pressure) is equals or greater than 140 mm Hg or the bottom number (pressure) is equals or greater than 90 mm Hg or both.

7.23.2 Risk factors of common cardiovascular diseases

- Unhealthy diet e.g. High salt, fat & sugar intake.
- Physical inactivity leading to obesity
- Alcohol use
- Tobacco use

Additional risk factors for hypertension include:

- Family history: Parents or close relatives
- Race: Blacks develop high blood pressure more often than whites
- Age: The older you get, the greater your chance of developing high blood pressure.
- Gender: Men seem to develop high blood pressure most often between age 35 and 55 while women is after 55
- Stress
- Having diabetes or kidney disease

7.23.3 Symptoms of cardiovascular diseases

- A heart attack or stroke may be the first warning of the underlying disease.
 - ❖ Symptoms of a heart attack include:
 - Pain or discomfort on the left side of the chest
 - Pain or discomfort in the arms, the left shoulder, elbows, jaw, or back.
 - ❖ In addition, the person may experience:
 - Difficulty in breathing or shortness of breath
 - Feeling sick or vomiting
 - Feeling light-headed or faint
 - Breaking into a cold sweat
 - Becoming pale.
 - Pain in the upper abdomen.
 - ❖ Hypertension is a common cardiovascular disease. The most common symptoms include:
 - Tiredness.
 - Confusion.
 - Nausea or upset stomach.
 - Vision problems or trouble seeing.
 - Nosebleeds.
 - More than normal sweating.
 - Flushed or red skin, or pale or white skin.
 - Anxiety or nervousness.
 - Palpitations (strong, fast, or obviously irregular heartbeat).
 - Ringing or buzzing in ears.
 - Impotence.
 - Headache.
 - Dizziness.
- One could have high blood pressure yet they don't feel any effect (silent killer)
- High blood pressure increases the risk of heart attacks, strokes, kidney damage, eye damage, heart failure and hardening of arteries.

- Cardiovascular diseases may also manifest in the form of a stroke.
 - ❖ The most common symptom of a stroke is:
 - Sudden weakness of the face, arm, or leg, most often on one side of the body
 - ❖ Other symptoms include sudden onset of:
 - Numbness of the face, arm, or leg, especially on one side of the body
 - Confusion
 - Difficulty speaking or understanding speech
 - Difficulty seeing with one or both eyes
 - Difficulty walking
 - Dizziness
 - Loss of balance or coordination
 - Severe alcohol and drug abuse with no known cause
 - Fainting or unconsciousness
- Any person experiencing any of the symptoms should be referred to health facility immediately

7.23.3 Prevention, control and Management of common cardiovascular diseases

- Eat a heart-healthy diet which includes dietary patterns high in:
 - Whole grain products
 - Fruits and vegetables that are high in nutrients and fiber and relatively low in calories
- Limit the amount of sodium (salt) intake: no more than 5 g (a teaspoon) of salt a day
- At least 30 minutes' physical activity per day
- Avoid smoking
- Manage stress levels
- Maintain a healthy body weight
- Have a regular medical check-up

7.24 Asthma

- Reversible airway obstruction due to bronchial hyper-reactivity.
- May be chronic or acute

7.24.1 Causes and risk factors

- Family history of asthma
- History of hay fever, eczema, and / or allergies
- Indoor cooking
- Exposure to cigarette smoke or pollution
- Occupational exposures like cement, pesticides, tobacco industry, or other chemicals, etc.

Precipitants – asthma symptoms can be triggered by:

- Exercise
- Exposure to allergens (such as animal fur or dust), wood fire, cigarette smoke, or exercise
- Upper respiratory tract infections
- Drugs (beta-blockers; aspirin or NSAIDs)

7.24.2 Signs and symptoms

- Cough – this can be the only symptom and is often chronic
- Audible wheeze
- Dyspnea
- Chest tightness
- Symptoms are intermittent with periods of normal breathing in between
- Symptoms can be worse at night or in early hours of the morning or during an upper respiratory tract infection
- Symptoms improve or disappear after using inhaler
- Symptoms started during childhood or early adulthood

7.24.3 Prevention and General Measures

Patient counseling is very important, particularly on identifying and avoiding triggers for individual patients.

- Indoor cooking of solid fuel is a very common risk factor for asthma in Malawi. Patients with asthma, or parents of children with asthma, should be counselled to try to cook outdoors in an area with good ventilation wherever possible.
- Avoid exposure to personal and second-hand tobacco smoke [L][SEP]
- Avoid contact with furry animals [L][SEP]
- Reduce pollen exposure [L][SEP]
- Reduce exposure to house dust mites [L][SEP]
- Avoid sensitizers and irritants (dust and fumes) which aggravate or cause asthma, especially in the workplace [L][SEP]
- In certain patients, they may need to avoid drugs that aggravate asthma such as beta-blockers and aspirin and non-steroidal anti-inflammatory drugs.

7.24.4 Management of Acute attacks

Pharmacotherapy for asthma please refer the patient to the hospital

The management of Asthma is at three levels depending on the attack:

- Primary Level Care
- Secondary Level Care

- Tertiary Level Care

7.25 Cancer

- It is a disease in which the body's cells become abnormal and divide without control.
- Cancer cells may invade nearby tissues.
- There are over 100 different types of cancer which may affect any regions of the body but commonly seen in the breast, cervix, prostate, stomach, colon/rectum, skin, lung and mouth.

6.24.1 Classification of cancer (Tumours)

- **Benign tumors:** Are not cancerous and can be removed.
- **Malignant tumors:** Are cancerous and are made up of cells that grow out of control. Sometimes cells move away from the original (primary) cancer site and spread to other organs and bones where they can continue to grow

7.25.2 Causes of cancer and risk factors

- Age
- Cigarette smoking
- Genetic factors
- Environmental risk factors, such as radiation and certain viruses
- Exposure to some industrial chemicals (e.g. insecticides)
- Lack of exercise
- Obesity
- Excessive alcohol consumption.

7.25.3 Signs and symptoms

- Fatigue
- Unexplained weight loss/gain
- Fever
- Unexplained pain in body organs
- Changes in appetite
- Nausea
- Vomiting
- Skin changes
- Unexplained growths/pimples
- Unexplained wounds

NOTE: The signs and symptoms of cancer depend on where the cancer is, how big it is, and how much it affects the organs or tissues. If cancer has spread (metastasized), signs or symptoms may appear in different parts of the body

7.25.4 Prevention of cancers

- Avoid cigarette smoking
- Avoid excessive alcohol usage
- Eat a healthy diet containing plenty of fruits, vegetables and other high-fibre foods from plant sources like whole grains, peas and beans
- Maintain a healthy weight
- Avoid exposure to industrial chemicals
- Vaccination and avoiding exposure to cancer-promoting viruses i.e hepatitis B virus (HBV) causes liver cancer, and human papilloma virus (HPV)
- Early detection of cancer through screening. Example of cancer screening programmes
 - Breast cancer
 - Cervical cancer.

7.25.5 Breast cancer

The cause of most breast cancers is unknown.

However, benign (harmless) lumps in the breast are very common, reassure women not every lump mean they have breast cancer.

7.25.5.1 Common warning signs of Breast Cancer

- Lump in the breast or underarm area (armpit).
- Thickening or swelling of part of the breast.
- Irritation or puckering/dimpling of breast skin. Redness or flaky skin in the nipple area or the breast.
- Pulling in of the nipple or change in position or shape and pain in the nipple area.
- Nipple discharge other than breast milk, including blood.
- Any change in the size or the shape of the breast.
- Constant pain in any area of the breast or armpit.

Advise women, in case she notices any such changes as above, she should promptly visit the health facility.

7.25.5.2 Screening for breast cancer

- Women should be advised to examine their breasts once every month, using the method of breast self-examination
- It is best to examine the breasts **7–10 days after the first day** of the menstrual period (This is the time when the breasts are less likely to be swollen and tender).
- Advise women who find a breast lump to seek medical help

7.25.6 Cervical cancer

- Refers to cancer cells growing in the tissues of the cervix.
- The primary cause is the infection with sexually transmitted Human Papilloma Virus (HPV)

7.25.6.1 Risk factors for cervical cancer

- Human papilloma virus (HPV) infection
- Smoking
- Young age at first sexual activity
- Multiple sexual partners
- Unprotected sex or poor sexual hygiene
- Early marriage
- Early child birth- in women younger than 17 years
- Frequent child birth
- Weakened immune system such as HIV/AIDS

7.25.6.2 Common Signs and Symptoms of cervical cancer

In the early stages, there may not be any symptoms. By the time symptoms appear, the disease may have already spread. Common symptoms are:

- Vaginal bleeding between periods
- Menstrual periods that are longer or heavier than usual
- Post-menopausal bleeding
- Bleeding after sexual intercourse
- Pain during sexual intercourse
- Smelly vaginal discharge
- Unusual vaginal discharge tinged with blood
- Backache
- Lower abdominal pain
- Fatigue/extreme tiredness

- Unexplained weight loss
- Pain in legs
- Pain during urination

7.25.6.3 Prevention of cervical cancer

- HPV vaccination for girls aged 9 -13 years
- Health information and warnings about tobacco use
- Sexually education tailored to age and culture
- Condom promotion or provision for those who are sexually active
- Male circumcision
- Cervical cancer screening: Sexually active Women should have cervical cancer screening test once every two to three years. Cervical cancer screening detects the cancer early.

7.25.7 Cancer Management

- Surgically, either by removing just the cancerous tumour from the affected tissue, or by removing the whole organ, or/and
- Radiotherapy or/ and
- Chemotherapy with special anti-cancer drugs.
- Palliative care with focused pain and psychological stress management

7.26 Mental Health

Mental health: It is a state of well-being in which the individual realizes his/her potentials/abilities, can cope with normal stresses of life, can work productively and fruitfully, and can make a contribution to his/her community.

Mental illness: Refers to a wide range of mental health conditions-disorders that affect mood, thinking and behavior. A person with a mental illness is unable to cope with daily demands of life e.g. work, personal upkeep, school or child care.

7.26.1 Depression

Depression is a common mental disorder that causes people to experience depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration.

7.26.2 Causes of depression

- Biological or physical:
 - Chemical changes in the brain. For example, in women depression may occur with the menstrual cycle, childbirth and the menopause.
 - Sickness
 - Drinking excess alcohol or some medications, for example, anti-hypertensive drugs
- **Psychological:** upsetting events, such as bereavement, divorce, illness and job or money worries
- **Social:** Poverty, lack of adequate support and doing fewer activities or having fewer interests

7.26.3 Signs and symptoms of depression

- Tiredness and loss of energy.
- Sadness that doesn't go away.
- Loss of self-confidence and self-esteem.
- Difficulty concentrating.
- Not being able to enjoy things that are usually pleasurable or interesting.
- Feeling anxious all the time.
- Avoiding other people, sometimes even your close friends.
- Feelings of helplessness and hopelessness.
- Sleeping problems - difficulties in getting off to sleep or waking up much earlier than usual.
- Very strong feelings of guilt or worthlessness.
- Finding it hard to function at work/college/school.
- Loss of appetite.
- Loss of sex drive and/or sexual problems.
- Physical aches and pains.
- Thinking about suicide and death.

7.26.4 Complications of depression

- Main: death from suicide.
- Others: hypertension, other heart conditions, diabetes mellitus or infectious conditions.

7.26.5 Management

- In some cases, depression is self-limiting however severe cases should be referred to health facility.
- Urgently refer if a person has suicidal thoughts or plans, or has attempted to harm themselves.

7.26.6 Roles of HSAs in mental health

- Awareness creation about risk factors, promotion of lifestyles supportive to good mental health
- Encourage families to visit health facilities, accompany patients where appropriate
- Support Persons with mental illnesses
- Follow on patients to take note of adherence to treatment, side effects, family integration etc.

MODULE 9: BASIC PHARMACOLOGY

1. **Module description**

The module introduces learners to medicines, their effects on the body, as well as how the body responds. Furthermore, this module covers rational prescription, dangers of illegal use of medicines, and legal implications of misuse of medicines.

2. **Module aim**

The module aims to enable learners to acquire knowledge, skills, and appropriate attitudes in the use of medicines at the community level.

3. **Intended learning outcomes**

On successful completion of this module, learners should be able to:

- 15.1 Describe the history of pharmacology, medicine nomenclature, and sources of medicines
- 15.2 Describe pharmacological principles.
- 15.3 Explain Principles of rational prescription and routes of administration
- 15.4 Explain the classification of medicines and their therapeutic functions
- 15.5 Explain the legal framework and ethical issues governing the use of drugs and medicines

4. **Indicative content**

16.1 **Introduction to pharmacology**

- 16.1.1 Pharmacological terminology
- 16.1.2 History of pharmacology
- 16.1.3 Medicine nomenclature

- 16.1.4 Sources of medicines
- 16.2 Basic principles of pharmacology**
 - 16.2.1 Pharmacodynamics
 - 16.2.2 Pharmacokinetics
 - 16.2.3 Pharmacotherapeutics
- 16.3 Principles of rational medicine prescription**
 - 16.3.1 Standard prescription
 - 16.3.2 Dosage calculations
 - 16.3.3 Routes of medicine administration
 - 16.3.4 Side effects and adverse effects
 - 16.3.5 Patient counseling
 - 16.3.6 Medicine preparation
 - 16.3.7 Medicine storage
- 16.4 Classifications of Drugs**
 - 16.4.1 Analgesics
 - 16.4.2 Antibiotics
 - 16.4.3 Antiviral
 - 16.4.4 Antifungal
 - 16.4.5 Antihypertensives
 - 16.4.6 Antidiabetics
 - 16.4.7 Hormonal contraceptives
 - 16.4.8 Mechanism of action of medicines
 - 16.4.9 Medicines interaction
- 16.5 Legal framework and ethical issues in medicines**
 - 16.5.1 Registration and regulation
 - 16.5.2 Policies
 - 16.5.3 Regulatory Bodies

5. Teaching and learning methods

- 17.1 Lecture
- 17.2 Group discussions
- 17.3 Brainstorming
- 17.4 Demonstration
- 17.5 Field visits
- 17.6 Roleplays
- 17.7 Presentations

6. Teaching and learning materials

- 18.1 Audio-visual resources
- 18.2 LCD and laptop

18.3 Online resources

7. Time allocation

19.1 35 hours

8. Methods of assessment

20.1 50% Continuous assessment

20.2 50% End of module exam

9. Prescribed text

21.1 Katzung B.G, & Trevor A.J (2020) Basic and Clinical Pharmacology. (15th Edition). McGraw-Hill Companies, Inc. ISBN: 9781260452310

21.2 Bennet, P.N., & Brown, M. (2018). *Clinical pharmacology* (12th Edition). Churchill Livingstone, Philadelphia.

21.3 Rang, H.P Dale, M.M., Ritter, J.M & Flower, R.J (2019). Pharmacology (9th Edition). London. Elsevier Churchill Livingstone.

10. Recommended text

22.1 Reynolds, J.E.F & Prasad A.B. (2000). Martindale – The Extra Pharmacopoeia. (30th edition). The Pharmaceutical Press, London.

22.2 Karch, A.M. (2015). *Pocket Drug Guide for Nurses*. Philadelphia; Elsevier Ltd.

22.3 Vallender A.H. & Sanoski C.A. (2015). *Davis's Drug Guide for Nurses*. (15th edition). Philadelphia; F.A. Davis Company

MODULE 10: FAMILY HEALTH

This module consists of the following topics

- Safe motherhood
- Family planning
- Antenatal care
- Postnatal care
- Adolescent health
- Growth monitoring
- Infection prevention
- Palliative care

Safe Motherhood

Safe motherhood is one of the important components of Reproductive Health. It is a means of ensuring that all women have access to the information and services they need to go safely through pregnancy and childbirth. This section discusses the concept of Safe motherhood by focusing on its goal and pillars. It also highlights how to overcome the challenges encountered in the implementation of the concept.

15.1.1 The Safe motherhood concept

- Safe motherhood is the concept or initiatives to ensure that women receive high quality care in order to achieve the optimum level of health of mother and infant.
- It is a combination of activities focusing on the promotion of safe pregnancy, labor, delivery and post-partum.
- The aim is to reduce maternal and neonatal morbidity and mortality.

15.1.2 The goal of Safe motherhood initiative

- To reduce maternal and neonatal morbidity and mortality

- To improve the maternal and neonatal health through preventive and promotive activities as well as by addressing avoidable factors that cause death during pregnancy, childbirth and postpartum period.

15.1.3 Characteristics of respectful maternity care

- Respectful maternity care is an approach of care that recognises childbearing as an important rite of passage with deep personal and cultural significance for a woman and her family.
- Maternity care emphasises that safe motherhood should be expanded beyond the prevention of morbidity or mortality, and not being restricted to physical safety of women.
- Instead it should encompass respect for women's basic human rights, autonomy, dignity, feelings, choices, and preferences, including companionship during maternity care (Government of Malawi, 2014).

15.1.4 Safe motherhood pillars

- Safe motherhood pillars can also be considered as the principles of safe motherhood.
- As shown in Figure 7.1, there are 4 basic pillars/principles: Family planning, antenatal care, clean and safe delivery, as well as access to emergency obstetric care.

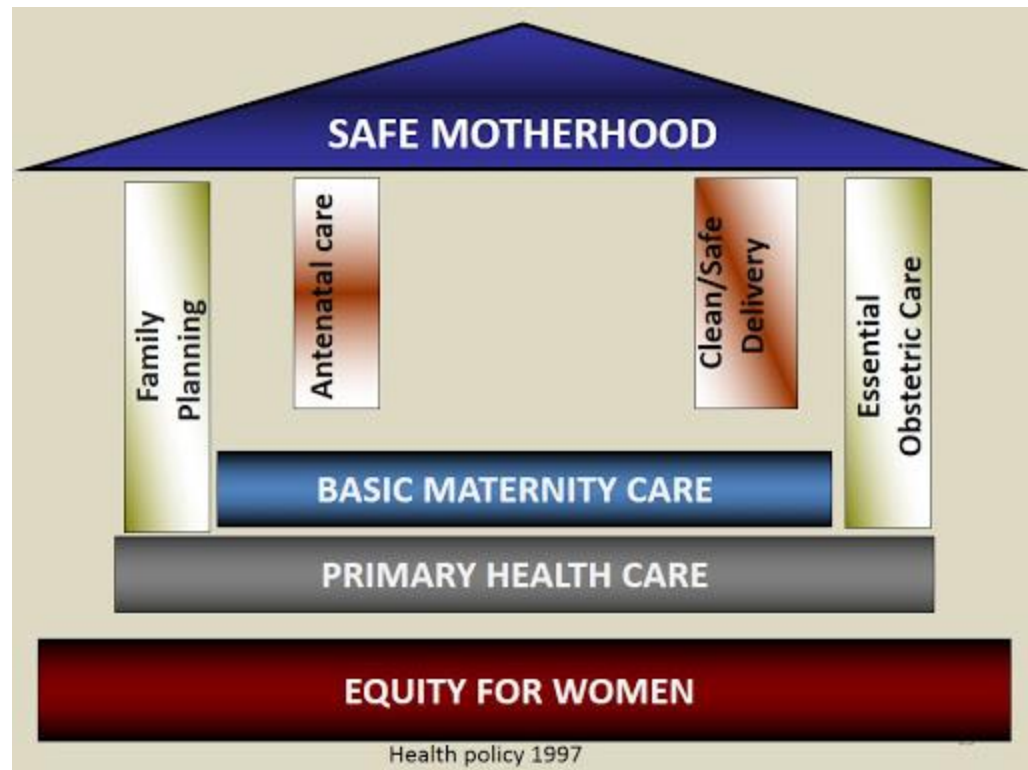


Figure 7.1 Pillars of Safe motherhood

- **Family planning:** This is an important component of safe motherhood that ensures that individuals and couples have adequate information and services to plan the timing, number of children, spacing between pregnancies, and delay pregnancy
- **Antenatal care:** ensures that pregnant women access essential for a healthy and strong pregnancy, as well as detecting and treating complications as soon as possible
- **Clean and safe delivery:** This ensures that birth attendants have the knowledge, skills, and equipment to perform a clean and safe delivery to reduce maternal and newborn mortality and morbidity.
- **Access to emergency obstetric care:** encompasses all care that is provided during pregnancy, labour, childbirth and postpartum period to prevent and manage complications.

15.1.5 Delays in implementing Safe motherhood activities

Evidence suggest that the following delays are important factors behind the maternal and neonatal morbidity and mortality outcome:

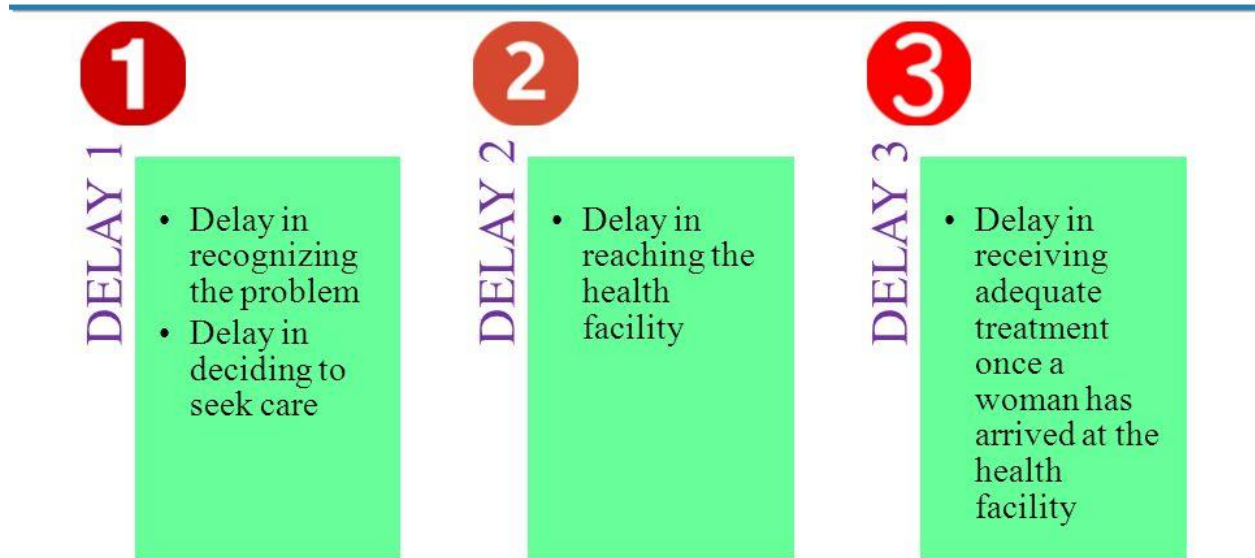
- Decision making at community level

- Transport and Communication
- Identification of problems and deciding on care at the health facility
- Provision of appropriate care at health facility

Figure 7.2 summarises these delays in three levels:

- Delay in seeking care
- Delay in reaching care
- Delay in receiving

Three Delays Model



Source: Operational Guidelines on Maternal and Newborn Health, NRHM, MoH & FW

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Maternal and Child Health Interventions | RCH Program
UG Class | 2012

Figure 7.2: Levels of Delay in Safe motherhood

15.1.6 Challenges encountered in Safe motherhood

- Gap in needed human resources across geographic areas
- Deteriorating infrastructures
- Inadequate stocks of drugs, supplies and equipment in the face of increased demand
- Lack of reliable transport
- Ineffective referral to critical care centers
- Inadequate availability of 24-hour quality services, particularly emergency obstetric care services
- Weak management systems.

15.1.7 Methods for promotion of Safe motherhood

- Advocacy meetings
- Drama
- Radio messages
- Information Education and Communication

15.1.8 Definition of harmful reproductive health practices

- Harmful Reproductive Health Practices are practices that can endanger the lives of individuals, couples and newborn babies leading to diseases, disability or death.

15.1.9 Types of harmful reproductive health practices

- Inheritance of a wife or husband
- Practice of hiring of man for sex and conception (Fisi)
- Death rituals (hiring of a man to have sex with the widow to drive out spirits)
- Use of traditional herbs or plants into the vagina for dry sex.
- Use of local oxytocin-like traditional medicines to enhance labor.
- Performance of traditional circumcision under un- sterile conditions
- Male or female prostitution
- Postpartum abstinence which predisposes a man to promiscuity
- Traditional treatment of vulva or vaginal warts and hemorrhoids (e.g. by cutting)

15.1.10 Elimination of harmful reproductive health practices

- Providing community health education on consequences of harmful practices so that individuals, families and groups understand and change or stop the practices to reduce risks to health
- Encouraging individuals with hemorrhoids, warts, etc. To utilize health care facilities for proper management
- Sensitization of traditional counselors and practitioners on the dangers of harmful practices.
- Encouraging dialogue with community on how to overcome harmful cultural practices.
- Encouraging all victims of domestic and sexual violence to have access to legal entitlement course of law, counseling and other support services including Post exposure Prophylaxis (PEP) for rape.

Activity 7.1



Discuss how the different challenges encountered in the implementation of Safe motherhood initiative be overcome.

15.2 Family Planning

Family planning or contraception is an important component of sexual and reproductive health rights. Ensuring access for all people to their preferred contraceptive methods not only prevents pregnancy-related health risks for women and adolescent girls, but also advances several human rights including the right to life, education and childbearing. This section highlights the role of the HSA in improving access to family planning services by providing different contraceptive methods to eligible clients.

15.2.1 Definition of family planning

- Family planning is a program that allows individuals and couples to determine the number of children to have, when to have them, and at what intervals.
- This is achieved through the voluntary use of various devices, sexual practices, chemicals, drugs, or surgical procedures that interfere with the normal process of ovulation, fertilization, and implantation.

15.2.2 Benefits of Family Planning



Activity 7.2

Outline the benefits of family planning to the child, mother, family, and the nation.

To the child

- Grows healthy
- Breast feeds for at least 2 years
- There is love continued love between child and mother

To the mother

- Has enough time to breastfeed the baby
- She has enough time for child care and psychological support
- Has time to participate in national development to attend adult education

To the family

- There is more time to show love between the couples e.g. freedom of sex because there is no fear of unwanted pregnancies
- The family has enough money to support the family
- Father goes to work with free mind

The Nation

- The country allocates funds to other priority areas other than consequences of unplanned families.
- Funds used for family planning can be diverted to other developmental activities.
- The nation benefits from productive mother and father.

15.2.3 Traditional Methods of Family Planning

- Abstinence
- Fertility Awareness Methods/Natural Methods: Basal Body temperature; Cervical Mucus (Billings); Symptom-thermal.
- Cycle beads
- Breast feeding (lactational amenorrhea)
- Use of strings
- Calendar
- Use of local herbs
- Withdrawal
- Polygamy

15.2.4 The Common Modern Family Planning Methods used in Malawi

Hormonal Methods

- Pills: Progestin only and combined oral contraceptives
- Emergency Contraceptive Pills: Postinor-2
- Injectables: Depo-Provera; self-administered Depo-Provera
- Implant: Implanon and Jadelle

Intra-Uterine Contraceptives Devices (IUCD)

- Copper-Bearing Intrauterine Device
- Hormonal Intrauterine Device

Barrier Methods

- Male and Female Condoms
- Spermicides
- Sponge
- Foam tablets
- Diaphragm

- Cervical cap
- Vaginal ring

Permanent (surgical) methods

- Female Sterilization: Bilateral tubal Ligation (BTL)
- Vasectomy

15.2.5 The role of Health Surveillance Assistant in Family Planning Services

- Provide information, education, counseling on Family Planning methods
- Motivation of individuals and families to practice modern family planning methods
- Provide selected family planning contraceptives to eligible clients
- Refer clients for emergency contraception and long term contraceptive methods to the nearest health facility
- Supervise provision of door to door counseling and selected contraceptives by
- CBDAs
- Referral of clients to family planning providers for long-term and permanent contraception and physical examination
- Facilitate establishment of community youth centers and youth clubs
- Provide youth friendly services

15.2.6 Family Planning Methods to be distributed by Health Surveillance Assistant

- Barrier Methods (male and female condoms)
- Oral contraceptives
- Emergency Contraceptive Pills
- Injectables

15.2.7 Side effects of family planning methods

The following Table 7.1 presents the common side effects of contraceptive methods that the HSA must manage:

Table 7.1 Common contraceptive side effects and their management

Method	Common side effects	Management
Male and female condoms	Allergic reactions (very rare): Mild irritation in or around the vagina or penis (itching, redness, or rash)	- Usually goes away on its own without treatment - Suggest adding lubricant to the inside of the condom or onto the penis to reduce rubbing that may cause irritation.
Oral contraceptives	- Headaches, Dizziness, Mood changes, Breast tenderness, Abdominal pain, Nausea, Weight gain or loss - Changes in bleeding patterns including frequent bleeding, no monthly bleeding, heavy or prolonged bleeding - Irregular bleeding	- Reassure that these side effects are not signs of illness - Reassure her that many women using pills experience irregular bleeding - Explain that they usually become less or stop within the first few months of using pills - Reassure that they are common, but some women do not have them. - Try taking pills with food or at bedtime to help avoid nausea. - Encourage not to miss pills to avoid irregular bleeding
Injectables	Changes in bleeding patterns First 3 months At one year: - No monthly bleeding, - Infrequent bleeding, - Irregular bleeding, - Prolonged bleeding Headache Weight gain Reduced sexual drive	- Reassure her that many women using DMPA experience irregular bleeding. - If bleeding becomes a health threat or if the woman wants, help her choose another method. In the meantime, she can take COCs to help reduce bleeding. - Reassure her that most women using DMPA stop having monthly bleeding over time, and this is not harmful

Implants

- Lighter bleeding and fewer days of bleeding
- Irregular bleeding that lasts more than 8 days
- Infrequent bleeding
- No monthly bleeding
- Headache
- Reassure her that many women using implants experience irregular bleeding.
- It is not harmful and usually becomes less or stops after the first year of use.
- For modest, short-term relief, she can take ibuprofen, 800 mg 3 times daily after meals for 5 days, beginning when irregular bleeding starts.
- If ibuprofen doesn't help, give combined oral contraceptives (COCs) that have levonorgestrel
- If no improvement, consider changing the method, and refer

15.2.8 Indications and contraindications of different family planning methods

The table below summarises the indications and contraindications for commonly used methods:

Table 7.2 Indications and contraindications for common methods

Method		Indication	Contraindication
Male and female latex condoms		All men and women	Severe allergic reaction to latex rubber
Combined contraceptives	Oral	Nearly all women, including women who: • Have or have not had children • Are married or are not married • Are of any age, including adolescents and women over 40 years old • After childbirth and during breastfeeding, after a period of time • Have just had an abortion, miscarriage, or ectopic pregnancy • Smoke cigarettes—if under 35 years old • Have anemia now or had in the past • Have varicose veins • Are living with HIV, whether or not on antiretroviral therapy	• Breast feeding less than 6 weeks baby • Breast cancer • Hypertension • Age over 35 years
Injectables		Nearly all women, including those who: • Have or have not had children • Are married or are not married • Are of any age, including adolescents and women over 40 years old • Have just had an abortion or miscarriage	• Pregnancy • Breast feeding less than 4 weeks baby • Breast cancer • High blood pressure (systolic blood pressure higher than 160 mm Hg or diastolic blood pressure higher than 100 mm Hg) • Diabetes • Stroke

- Smoke cigarettes, regardless of woman's age or number of cigarettes smoked
- Are breastfeeding, starting as soon as 6 weeks after childbirth
- Are living with HIV, whether or not on antiretroviral therapy

Implants

- Stroke
- Unexplained vaginal bleeding
- Breast cancer

15.2.9 Places where Family Planning services are provided

- Mobile and static Family planning clinics
- Health centers
- Hospitals
- Private clinics
- Community Based Distribution Agents

15.2.10 Procedure for Referring Family Planning Clients

HSAs will refer all clients whom they cannot provide a family planning method of their choice by:

- Provision of a letter to the client to take to the referral clinic
- Writing a referral letter
- Stating the reasons for referral
- Provision of feedback by the referral Clinic staff

15.2.11 Health Education Messages on Family Planning

- Benefits of family planning
- Dispelling misconceptions
- Methods of family planning and their effectiveness as summarised in Figure 7.3
- Where Family Planning Methods are provided

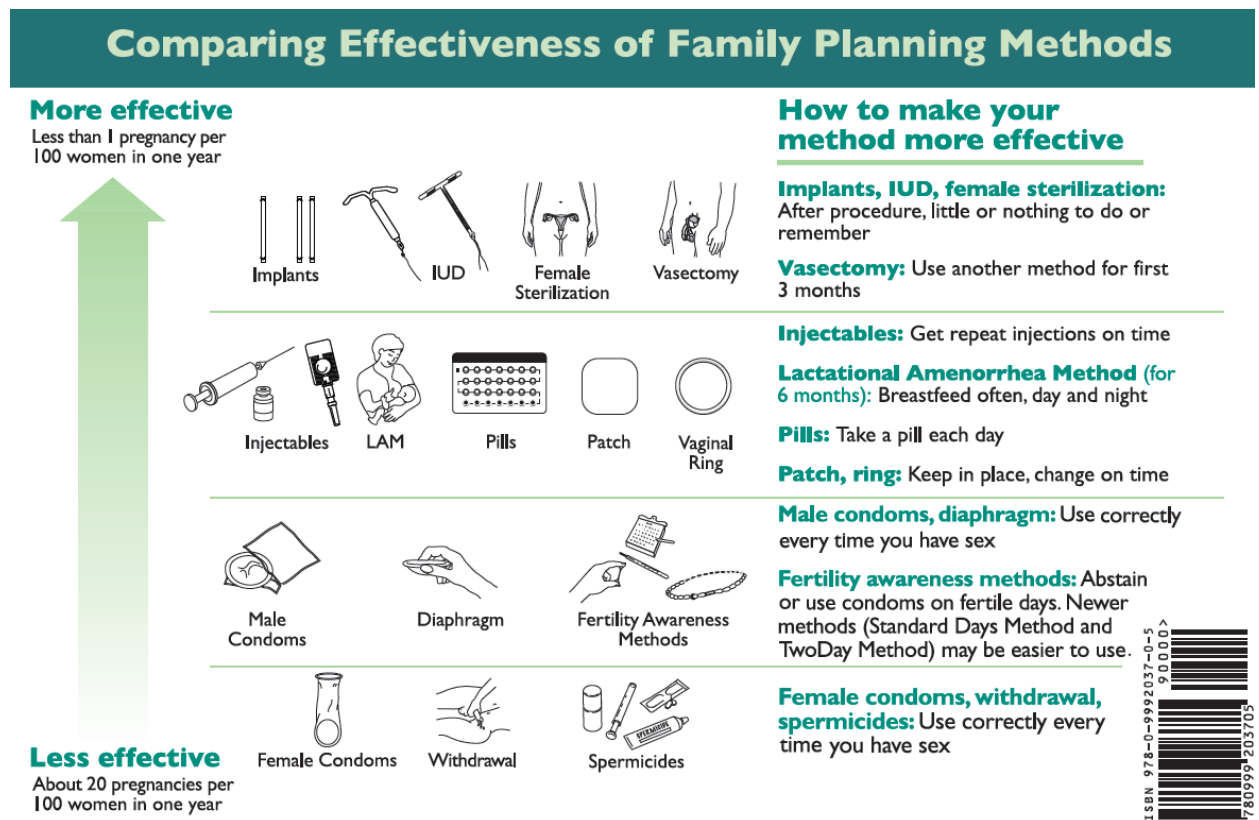


Figure 7.3 Effectiveness of different family planning methods
(Source: World Health Organization, 2018, p. 442)

15.2.12 Infertility

Definition of infertility

- Infertility is the failure to establish a clinical pregnancy after 12 months of regular unprotected sexual intercourse between a man and a woman (World Health Organisation, 2018).
- It is the inability of a woman to conceive or a man to bring about conception after at least a year of regular sexual intercourse (at least 3 times a week) without contraception, with the same partner.

Types of infertility

- **Primary Infertility:** Inability to achieve pregnancy in couples who have never had children before.
- **Secondary Infertility:** Inability of a couple to conceive after it has had at least a previous pregnancy which ended in a live birth, still birth, miscarriages, ectopic pregnancy or induced abortion.

Causes of infertility

- Causes of infertility range from the effects of sexually transmitted infections (STIs) in one or both partners to hormonal imbalances
- They also include defects of the uterus in women and low sperm count, low sperm motility, and malformed sperm in men.
- Table 7.3 summarises the common causes of infertility in males and females.

Table 7.3 Causes of infertility in males and females

CAUSES OF INFERTILITY	
<i>In males</i>	<i>In females</i>
Sexually transmitted infections (STIs), like advanced syphilis or HIV infection	Pelvic inflammatory disease (PID) resulting from STIs, most commonly those caused by <i>N. Gonorrhoea</i> and <i>C. Trachomatis</i>
Abnormal sperm motility	Ovulatory factors, like central defects such as ovarian failure or tumours
Abnormal spermatogenesis (due to radiation or chemical exposure, varicocele, increased temperature to the testes)	Metabolic disorders, e.g. obesity
TB orchitis or secondary to mumps	Tubo-ovarian and endometrial TB
Sexual dysfunction, e.g. retrograde ejaculation, impotence	Endocrine disorders, e.g. thyroid disorders
Anatomic disorders, e.g. undescended testis	Cancer treatments that affect reproductive health and the capacity to reproduce
Schistosomiasis	Aging
Nutritional deficiencies	Nutritional deficiencies
Lifestyle factors include smoking, alcohol, and drug abuse	Lifestyle factors include smoking, alcohol, and drug abuse

Prevention of infertility

- Provide community health education so that the consequences of untreated sexual infection may be fully understood by all clients, especially adolescents.
- Work with the community to ensure that all individuals, including adolescents, have access to early and confidential diagnosis and treatment of STIs.
- Counsel on protection against STIs and risky sexual behaviours and advocate safe sexual practices.
- Provide health education on dangers of abortion and postpartum infections.
- Encourage early management of incomplete abortion and postpartum infections.

Role of the provider in infertility

- Educate and counsel on fertility awareness (refer to chapter on fertility awareness).
- Discuss the implications of fertility desires of individuals and couples.
- Refer individuals and couples for appropriate screening, investigation, diagnosis, and treatment of infertility.
- Provide psychosocial support to infertile couples.
- Discuss the possibility of adoption or fostering.
- **Note:** All individuals or couples undergoing infertility investigations should be counselled on HIV testing.

15.3 Adolescent Health

15.3.1 Definition of adolescent health

- The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19.
- **Adolescence** is a transitional phase of growth and development between childhood and adulthood.
- **Young people** are those aged 10–24, whilst the **youth** are those aged 15–24.

15.3.2 Adolescent sexual and reproductive health rights

Every young person is entitled to rights as enshrined in the Convention of the Rights of Children and the constitution of the Republic of Malawi.

Among these are right to:

- Good health, including sexual and reproductive health services
- Quality education
- Protection from sexual exploitation and gender-based violence, against child labour and neglect, etc.
- Social and economic services
- Participate in governance issues and in all decision-making processes relating to the welfare of the youth
- Gainful decent employment opportunities either in any sector on completion of formal or non-formal education

To upholding these rights and fully realise the potential of young people in Malawi, youth have access to quality YFHS services that:

- Safeguard their right to privacy
- Ensure confidentiality
- Provide respect and informed consent
- Respecting their cultural values and religious beliefs.

15.3.3 Key health challenges faced by adolescents

- The absence of quality YFHS that provide information and services for healthy youth development has resulted in many health problems.
- These health problems are summarised in Box 1 below:

Box 7.1. Health problems affecting adolescents

Reproductive health problems

- Low comprehensive knowledge in SRHR
- HIV and AIDS
- High unmet need for contraceptives
- Early and unprotected sex
- Sexually transmitted infections
- Cancer of the cervix
- Adolescent pregnancy and child marriage
- High school drop-out rate among girls due to pregnancy
- Violence, sexual abuse, and exploitation
- Obstetric fistula
- Unsafe abortion
- Young maternal deaths (Between 2008-2010 nearly 45.7% of deaths were in the ages of 14 to 23 years)

Other health problems

- General health problems (malaria, urinary tract infections, anaemia)
- Substance use and abuse (tobacco, alcohol, and other substances)
- Mental health problems
- Nutritional problems and eating disorders
- Endemic and chronic diseases
- Harmful traditional cultural practices
- Lack of life skills
- Lack of parental care and guidance
- Child labour
- Restrictive religious beliefs
- Gender based violence, rape and defilement
- Illiteracy, poverty, unemployment, and prostitution

15.3.4 Deterrents to SRHR utilisation

The main deterrents to sustained utilisation of SRHR services include:

- Negative attitude of service providers
- Lack of skills among service providers to handle youth
- Lack of knowledge among youth on the availability of services
- Long waiting hours
- Lack of privacy and confidentiality
- Long distance to health facilities
- Lack of youth specific services
- Inadequate policies
- Low self-confidence and “shyness,” among clients
- HIV testing and counselling as a pre-condition for accessing other services in some health facilities

15.3.5 Strategies of improving access to quality SRHR services

The following are the strategies for improving demand and increasing access to quality SRHR services for the youth:

- **Advocacy:** harmonisation of policies relating to SRHR and HIV and gender
- Repackaging of information to ably reach communities
- **Capacity-building:** The delivery of the YFHS involves all key sectors such as health, education, youth, and gender for a comprehensive youth-responsive programme.
- On-the-job training, mentorship, supervision, and orientation of all key stakeholders are to ensure that they are knowledgeable.
- **Outreach and alternative spaces:** Provision of YFHS through static sites, outreach and alternative spaces to reach the hard-to-reach areas.
- **Special arrangements in service delivery:** This includes setting a special day; setting special times; setting up special room for young people; setting up a youth corner
- **Comprehensive sexuality education (CSE):** Motivating youth to delay sexual debut, use contraception, and make healthy choices.
- **Youth participation:** Designing youth-responsive programmes to attract youth and maintain patronage.

- Ensure that YFHS is implementing suitable interventions in acceptable places and at appropriate times.
- ***Social and behavioural change communications:*** Demand creation of YFHS involves changing preconceived negative values and attitudes of parents, traditional leaders, teachers, and the youth themselves.
- These negative attitudes act as a barrier to uptake.
- ***Use of emerging/appropriate health technologies:*** Young people are technologically-knowledgeable are attracted
- Therefore, identification of specific technologies, like phone/SMS technology, mHealth, and hotlines can increase access to information to the youth if used.
- ***Counseling:*** Pregnancy, STI, Sexual violence, and Substance abuse counseling
- ***Education:*** Sexuality, RH, Contraceptive, HIV and AIDS, Life skills and gender issues education
- ***Treatment and care:*** post abortion care, STI treatment
- ***Service provision:*** HTC, ART, Pregnancy and child birth services
- ***Recreational activities***

15.3.6 Providing Youth-friendly health services (YFHS)

Definition of Youth-friendly health services

- According to the Malawi's National Youth Friendly Health Services Strategy (2015–2020), youth are those persons aged 10 to 24 years regardless of marital, social and economic status (Ministry of Health, 2015).
- Youth-friendly health services are high-quality services that are relevant, accessible, attractive, affordable, appropriate and acceptable to the young people.
- The services are provided in line with the minimum health package and aims to increase acceptability and use of health services by young people (National Standards – YFHS, 2007).

Characteristics of YFHS

- Friendly welcoming staff
- Separate units for adolescent services

- Outreach clinics with specially trained staff
- Mobile clinic with specially trained staff
- Special hours, such as after school and weekends
- Convenient and safe locations
- Youth to youth promotion
- Low or non-cost services
- Community and political support.

Table 7.4 Indicators for youth friendly sexual and reproductive health services

No.	Characteristic
1.	Non-judgmental providers and staff
2.	Ease of access to location of facility
3.	Client receives adequate information from provider
4.	Services are affordable or free
5.	Staff is friendly
6.	Staff is respectful
7.	Reasonable waiting times
8.	Welcoming staff
9.	Confidentiality is respected
10.	Consultation cannot be heard or seen by other clients or staff

15.3.7 Basic youth friendly health service package that HSAs should provide

The trained HSA will be expected to offer the following YFHS package:

Health Promotion (and Counselling)

- Sexually transmitted infections (STIs)
- HIV and AIDS
- Contraceptives (FP) to prevent unwanted pregnancies
- Nutrition
- Sexual abuse
- Maternal and neonatal health care
- Adolescent growth and development
- Psychosocial support
- HPV
- Malaria

Clinical Service Delivery and Referral

Community level

- Contraceptive services including condoms
- HIV testing and counselling
- Referral to health facility or other service delivery points

15.4Antenatal Care

Antenatal Care is the process of examining pregnant mothers for early detection of problems associated with pregnancy and providing them with essential care. It is important to identify women early in pregnancy because the sooner a woman goes for antenatal care (ANC), the sooner she can be examined and given important care and advice. Therefore, CHW have a great role to identify and encourage the pregnant women to go for antenatal care early. This section highlights how the HSA can identify the pregnant women early, and the type of advice they can give.

15.4.1 Definition of Antenatal care

- Antenatal care is the routine health care a presumed healthy pregnant woman without symptoms (screening) gets from trained health care workers, in order to prevent or identify and treat conditions that may threaten the health of the fetus/newborn and/or the mother, and to help a woman approach pregnancy and birth as positive experiences.
- Information about lifestyle, pregnancy and delivery is also provided.

15.4.2 Approaches to identifying pregnant women early

- Through HSA visits to all households every 3 months to update list of pregnant women
- Working with religious leaders and community leaders to inform him/her of any new pregnancies in the community
- Working with the nurse-midwife at the health Centre to identify all pregnant women in the community early in their pregnancy
- HSA asks other people in the community, such as the school head teachers to let her/him know if someone is pregnant
- HSA establishes a system to encourage self-reporting of new pregnancy to the HSA

Benefits of identifying pregnant women early

- Gives an opportunity for all pregnant women in the community to get needed care as vulnerable people
- Enables pregnant woman to start ANC early enough (within the first 12 weeks)
- Allows giving information to families for early birth preparedness like saving money for transport and any costs and to gather supplies for the baby

- Provides time for the HSAs to visit the pregnant woman twice for advice on health matters

15.4.3 Antenatal visit activities

If possible a community health worker should visit the mother at least four times during her pregnancy.

The aim of these visits is to:

- Support and advise the woman on a healthy lifestyle
- Ensure that she attends all antenatal clinic visits
- Ensure that she carries out the instructions given at the clinic
- Ensure sure that she takes her supplements and any other prescribed medicines such as ART
- Ask and educate about danger signs
- Assist with common problems such as morning sickness, constipation or heartburn

First Visit: Within the first 3 Months of Pregnancy

The first visit aims to:

- encourage the pregnant woman to go for early antenatal care
- encourage her to learn her HIV status so that she can take action to best protect her health and protect her baby from HIV
- promote birth in a health facility
- teach home care for the pregnant woman
- ensure that the mother is attending ANC as scheduled
- counsel the mother on activities done at ANC
- counsel the mother on minor ailments of pregnancy, management, and or care seeking
- counsel the mother on hygiene, rest and good nutrition
- provide health education message on danger signs of pregnancy
- assess the woman for early recognition of danger signs

- Assist family to develop a birth plan and a complication readiness plan.

First Visit: Within the first 3 Months of Pregnancy

The activities of this visit are to:

- review antenatal care visits, birth plan, and home care for the pregnant woman
- Advise on care seeking for skilled attendant at birth
- Advise mothers on care of the mother and baby at home
- Educate mothers on Family planning
- Educate mothers on Common post-natal maternal and neonatal danger signs
- Provide mothers with advice on the use of condoms for STI/HIV/AIDS prevention.
- advise that the person who will be the birth companion should be present
- encourage the family to follow optimal newborn care practices immediately after birth

15.4.4 Antenatal Clinic activities

- Monitoring mothers' general health well-being
- Monitoring mothers' nutritional status
- Interactive health talks.
- One-on- one counseling
- Physical examination
- Immunization activities
- Screening for hemoglobin, syphilis and HIV
- Prevention from Mother to Child transmission of HIV activities (PMTCT)
- Administration of antiretroviral Therapy if the mother is HIV positive
- Provision of iron supplementation, Intermittent preventive treatment for malaria (IPT)
- Tetanus Toxoid Vaccine (TTV) Insecticide Treated Nets (ITN)
- Deworming tablets
- Assisting the mother in making a Birth preparedness plan

15.4.5 Danger signs of pregnancy

- Dizziness
- Swelling of feet, legs, arms and face
- Vaginal bleeding
- Severe headache
- Blurred vision
- Fits (convulsions)
- Fever
- Prolonged labor taking more than 12 hours
- Draining liquor

15.4.6 Antenatal Health Education Messages

- Recognition of warning signs during pregnancy and childbirth
- Importance of making a birth plan
- Information of where to obtain immediate skilled help if problems arise during pregnancy and childbirth
- Importance of attending Antenatal clinic at least 4 times during her pregnancy
- Importance of nutritious meals and more rest throughout the pregnancy
- Dangers of smoking, taking alcohol, drugs, poisons and pollutants
- Dangers of physical abuse of women during pregnancy for both the woman and the foetus
- The right to health care during pregnancy and childbirth

15.4.7 Promotion of clean and safe delivery

- Recognition of warning signs during pregnancy and childbirth
- Importance of making a birth plan
- Reminding the families to plan for health facility delivery
- That Traditional Birth Attendants are compliant to the scope of practice
- That deliveries are conducted at a health facility by skilled personnel
- Encouraging pregnant women to report to nearest health facility as soon as labor starts

- Encouraging pregnant women to go to a maternity waiting home before labor starts in case of long distances
- Referring both the mother and the baby to the nearest health facility immediately after birth in case of home deliveries
- Referring women with their babies for post-natal care at a health facility a week after delivery.

15.5 Post-natal Care

The postnatal is the most vulnerable time for both the mother and her baby is during the hours and days after birth. Lack of care in this time period may result in death or disability as well as missed opportunities to promote healthy behaviours, affecting women, newborns, and children. The highest rates of neonatal mortality in Sub-Saharan Africa, Malawi inclusive, commonly occur in the first week of life. Therefore, the HSA plays a crucial role in reducing these deaths and other complication since they usually happen in the community.

15.5.1 Definition of post-natal care

Postnatal care is the individualised care provided to meet the needs of a mother and her baby during the first six weeks after birth.

Although the postnatal period is uncomplicated for most women and babies, care during this period needs to address any variation from expected recovery after birth

This is the most critical time to the health and survival of a mother and her newborn.

15.5.2 Importance of Postnatal check-ups

First visit (Day 1 - post discharge)

Postnatal first visit ensures that the mother:

- received a treated bed net on discharge
- is counseled on postnatal check-up at 1 and 6 weeks
- is counseled on good nutrition and
- Exclusive Breastfeeding as per choice

Second visit (Day 3- post discharge)

Postnatal first visit ensures that:

- breast feeding is successful
- lactation has established
- both mother and baby are adapting well

Third visit (Day 8- post discharge)

Early detection of problems and provision of appropriate treatment such as:

- Provision of Vitamin A supplementation to mother within 8 weeks post delivery
- Counseling on FP and provision of FP methods e.g. condoms.

- Counseling on lactation management
- Immunizations to baby at 6 weeks

15.5.3 Postnatal danger signs

Post-natal danger signs are life-threatening complications that can occur in the mother or the newborn baby.

Appropriate detection, immediate management, or referrals are necessary to save mothers and babies in the event these complications.

Table 7.5 that follows summarises the danger signs for the mother as well as the baby.

Table 7.5 Postnatal danger signs

POST-NATAL DANGER SIGNS
<i>Danger signs for the mother</i>
Heavy vaginal bleeding
Foul smelling vaginal discharge
Fever with or without chills
Severe abdominal pain
Excessive tiredness or breathlessness
Swelling of feet, arms face and legs
Painful, engorged breasts or sore, cracked, bleeding nipples
Dizziness
Severe pain in calf muscles
Severe headaches or blurred vision
Blurred vision
<i>Danger signs for the baby</i>
Convulsions
Movement only when stimulated or no movement, even when stimulated
Difficulty in breastfeeding
Fast breathing (more than 60 breaths per minute), grunting or severe chest in-drawing
Fever (above 38°C) or Low body temperature (below 35.5°C)
Diarrhea or constipation
Very small baby (less than 1500 grams or born more than two months early)
Redness, bleeding or pus from the umbilical cord
Heavy eye discharge
Yellow color of skin or eyes (Jaundice)

15.5.4 Key postnatal Health Education messages

- Adequate nutritious food and fluids
- Personal and environmental hygiene
- Adequate rest and sleep
- Daily bowel movement and elimination
- Vitamin A supplementation within 8 weeks post delivery
- Comprehensive Baby care
- Early recognition of danger signs in the mother requiring prompt medical care.
- Early recognition of danger signs in the baby requiring prompt medical care.
- Family planning including dual protection
- Attendance of postnatal checkup
- Growth monitoring
- Immunizations

15.5.5 Obstetric fistula

An abnormal connection between the bladder and or the rectum and the vagina, which results in the continuous leakage of urine and or faeces through the vagina following obstructed labour.

15.5.6 Causes of fistula

The major cause of fistula is obstructed labour leading to necrosis, is by far the most common cause of fistula.

Other contributory causes include:

- Poverty, which may lead to inadequate nutrition and stunted growth, is a fundamental cause.
- Early pregnancy is one of the greatest risk factors.
- Low status of women in society and gender discrimination (voiceless and powerless)
- Lack of education
- Culture/traditions such as early marriages
- Limited access to emergency obstetric services including access to family planning
- Poor quality of care

- Surgical trauma during hysterectomy, Caesarean section
- Malignancy, e.g. cervical cancer
- Trauma, e.g. road traffic accident leading to fractured pelvis
- Harmful traditional practices
- Congenital malformation
- HIV and AIDS causing rectal-vaginal fistula

15.5.7 Prevention of fistula

It is extremely important that at all levels the following be done to prevent obstetric fistula:

At community level

- Work with existing community structures to address harmful and cultural practices.
- Provide information against early marriages in communities.
- Promote nutrition to the clients/patients.
- Encourage personal hygiene.
- Advise pregnant women to deliver in health facility.
- Practitioners should advise pregnant mothers to await labour at the health facility.
- Timely access to obstetric care
- Promote postpartum family planning.

At health facility level

- Provide focused antenatal care (FANC).
- Do proper monitoring of labour using the labour graph.
- Ensure proper management of obstructed and prolonged labour.
- Ensure that Caesarian sections are conducted by qualified and competent clinicians.
- Midwives and clinicians should work as a team in labour ward.
- Detect cervical cancers early.
- Ensure that all pregnant women with congenital malformations receive Caesarian sections.

15.5.8 Management of obstetric fistula

Surgery to close off the leakage at a Central hospital by specialists.

The role of HSA

- Educate the community on fistula prevention
- Raise awareness on the availability of repair services at hospitals
- Identifying women with obstetric fistula and referring them to hospitals for repair

How to identify women with obstetric fistula

- Through household visits
- Through community awareness meetings
- Interaction with community leaders

15.6 Immunisation

Immunization is one of the most successful and cost effective programmes that aims at preventing morbidity and mortality from major vaccine-preventable diseases. For the immunisation program to have a real preventive effect, the national coverage should be over 80%. Therefore, the community health worker plays a greater role in increasing the coverage of immunisations in any setting.

15.6.1 Overview of Expanded Program of Immunization

- The Expanded Programme on Immunization (EPI) is a key global health programme which aims at providing effective and quality immunization services to target populations.
- National immunization programmes (NIPs) operate within the context of national health systems, in alignment with global and regional strategies.
- For the current decade (2011–2020), the key global immunization strategies are conveyed through the Global Vaccine Action Plan or GVAP (2011–2020) and the African Regional Strategic Plan for Immunization or RSPI (2014–2020).
- These strategic plans call on countries to:
 - improve immunization coverage beyond current levels;
 - complete interruption of poliovirus transmission and ensure virus containment;
 - Attain the elimination of measles and make progress in the elimination of rubella and congenital rubella syndrome; attain and maintain elimination/control of other vaccine-preventable diseases (VPDs).

15.6.2 Expanded Program on Immunization in Malawi

- In Malawi, the EPI was established in 1979.
- The vision of the programme is to keep Malawian children free from vaccine-preventable diseases.
- The mission statement is to reduce infant morbidity and mortality rates due to vaccine preventable diseases by providing quality immunization services.

- After 10 years of its establishment, the country has been attaining the universal immunization goal of 80% or above for all antigens, except when there was a global vaccine shortage.
- EPI programme staff need to have sound technical and managerial capacities in order to achieve the programme's goals.

15.6.3 Target Diseases for Immunization and Surveillance

The vaccine-preventable diseases covered under EPI are summarised in the following Table 7.6

Table 7.6 Target Diseases for Immunization and Disease Surveillance

No.	Target vaccine-preventable diseases
1.	Tuberculosis
2.	Poliomyelitis
3.	Measles
4.	Diphtheria
5.	Maternal and neonatal tetanus
6.	Pertusis (whooping cough)
7.	Hepatitis B
8.	Haemophilus influenza type B
9.	Bacterial pneumonia
10.	Yellow fever
<i>Other vaccine-preventable diseases</i>	
11.	Mumps

12.	Rubella
13.	Rotavirus infections
14.	Pneumococcal infections
15.	Human Papilloma Virus infections
16.	Epidemic meningitis

15.6.4 Key strategies for conducting immunization services

15.6.4.1 *The Reaching Every District/Reaching Every Community (RED/REC) approach*

The RED approach focuses on steps in planning, managing and monitoring health services in order to improve immunization coverage and its impact.

The district is the primary implementation level for RED which is empowered to plan, implement and monitor their own immunization services

The five elements of RED are:

- ***Planning and management of resources:*** better management of human and financial resources.
- ***Reaching target populations:*** improving access to immunization services to all those who are eligible.
- ***Linking services with communities:*** partnering with communities to promote and deliver services.
- ***Supportive supervision:*** regular on-site teaching, feedback and follow up with health staff.
- ***Monitoring for action:*** using tools and providing feedback for continuous self-assessment and improvement.

15.6.4.2 *Common delivery strategies*

There are several strategies for the routine delivery of immunization services to target populations in or from health facilities.

The commonly used strategies are:

Fixed strategy:

- This refers to the regular daily delivery of vaccinations in a health facility.

Outreach visits:

- This is the delivery of services to people who cannot get to health facilities or who can do so only with difficulty.
- This usually covers settlements that are more than 5 km away, but less than 10 km from the health facility.

Mobile strategy:

- These usually are visits of more than one day by district or health workers.

- They deliver services to people living in remote areas not covered by health facilities.

Periodic intensification of routine immunization (PIRI):

- This strategy is important if the population coverage is to be raised to very high levels or to maintain high coverage that has been previously achieved.
- PIRI strategies include:
 - Immunization days,
 - Child health days/weeks
- The aim of PIRI is to catch up on routine immunisation coverage, and reach children who have not received doses of vaccines through the routine immunisation programme.

15.6.4.3 Integrating immunization with other key health interventions

- The services conducted at fixed, outreach, mobile delivery or during PIRI sessions should be integrated with other primary health-care (PHC) interventions.
- Integration of health services helps to improve acceptability of interventions
- Interventions suitable for integration with immunization micronutrient supplementation and Integrated Management of Childhood Illness (IMCI)

15.6.5 Immunity and Vaccine types

Activity 7.3 Pre-reading



- Read Anatomy and physiology book on Immunity
- Outline the different types of immunity that the body can acquire

General overview of immunity

- Our bodies have two lines of defense that protect us from pathogens.
- ***Non-specific (or innate) immunity:*** is the first-line protection against a vast number of harmful pathogens.
- ***Specific (or adaptive) immunity:*** is developed specifically in response to the particular pathogen or antigen (e.g. vaccine) that has entered the body.
- The human body may acquire immunity naturally, as a consequence of infection or artificially through immunization.

Types of immunity

- ***Natural active immunity***: that which develops when as a result of invasion of microorganisms (antigens) and production of special protective substances (antibodies) to fight the pathogens.
- ***Man-made or artificial immunity***: this is the type of immunity given through ***vaccine*** (made up of an organism or a toxin) or ***immunoglobulin administration***.
- ***Herd immunity***: this develops when a high proportion (usually 80% and more) of the target population in the community has been immunized with live vaccines.
- A protective effect is developed for the few who have not been immunized in this community as they are continuously being “infected” with the harmless (attenuated) virus from their vaccinated counterparts.
- ***Passive immunity***: “Borrowed” antibodies can protect a person temporarily.
- For example, a newborn child’s blood contains protective antibodies against measles made by the mother (only if she has contracted the disease earlier in her life), which passes through the placenta and breast milk so that the newborn is protected during the first months of life.
- The passive immunity can also be produced artificially by administering immunoglobulins that contain specific antibodies against diseases.

Types of vaccines

1. Live-attenuated vaccines

- Are produced from original virulent weakened strains of virus or bacteria that cannot cause disease, but are able to provoke an immune response.
- Examples include viral vaccines (e.g., oral polio, measles vaccine) and bacterial vaccines (e.g. BCG, cholera vaccines).
- Live vaccines (especially viral vaccines) produce a good and long-lasting immune response.
- However, they can lose their potency in the absence of or in poorly maintained cold chain.

2. Killed vaccines

- Contain microorganisms that have been treated (killed) by heat or chemicals, so that they are no longer harmful but maintain their immunogenicity.

- Examples include inactivated polio injectable vaccine, killed bacterial vaccines, such as against pertussis, a component of DPT combined (Pentavalent) vaccine.
- Killed vaccines do not, in general, induce strong and long-lasting immunity.
- Several doses may therefore be required to build up adequate long-term immunity.

3. *Sub-unit vaccines or toxoid (inactivated toxins):*

- Examples are tetanus toxoid (TT) now Tetanus diphtheria (Td) used to immunize women in child bearing age to prevent newborns from neonatal tetanus, and tetanus in injured persons.
- This toxoid is also a component of DPT vaccine widely used in childhood immunization.

4. *Mono-vaccines*

- These are single preparation vaccines.
- Example, measles vaccine

5. *Combined or polyvalent vaccines*

- Contain several antigens
- DPT is an example of combined vaccine used for childhood immunization to protect from diphtheria, pertussis and tetanus.
- It is now increasingly replaced by quadruple or pent vaccine that represent DPT and hepatitis B and/or Hib components.
- Vaccines come as ***liquid vaccines*** and ***lyophilised (dry) vaccines***—which are reconstituted with specific diluent.



Characteristics of vaccines

The ideal vaccine should have the following characteristics:

- ***Immunogenic:*** provoking a good immune response
- ***Long-lasting immunity:*** should provide a lasting immunity
- ***Safe:*** should have no or very rare adverse events following immunisation (AEFIs)
- ***Stable in field conditions:*** and be stored reasonably long enough without or with minimum cold chain requirements:
- ***Combined:*** with several antigens producing immunity against a number of diseases;
- ***Single dose:*** administered once, preferably by non-injectable routes (oral or through inhalation).
- ***Affordable cost*** and ***accessible to all.***

15.6.6 Vaccines used in national immunization programmes

- Since the inception of the Expanded Programme on Immunization (EPI) in Malawi, each vaccine has been selected based on:
 - safety, effectiveness,
 - reasonable price, and
 - The ability to combat childhood disease of significant public health importance.

- The six vaccine-preventable diseases originally targeted in 1974 were:
 - Tuberculosis, Poliomyelitis,
 - Diphtheria, pertussis,
 - Tetanus and Measles.
- Later this list was expanded to include some new vaccines:
 - Hepatitis B, Haemophilus influenza type b (Hib),
 - Pneumococcal Conjugate Vaccine (PCV13),
 - Rota virus vaccine and Human Papilloma virus (HPV).

15.6.7 Immunization Service Delivery and Vaccine Administration

Delivery of Immunization Services

Immunization services shall be provided at the following facilities:

1. All health facilities in countries

- Immunization services shall be provided routinely at the first available opportunity to infants, adolescents and women of child bearing age coming to the facility to seek services for whatever reason

2. Hospitals, health canterers/clinics/dispensaries

- Shall organize immunization sessions daily or on specific days during the week agreed upon with the local community.

3. Outreach services

- Shall be organized preferably monthly for widely dispersed populations falling within the catchment area of fixed health facilities.

4. Mobile clinics

- Shall be used selectively to reach remote communities or during mass campaigns.
- Expensive to maintain

Target population groups for vaccination

Target groups for immunization include:

- For primary series of vaccinations: children under one year of age;

- Booster doses (second measles dose)
- Women of child-bearing age (15-45 years) with emphasis on pregnant women
- Adolescents (9-12 years)

Routine immunization and the national immunization schedule

Every child should have:

- one dose of BCG,
- four doses of oral polio vaccine (OPV),
- one dose of IPV
- three doses of DPT+HepB +Hib Pentavalent
- three doses of Pneumococcal Conjugate Vaccine (PCV),
- two or three doses of Rotavirus depending on the vaccine manufacturer BCG, OPV0 and
- Malaria vaccines at 5, 6, 7, and 22 months of age.
- Measles vaccine should be given at nine months and a second dose provided at 18 months.

Table 7.7 gives a summary of the updated childhood immunisations in Malawi.

Table 7.7 Updated immunisation schedule for Malawi

Annex 1: Updated childhood immunization schedule in Malawi

Age	Vaccine	Route	Site	Dosage
At birth or first contact	BCG	Intra-dermal,	right upper arm	0.05 ml
At birth up to 2 weeks	OPV0	Oral	Mouth	2 drops
	OPV1	Oral	Mouth	2 drops
At 6 weeks	DPT-HepB-Hib1,	Intramuscular	lateral aspect of left thigh	0.5 ml
	PCV1	Intramuscular	lateral aspect of right thigh	0.5 ml
	Rota1	Oral	Mouth	1.5ml
	OPV2	Oral	Mouth	2 drops
At 10 weeks	DPT-HepB-Hib 2	Intramuscular	lateral aspect of left thigh	0.5 ml
	PCV2	Intramuscular	lateral aspect of right thigh	0.5 ml
	Rota2	Oral	Mouth	1.5ml
	OPV3	Oral	Mouth	2 drops
At 14 Weeks	DPT-HepB-Hib 3	intramuscular	lateral aspect of left thigh	0.5 ml
	PCV3	intramuscular	lateral aspect of right thigh	0.5 ml
	IPV	intramuscular	lateral aspect of right thigh 5cm away from PCV3	0.5ml
At 6-11 months (6 months interval)	Vitamin A	Oral	Mouth	1Capsule (100,000 I/U)
At 5 Months	MV1 (Malaria Vaccine)	Intra-muscular,	lateral aspect of right thigh	0.5 ml
At 6 Months	MV2	Intra-muscular,	lateral aspect of right thigh	0.5 ml
At 7 Months	MV3	Intra-muscular,	lateral aspect of right thigh	0.5 ml
At 9-11 months	MR1	Subcutaneous	lateral aspect of left thigh	0.5 ml
At 12-59 months (6 months interval)	Vitamin A (children)	Oral	Mouth	1 Capsule (200,000 I/U)
At 15-23 months	MR2	Subcutaneous	lateral aspect of left thigh	0.5 ml
At 22 Months	MV4	Intra-muscular,	lateral aspect of right thigh	0.5 ml

15.6.8 Cold chain management

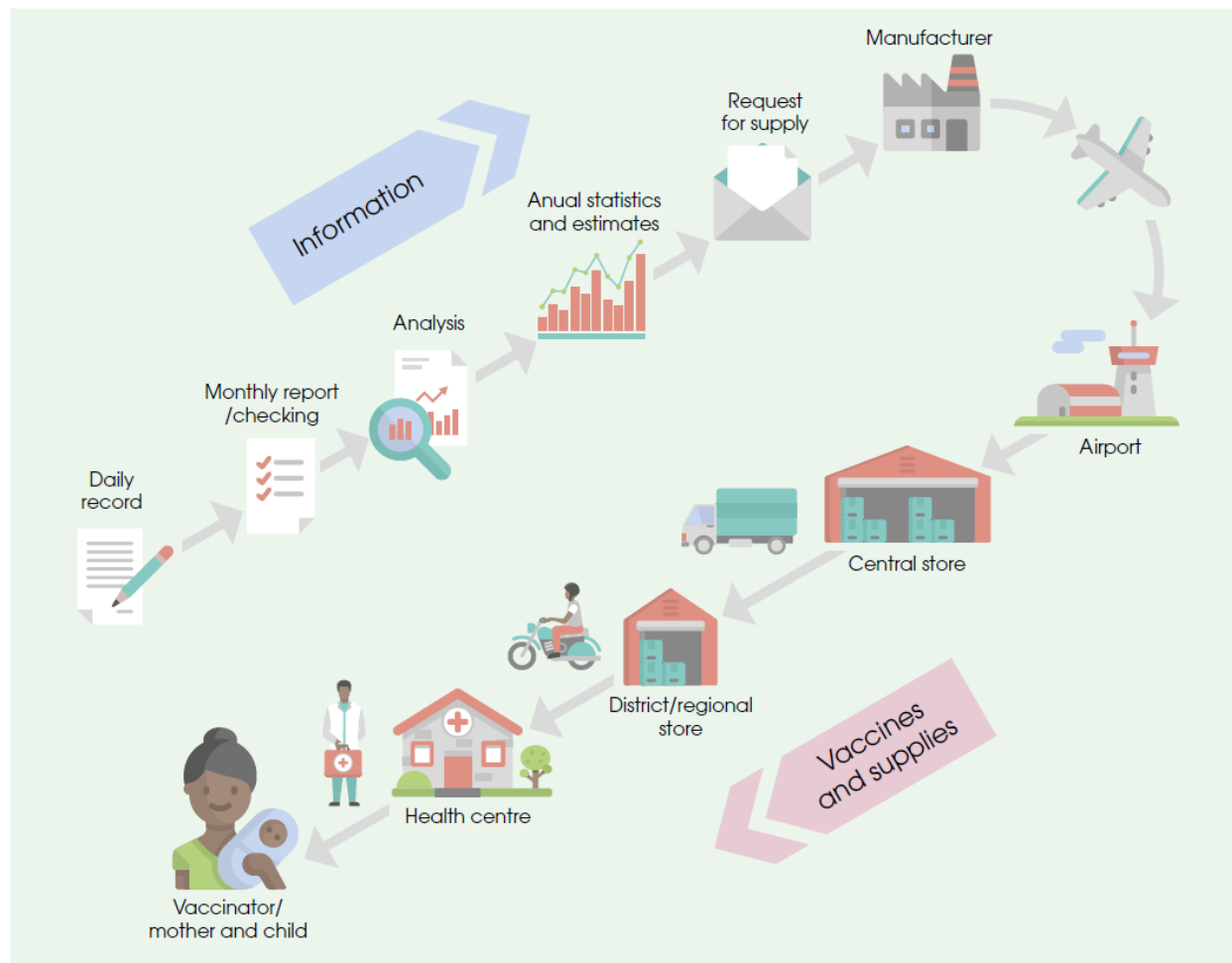
15.6.8.1 Cold chain management

- The cold chain is a system of different elements, i.e. human, material and financial resources, and certain norms and standards that ensure the high quality of vaccines. Cold chain consists of different levels called links, which deal with vaccine orders and supplies,

their transportation, storage and distribution from factory to the point of administration to the target population.

- Figure 7.4 illustrates this chain in detail

Figure 7.4 Vaccine movement in the cold chain from the manufacturer to the client



15.6.8.2 Cold chain equipment

The following cold chain equipment, monitors and vaccine stock management forms are used to ensure that vaccines are kept at an optimal temperature of between $+2^{\circ}\text{C}$ to $+8^{\circ}\text{C}$:

Equipment

- Cold room
- Freezer
- Refrigerator

- Refrigerator-freezer
- Cold box
- Vaccine carrier
- Ice (Cool) packs

Temperature monitors

- Vaccine vial monitor (VVM)
- Time/temperature tag (3M card)
- Dispatch indicator for TT
- Freeze-watch indicator
- Stop-Watch thermometers

Vaccine management forms

- Order form
- Vaccine arrival report (VAR)
- Delivery form
- Vaccine register
- Vaccine stock sheets

15.6.9 Vaccine safety and quality

EPI health workers involved in immunizations must follow all the principles of immunization safety and ensure that every vaccination is given safely.

They should be knowledgeable on how to manage waste materials, and how to monitor service delivery sufficiently, to be alert and responsive to any serious adverse event should it occur.

The following are the components of immunisation safety:

- Good injection practices
- Waste management
- Surveillance and management of AEFI
- Supply of syringes and safe vaccines
- Advocacy and communications

Good injection practices

- WHO recommends the use of single-use auto-disable (AD) syringes and pre-filled auto-disable syringes
- The reuse of disposable syringes places the general public at high risk of disease and even death

- Main characteristics of AD syringes include:
 - ensuring a single use only
 - having a pre-set volume limit
 - having a fixed needle of an appropriate gauge for immunization
 - automatically becoming unusable after they have delivered a full dose
- Without recapping, vaccinators should place needles and syringes in safety boxes immediately after administering vaccine to prevent risk of infection
- When the safety box is nearly (approximately three quarters) full, it should be securely be shut and stored in a safe place until it can be properly disposed of.

Supply of safe consumables

To ensure vaccine safety and quality, all vaccines and syringes must be safe to prevent adverse events following immunisations (AEFIs).

This includes:

- Ensuring vaccine quality by maintaining cold chain when storing and transporting all vaccines to prevent loss of vaccine potency which will in turn reduce their strength resulting in an AEFI once administered.
- Discarding all opened WHO-prequalified multi-dose vials of vaccines at the end of the immunization session in line with the Multi-dose vial policy
- Properly store diluents for vaccines and reconstitute freeze-dried vaccines only with the diluent supplied by the manufacturer.
- Rule out vaccine contraindications but use every opportunity to vaccinate eligible children and avoid so-called false contraindications as shown in Table 7.8.

Table 7.8 Indications and contraindications to vaccines

True contraindications	Not contraindications
Persons with a history of anaphylactic reactions (difficulty in breathing, swelling of the mouth and throat, hypotension or shock) following egg ingestion should not receive vaccines prepared on hens' egg tissues (e.g. yellow fever and influenza vaccines).	Minor illnesses such as upper respiratory infections, or diarrhoea with fever <38.5oC. Malnutrition; Child being breastfed.
Children with symptomatic HIV infection/AIDS should not be immunized with yellow fever vaccine.	Allergy, asthma, hay fever or snuffles; Family; history of convulsions.
Children who are known to be HIV infected, even if asymptomatic	Prematurity; low-birth-weight infants;
A severe adverse event following a dose of vaccine (anaphylactic reaction) is a true contraindication to a subsequent dose of the same vaccine. A second or third dose of vaccine e.g. Penta injection should not be given to a child who has suffered such a severe anaphylactic reaction to the previous dose.	Treatment with antibiotics, low-dose corticosteroids or locally acting steroids (e.g. topical or inhaled). Dermatoses, eczema or localized skin infections; Chronic diseases of the heart, lung, kidney and liver.

Stable neurological conditions, such as cerebral palsy and Down's syndrome; History of jaundice after birth.

Safe management of injection waste

- Waste produced by the immunization activities includes:
 - Sharps (used syringes)
 - Used vaccine vials
 - Discarded coolant packs
 - Discarded temperature devices
 - General packaging
- All such waste must be properly managed according to national policies and regulations in place for these categories of waste.
- Common methods for treatment of injection wastes include:
 - Incineration at high temperature ($>800^{\circ}\text{C}$)
 - Burning in metal drums and brick furnaces ($<800^{\circ}\text{C}$)
 - Encapsulation and burying without burning
- Each of these treatment methods has its advantages and disadvantages as illustrated in Table 7.9 below:

Table 7.9 Comparison of commonly used injection treatment and disposal methods

Method	Strengths	Weaknesses
Incineration (>800°C) High temperature	Almost complete combustion and sterilization of used equipment Reduces risk of toxic emissions Greatly reduces volume of immunization waste Greater compliance with local environmental laws	Relatively expensive to build, operate and maintain Requires trained personnel to operate May require fuel or dry waste to start burning May produce low levels of dioxins and furans
Burning (>400°C) Pit/drum burning Brick furnaces	Relatively inexpensive Minimum training required Reduction in waste volume Reduction in infectious material	Incomplete combustion May not completely sterilize Not environmentally friendly: results in heavy smoke High potential for toxic emissions (dioxins and furans) If not dry waste may require fuel to start burning
Waste burial pit/ encapsulation or other immobilizing material	Inexpensive Simple (low-tech) Prevents unsafe needle and syringe reuse Prevents sharps related infections/ injuries to waste handlers/scavengers	Potential of being unburied Volume of waste is not reduced Wastes are not disinfected Pit will fill quickly during campaigns Not suitable for non-sharp infectious wastes Presents a danger to the community if not properly buried Inappropriate in areas of heavy rain or if water table is near the surface

15.6.10 Monitoring adverse events following immunization (AEFI)

Definition

- An adverse event following immunization is any untoward medical occurrence (unfavourable or unintended sign, abnormal laboratory finding, symptom or disease) which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine.

Causes

AEFIs can arise through a variety of reasons, including:

- events that could be inherent to the vaccine product;
- related to quality;
- an immunization error;
- immunization anxiety;
- Coincidental.

Table 7.10 Five Categories of AEFI

Cause-specific type of AEFI	Definition
Vaccine product-related reaction	An AEFI that is caused or precipitated by a vaccine due to one or more of the inherent properties of the vaccine product.
Vaccine quality defect-related reaction	An AEFI that is caused or precipitated by a vaccine that is due to one or more quality defects of the vaccine product, including its administration device as provided by the manufacturer
Immunization error-related reaction (formerly “programme error”)	An AEFI that is caused by inappropriate vaccine handling, prescribing or administration and thus by its nature is preventable
Immunization anxiety-related reaction	An AEFI arising from anxiety about the immunization

Common reactions

- Common, minor AEFIs could be local or systemic reactions
- Most AEFI are minor and resolve on their own
- Common minor reactions include:
 - Pain
 - Swelling
 - Redness at injection site
 - Fever (>38°C)
 - Irritability
 - Malaise

Severe reactions

Severe AEFI are considered serious by definition, if they:

- result in death

- are life-threatening
- require in-patient hospitalization or prolongation of existing hospitalization
- result in persistent or significant disability/incapacity
- Are associated with a congenital anomaly/birth defect.

Figure 7.10 Severe vaccine reactions, onset interval and frequency

Vaccine	Reaction ¹	Onset interval	Rate per million (1 000 000) doses
BCG	Suppurative lymphadenitis	2–6 months	100–1000
	BCG osteitis	1–12 months	1–700
	Disseminated BCG infection	1–12 months	~1–2
Hib	None		
Hepatitis B	Anaphylaxis	0–1 hour	1–2
Measles/MMR/MR	Febrile seizures	6–12 days	330
	Thrombocytopenia	15–35 days	30
	Anaphylaxis	0–1 hour	~1
	Encephalopathy	6–12 days	<1
Oral poliomyelitis	Vaccine-associated paralytic polio (VAPP)	4–30 days	0.4–3 million ²
Tetanus toxoid, DT	Brachial neuritis	2–28 days	5–10
	Anaphylaxis	0–1 hour	1–6
Pertussis (DTwP)	Persistent (>3 hours) inconsolable screaming	0–24 hours	1000–6000
	Seizures	0–3 days	80–570 ³
	Hypotonic-hyporesponsive episode (HHE)	0–48 hours	30–990
	Anaphylaxis	0–1 hour	20
	Encephalopathy	0–2 days	0–1

Basic rules to avoid immunization errors

- Reconstitute your vaccine only with the diluent supplied by the manufacturer.
- Discard reconstituted vaccines at the end of each immunization session or after six hours, whichever comes first and never retain them (Follow the multi-dose policy).
- Do not keep drugs or other substances in the vaccine refrigerator.
- Use sterile AD syringe for each injection.
- Use sterile reconstitution syringe and needle for each vial to be reconstituted.

- Full investigation of an AEFI is needed to pinpoint the cause and to correct inappropriate immunization practices.

Multi-dose Vial policy (MDVP)

- The EPI adopted the WHO **Multi Dose Vial Policy (MDVP)** on opened vaccine vials.
- The policy declares that: Multi-dose vials of OPV, Pentavalent, Td, IPV vaccines, from which one or more doses of vaccine have been removed during an immunization session, may be used in subsequent immunization sessions for up to a maximum of four weeks, provided that all of the following conditions are met:
 - The expiry date has not passed;
 - The vaccines are stored under appropriate cold chain conditions;
 - The vaccine vial septum has not been submerged in water;
 - Aseptic technique has been used to withdraw all doses;
 - The vaccine vial monitor (VVM), if attached, has not reached the discard point.
 - The date when the vial was opened should be indicated on the vial

Prevention

- A robust AEFI surveillance system in a country will help authorities to detect, manage and prevent AEFIs.
- Figure 7.5 depicts the appropriate action to be taken in order to prevent and manage AEFIs

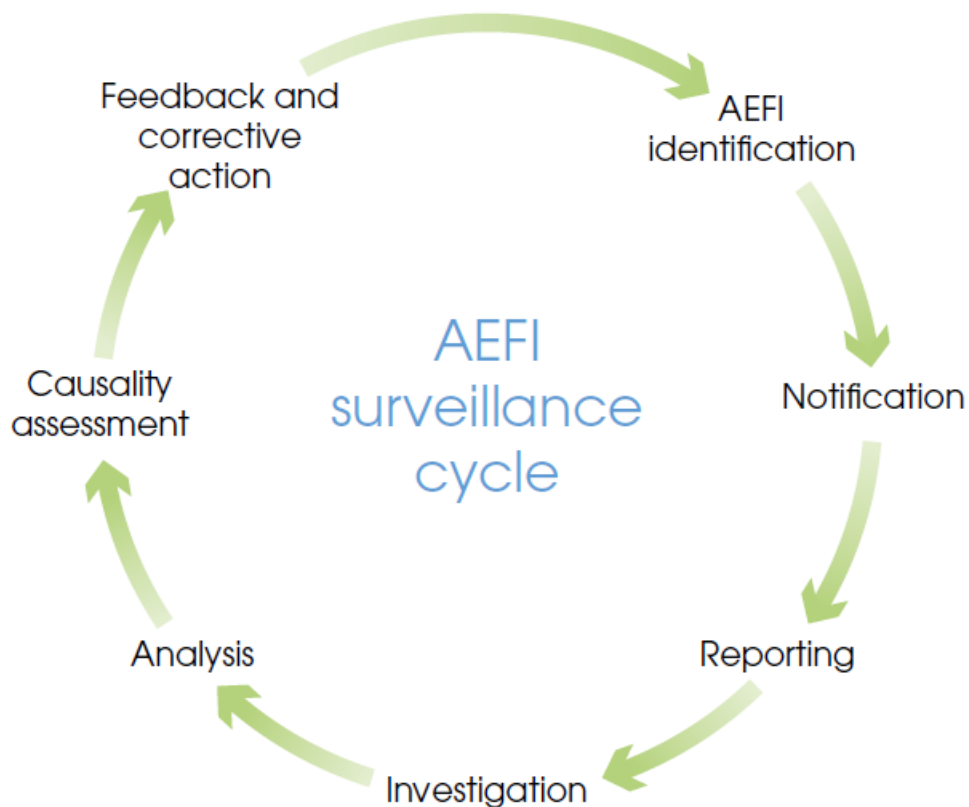


Figure 7.5 AEFI surveillance cycle

Importance of advocacy and communication

- Importance of safe disposal of waste should be emphasised to health staff and the community.
- The health staff should be sensitized on the potential risks related to recapping needles after vaccination and the need to use safety boxes systematically.
- The community should be aware of the risks of manipulating used needles and syringes and of the efforts made by the health personnel to prevent accidents.
- The public should know that used material is stored and disposed of regularly and safely.
- Community members should in turn spread the message on prevention of accidents caused by sharps among other community members, especially preventing children from playing with used sharps.
- School health programmes should also include talks on safe waste disposal.

15.6.11 Estimating vaccine needs

- To estimate vaccine needs based on the target population, a number of parameters for conducting immunization activities are necessary.
- They include:
 - target population
 - immunization schedule, i.e. number of doses per target
 - immunization coverage targets
 - Wastage rate.

15.6.12 Basic calculation

Activity 7.3

Calculating target population

Calculating immunization coverage

Calculating the number of unimmunized children with Penta3

Calculating drop-out rates between Penta1 and Penta3 in children under one year of age

Scenarios for calculations to be completed later

15.7 Growth Monitoring

Growth monitoring and early intervention prevent children from becoming malnourished. More importantly, growth monitoring motivates caregivers, families, and communities to practice behaviours that support adequate growth in young children. This section discusses growth monitoring activities and the role of HSA.

15.7.1 Definition of growth monitoring

- UNICEF (2007) defined growth monitoring (GM) as the process of following up the growth rate of a child in comparison to a standard by periodic anthropometric measurements in order to assess growth adequacy and identify faltering at early stages.
- It is a process of detecting the development and growth through the assessment of milestone, weight and nutritional status of the child from birth up to 5 years.
- The emphasis is on measuring the weight, height and mid-upper arm circumference as means of early identification of malnutrition in children for the purposes of monitoring growth and promotion of health (Ministry of Health, 2016).
- GM aims to:
 - improve nutrition,
 - reduce the risk of death or inadequate nutrition,
 - help educate carers,
 - Refer early conditions manifested by growth disorders.

15.7.2 The process of weighing and measuring a child

Purpose of growth monitoring

- The purpose of growth monitoring is to periodically measure the weight and height/length of a child relative to age to assess growth and identify malnutrition early.

Equipment and supplies used

- Weighing scale
- Weighing bag
- Height boards
- Child Health Profile and Register
- MUAC (Mid Upper Arm Circumference tape)

- Hook and string

Weighing of a child

- Hang the scale to eye level of the reader
- Hang the empty weighing bag
- Adjust arrow of scale to “0” point
- Instruct the mother to remove clothes from child
- Attach the child to the scale
- Read the scale correctly and plot on the child health profile
- Remove the child from the scale
- Tell the mother whether or not the child is gaining weight.
- Praise her if the child is gaining weight and give advice accordingly if there is constant weight or weight loss.
- Tally child’s weight on child register

Determining mid-upper arm circumference

- Tally child’s weight on child register
- Determine the mid-way of the upper arm
- Place the tape around the mid-point of the arm (not too tight and loose)
- Read and note the findings
- Record findings in the appropriate form

15.7.3 Assessment of a child’s growth

Signs of poor nutritional status

- Thin
 - ❖ Underweight
 - ❖ Miserable
 - ❖ Irritable

Signs of poor growth

- Mid Upper Arm Circumference (MUAC) less than 13.5cm

- Weight below “green road”
- Constant weight for 3 months

MID-UPPER ARM CIRCUMFERENCE (MUAC) CLASSIFICATION



- MUAC is a better indicator of mortality risk associated with malnutrition than Weight-for-Height. It is therefore a better measure to identify children most in need of treatment.
- MUAC is simple, cheap, more sensitive and less prone to mistakes.
- Appropriate cut-off points of MUAC for children between 6 to 59 months are given below:

Children	>13.5 cm	Normal
	12.5 to 13.5 cm	At risk of acute malnutrition
	11.0 to 12.5 cm	Moderate acute malnutrition
	<11.0 cm	Severe acute malnutrition

Figure 7.6 Classification of MUAC

Signs of Growth faltering and other problems

- To identify signs of growth faltering check for the presence of signs of common diseases
- Once these are identified give advice appropriately or refer for further assessment.

15.7.4 Health education topics on growth monitoring

The following are some of the topics to be presented during growth monitoring exercise

- Importance of going to under- five clinics
- Importance of having the weight chart
- Causes of low birth weight
- Identification of malnutrition

- Immunization
- The Six Food Groups

15.7.5 Referral of children with nutritional problems

After identification of problems associated with growth and development as result of suspected poor nutrition refer to a:

- Nutritional clinic
- Health facility

15. 8 Infection Prevention and Standard Precautions

Infection prevention and standard precautions (formerly referred to as universal precautions) are important measures in protecting both the health worker, as well as patients being cared for. This section discussed the major principles of Infection prevention and standard precautions.

15.8.1 Definition of infection prevention

- *Infection prevention and control* (IPC) is a scientific approach and practical solution designed to *prevent* harm caused by *infection* to patients and health workers.
- IPC occupies a unique position in the field of patient safety and quality universal health coverage since it is relevant to health workers and patients at every health-care encounter.

15.8.2 The principle of infection prevention

- **Standard precautions** are a set of infection control practices that must be used all health care providers all the time to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin (including rashes), and mucous membranes.
- The guiding principle is that all blood and body fluids from all people are treated with the same degree of caution so no judgment is required about the potential infectivity of a particular specimen.
- Infection prevention aims at stopping the passage of infectious organisms between people

15.8.3 Infectious body fluids

- Blood
- Semen
- Vaginal discharge
- Sputum
- Body fluids containing blood

Table 7. 11 Comparison of infectious fluids

Relative Risk of Infectious Fluids in Occupational Exposure to HIV	
Category of Infectivity	Fluid
Infectious Fluids	• Blood • Visibly bloody body fluids
Potentially Infectious Body Fluids	• Semen and vaginal secretions • Cerebrospinal fluid • Synovial fluid • Pleural fluid • Peritoneal fluid • Pericardial fluid • Amniotic fluid
Not Considered Infectious (Unless Visibly Bloody)	• Saliva, vomitus, and feces • Nasal secretions and sputum • Sweat and tears • Urine

15.8.4 Infection prevention methods

- Making a Barrier to Body Fluids
- Removing infectious organisms
- Personal Discipline

15.8.5 Basic rules of infection prevention

- Wash hands
- Use personal Protective Equipment (PPE), like gloves, masks, eye goggles
- Clean the Client's Skin
- Use Needles, Syringes and Vials appropriately to avoid needle stick and sharps Injury
- Observe safe Injection Practices (no recap)
- Isolate infectious patients
- Clean Instruments, Equipment and other Materials
- Dispose of Single- use equipment and Supplies properly
- Do cleaning and disinfection of surfaces and items.

- Observe respiratory hygiene (cough etiquette)
- Dispose of waste appropriately

A summary of the standard precautions is given in Figure 7.7



Figure 7.7: A summary of standard precautions

15.9 Palliative Care

Palliative care is an essential component of a comprehensive package of care for people living with life-threatening illness in the community because a variety of symptoms they experience can be relieved.

Lack of palliative care at the community level places an unnecessary burden on hospital or clinic resources.

This section highlights the important principles of palliative care.

15.9.1 Definition of Palliative Care

- The World Health Organisation (2016) defines Palliative Care as an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and correct assessment and treatment of pain and other physical, psychosocial and spiritual problems.
- Palliative care is a combination of active and compassionate long-term therapies intended to comfort and support individuals and families living with a life threatening condition/illness (WHO, 2002).

15.9.2 Principles of Palliative Care

Palliative care:

- provides relief from pain and other distressing symptoms;
- affirms life and regards dying as a normal process;
- respects the needs of the patient, and is truthful
- intends neither to hasten nor postpone death;
- integrates the psychological, spiritual and social aspects of patient care;
- offers a support system to help patients live as actively as possible until death;
- offers a support system to help the family cope during the patients' illness and in their own bereavement;
- uses a team approach to address the needs of patients and their families, including bereavement counselling, if indicated;
- enhances quality of life, and may also positively influence the course of illness;

- is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life (such as chemotherapy or radiation therapy)

15.9.3 Individuals needing Palliative Care

The majority of adults in need of palliative care have chronic diseases such as:

- Cardiovascular diseases
- Cancer
- Chronic respiratory diseases (e.g. asthma)
- AIDS
- Diabetes mellitus
- Kidney failure
- Chronic liver disease
- Parkinson's disease
- Rheumatoid arthritis
- Neurological disease
- Dementia
- Congenital anomalies
- Drug-resistant tuberculosis

15.9.4 Components of Palliative Care

- Pain relief
- Spiritual and emotional support
- Anticipatory guidance
- Inheritance rights preparation
- Bereavement counseling

15.9.5 Models of Palliative Care Service Delivery

- ***In-Patient Care:*** This takes place in a separate building, which can be a ward in a general hospital that admits palliative care patients. It is also referred to as a free standing hospice.
- ***Home-Based Care:*** This is the commonest form of care in most African countries. Care is provided at home mainly by the family, close friends and relatives

- ***Hospital Palliative Care:*** The hospital has a palliative care team (at least one doctor and a nurse) who receives referrals from different wards/OPD and trained community volunteers
- ***Palliative Day Care:*** Patients come for one or more days a week to a Centre, which may be attached to another service (e.g. hospital) or on its own. They often spend 5 – 6 hours at each visit to be assessed and treated.
- ***Outreach Clinic:*** This is where the mobile team has a monthly clinic at a health facility usually some distance from the parent organization. Patients and families who can travel meet the team there.
- ***Road-Side Clinic:*** On the way to the outreach clinic, the palliative care team arranges to stop at strategic places so that local patients can be seen from the vehicle.

15.9.6 Role of the HSA in Palliative Care

- Identification
- Assessment
- Care provision: pain relief
- Counselling
- Referral

MODULE 11: NUTRITION

Module aim

In this module students will be introduced to the basic principles of nutrition and their application. The module will assist in providing knowledge related to, basic nutrition principles and nutrition in public health emergencies.

1 Basic nutrition

Nutrition is how food affects the health of the body. Food is essential—it provides vital nutrients for survival and helps the body function and stay healthy. Food is comprised of micronutrients and macronutrients including protein, carbohydrate and fat that not only offer calories to fuel the body and give it energy but play specific roles in maintaining good health.

Adequate Nutrition refers to the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, combined with regular physical activity.

Food Security is defined as physical and economic access to food that meets people's dietary needs and food preferences for a productive and healthy life. Food security has four components: food availability, food access, food utilisation, and stability of the first three components

Nutrition Security is achieved when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care to ensure a healthy and active life for all household members.

Nutrition Sensitive Interventions address the underlying causes of foetal and child nutrition and development— these include intervention in improving food security; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment.

Nutrition Specific Interventions address the immediate causes of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving and parenting practices, and low burden of infectious diseases

Nutrition Surveillance refers to monitoring the state of health, nutrition, eating behaviour, and nutrition knowledge of the population for the purpose of planning and evaluating nutrition policies and guidelines. Especially in low-income countries, monitoring may include factors that may give early warning of nutritional emergencies

2.1 Macronutrients: Protein, Carbohydrate and Fat

Protein: Found in beef, pork, chicken, game and wild meats, fish and seafood, eggs, soybeans and other legumes. Protein provides the body with amino acids. Amino acids are the building blocks of proteins which are needed for growth, development, and repair and maintenance of body tissues. Protein provides structure to muscle and bone, repairs tissues when damaged and helps immune cells fight inflammation and infection.

Carbohydrates: The main role of a carbohydrate is to provide energy and fuel the body the same way gasoline fuels a car. Foods such as maize, beans, plantains, rice, potatoes and other root vegetables such as cassava, bread and fruit deliver sugars or starches that provide carbohydrates for energy. Energy allows the body to do daily activities as simple as walking and talking and as complex as running and moving heavy objects. Fuel is needed for growth, which makes sufficient fuel especially important for growing children and pregnant women. Even at rest, the body needs calories to perform vital functions such as maintaining body temperature, keeping the heart beating and digesting food, in addition to other basal metabolic processes.

Fat: Dietary fat, which is found in oils, coconut, nuts, milk, cheese, meat, poultry and fish, provides structure to cells and cushions membranes to help prevent damage. Oils and fats are also essential

for absorbing fat-soluble vitamins including vitamin A, a nutrient important for healthy eyes and lungs.

2.2 Micronutrients: Vitamins and Minerals

Vitamins and minerals are food components that help support overall health and play important roles in cell metabolism and neurological functions.

Vitamins aid in energy production, wound healing, bone formation, immunity, and eye and skin health.

Minerals help maintain cardiovascular health and provide structure to the skeleton.

Consuming a balanced diet including fruits, vegetables, dairy, protein foods and whole or enriched grains helps ensure the body has plenty of nutrients to use. Providing a few examples of specific micronutrient functions can enhance the effectiveness of nutrition education:

- **Vitamin A** helps the eyes to see
- **Calcium and magnesium** help muscles and blood vessels relax, preventing cramps and high blood pressure
- **Vitamin C** helps wounds heal and the body's ability to fight off germs
- **Iron** helps the blood transport oxygen throughout the body and prevents anemia
 - The prevalence of anaemia has declined but is still relatively high, anaemia can be a result of dietary deficiency (e.g., lack of high sources of iron, vitamin B12 or folate) or non-dietary related causes (e.g., malaria). According to the Malawi Micronutrient Survey (MNS) 2015-16, the prevalence of anaemia among preschool children dropped from 54.8% in 2009 to 28.2% in 2015- 16, and among women of child-bearing age, anemia dropped from 32.0% in 2009 to 20.9% in 2015-16.



ACTIVITY

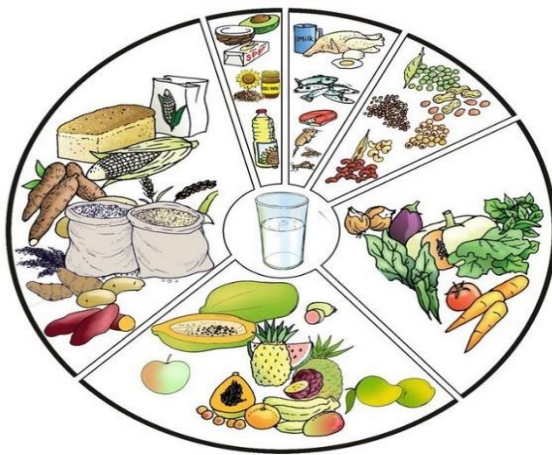
What are some of the common micronutrient deficiencies in Malawi that are of public health importance?

2.3 Concept of Nutrients as Building Blocks

Building blocks include protein for growing babies in uterus for child and adolescent growth, and for repairing damaged skin, blood, and other body parts in adults who aren't growing. Some parts of the body are replaced regularly, like blood and skin, so even adults are building new body parts regularly. Calcium is also a building block for building bones. Iron is a building block for blood. Since blood cells only last a few months, the body constantly needs more iron and protein to make new blood.

Foods	Simple Concept of Function
Carbohydrate-rich foods	Fuel/Energy
Protein-rich foods	Building blocks
Fruits and Vegetables	Helpers and protectors

Malawi's Six Food Groups



- **Vegetables** (leafy greens, kale, tomato, carrot)
- **Fruits** (apples, paw paw, oranges, lemons, Mangoes)
- **Legumes** and Nuts (groundnuts/peanuts, beans, peas, cowpeas/black-eyed pea)
- **Animal Foods** (meat, eggs, milk, fish)
- **Fats** (cooking oil, soybeans, groundnuts/peanuts, can also include milk)
- **Staples** (grains, maize, rice, cassava)

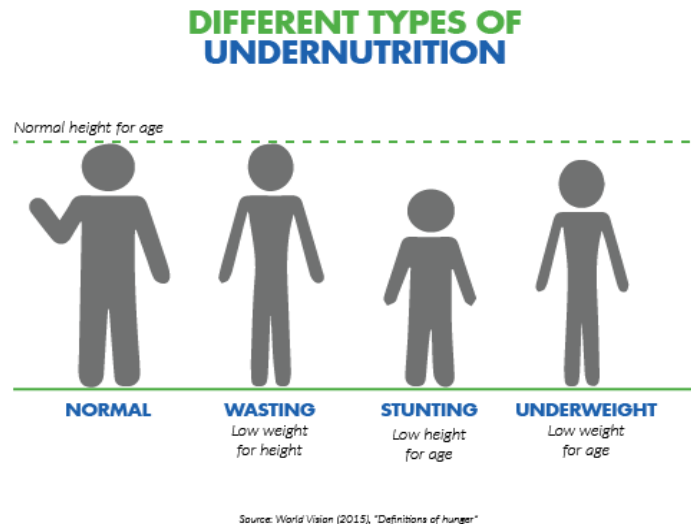
3 Malnutrition

Malnutrition refers to the physiological state of an individual that results from the in-balance between nutrient intake and requirements, and from the body's inability to digest, absorb and utilize these nutrients. Malnutrition, in all its forms, includes undernutrition (wasting, stunting, underweight), inadequate vitamins or minerals, Overnutrition (overweight, obesity) and resulting diet-related non-communicable diseases (WHO definition).

The term malnutrition addresses 3 broad groups of conditions:

- Micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess. Micronutrient deficiencies are responsible for a wide range of physiological impairments, leading to reduced resistance to infections, metabolic disorders and delayed or impaired physical, mental and psychomotor functions
- Overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers). Overnutrition is a result of excessive intake of energy, leading to overweight and obesity. Overweight and Obesity is defined as abnormal or excessive fat accumulation that may impair health. Overweight and obesity is measured by a body mass index greater than 25.
- Undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age). Undernutrition is lack of nutrients caused by inadequate dietary intake and/or absorption in the body. It encompasses a range of

conditions including acute malnutrition, stunting, underweight and micronutrient deficiency.



3.1 Nutrition assessment and management

3.1.1 Nutrition assessment

- Collect anthropometrics measurements
- Look at biochemical data
- Conduct physical examination to detect the clinical signs of nutritional status
- Obtain a dietary history

3.1.1.1 Anthropometrics

- Height
- Weight
- Skin fold thickness (triceps, biceps, below scapula, above iliac, and upper thigh)
- Circumference (head, mid upper arm, waist, calf, and hip)
 - Body Mass Index (BMI)- $BMI = \frac{W(kg)}{H(m)^2}$; $< 15 =$
 - Normal – 18.5 to 24.9
 - Underweight- < 18.5
 - Overweight – 25 to 29.9
- Obese - < 30

3.1.1.2 Physical growth

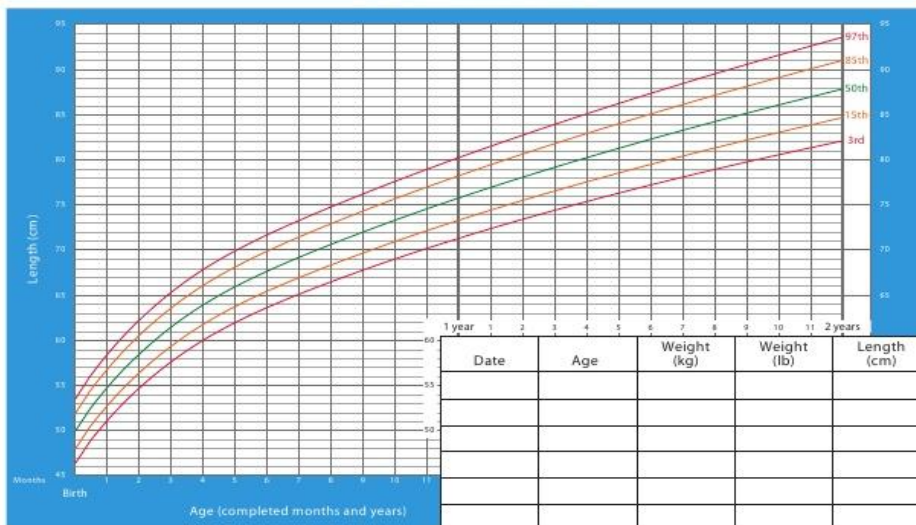
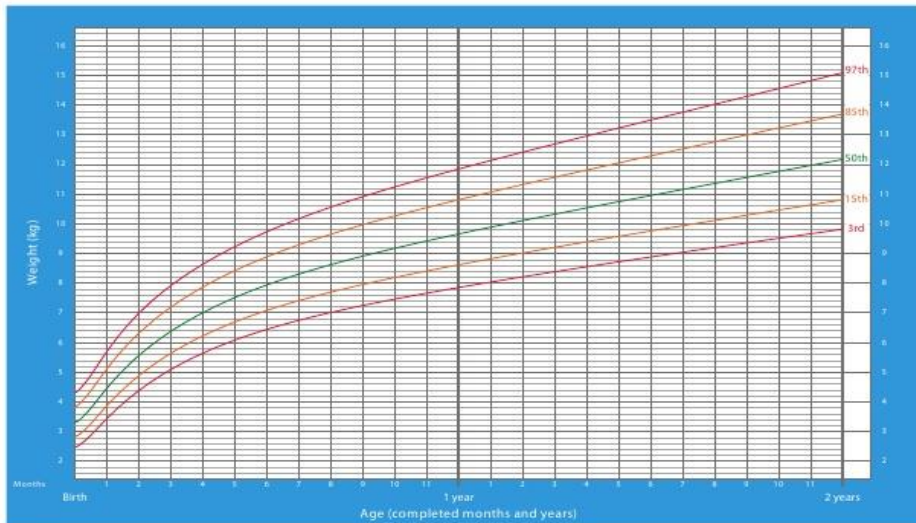
- Growth monitoring involves measurement of anthropometric measurements above.
- These measures are plotted on World Health Organization growth charts that are gender specific.
- Charts; Weight for age, Length for age, Weight for height.
- Examples of the charts are shown below;

BOYS: Weight-for-age and Length-for age



World Health Organization

Birth to 2 years (percentiles)



Date	Age	Weight (kg)	Weight (lb)	Length (cm)

WHO Child Growth Standards

Clinic/Provider:

Name: _____



World Health
Organization

GIRLS: Weight-for-age and Length-for age

Birth to 6 months (percentiles)



Date	Age	Weight (kg)	Weight (lb)	Length (cm)

WHO Child Growth Standards

Clinic/Provider:

Name: _____



ACTIVITY

- Practice using WHO growth charts and BMI assessment.
- Practice anthropometric measurements; Height, Weight MUAC

3.1.2 Management

- Treatment and control of acute malnutrition focuses primarily on timely identification, treatment, and follow-up of acutely malnourished children through a community- and facility-based approach. In addition, the Government established nutrition care support and treatment (NCST) interventions, which aims at addressing malnutrition among adolescent and adults with chronic illness such as TB, HIV and AIDS.
- Refer to *Community-based Management of Acute Malnutrition (CMAM)*, *Nutrition care, support, and treatment (NCST)*, *Eat well to live well* and *Infant and Young Child Feeding (IYCF)* guidelines.
 - **Community-Based Management of Acute Malnutrition (CMAM)** is a decentralized community-based approach to treating acute malnutrition. Treatment is matched to the nutritional and clinical needs of the child, with the majority children receiving treatment at home using ready-to-use therapeutic foods. In-patient care is provided only for complicated cases of acute malnutrition. CMAM consists of four components: (1) Stabilization care for acute malnutrition with complications (NRU), (2) Out-patient therapeutic care for severe acute malnutrition without complications (OTP), (3) Supplementary feeding for moderate acute malnutrition (SFP) and (4) Community mobilization.

- **Nutrition care, support, and treatment (NCST)** guidelines provide guidance on implementing the following set of nutrition interventions within the health care system:
 - Nutrition assessment and classification, including the use of anthropometric, biochemical, clinical, and dietary assessment methods
 - Nutrition counseling and education
 - Nutrition care plans and support based on clients' nutritional status, including normal nutritional status, moderate undernutrition, severe undernutrition, overweight, and obese.
 - Monitoring and reporting
 - Managing the quality of nutrition service delivery at the facility level, including quality assurance (QA) and continuous quality improvement (QI).
- ***Infant and Young Child Feeding (IYCF)***- The strategy was developed to revitalize world attention to the impact that feeding practices have on the nutritional status, growth and development, health, and survival of infants and young children. It focuses on nutritional needs and feeding practices in children less than two years of age – the most critical period for child nutrition after which sub-optimal growth is hard to reverse. Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children to their full potential. Poor nutrition increases the risk of illness, and is responsible, directly or indirectly, for one third of the estimated 9.5 million deaths that occurred in 2006 in children less than 5 years of age. Inappropriate nutrition can also lead to childhood obesity which is an increasing public health problem in many countries. Early nutritional deficits are also linked to long-term impairment in growth and health. Malnutrition during the first 2 years of life causes stunting, leading to the adult being several centimeters shorter than his or her potential height.
- **Feeding Infants and young children**

- Infants and young children need the right foods at the right time to grow and develop to their full potential. The most critical time for good nutrition is in the brief 1,000 special days from the start of a woman's pregnancy until a child's second birthday.
- Breastmilk is a crucial food for children's health and development during this critical window. It provides all of the vitamins, minerals, enzymes and antibodies that children need to grow and thrive in the first 6 months of life and continues to be a pivotal part of their diet up to the age of 2 and beyond.
- Breast milk is safe: it is always the right temperature, requires no preparation, and is available even in environments with poor sanitation and unsafe drinking water. In this way, breastfeeding guarantees babies access to a reliable, sufficient quantity of affordable, nutritious food. Breastfeeding also supports healthy brain development, higher educational achievement, and lowers the risk of obesity and other chronic diseases.
- **Eat well to live well**, Malawi's guide to prevention and management of common diet and lifestyle related non-communicable diseases. This focuses on strategies on prevention and management of common diet and lifestyle related non-communicable diseases.



ACTIVITY

- Recall nutrition management guidelines for different populations.

3.2 Prevailing food and nutrition policies

3.2.1 Malawi National Multi-Sector Nutrition Policy 2018-2022

This NMNP 2018–2022 serves as a guiding document for national nutrition stakeholders, including government, civil society, faith-based organizations, academia, the private sector, and development partners to promote:

- Evidence-based programming and strengthening of the national nutrition response.
- Scale up of evidence-based innovative interventions.
- Re-alignment of nutrition interventions to the current national development strategy, the Scaling Up Nutrition (SUN) movement, World Health Assembly targets, the Sustainable Development Goals, and other new global declarations, which the government has signed.

3.2.2 National Agriculture Policy, and the Food and Nutrition Strategy

The Agriculture Policy promotes food and agriculture-based approaches for improving nutrition including production and consumption of diversified foods from all the six food groups.

3.2.3 National Health Policy, and the Health Sector Strategic Plan II

The Health Policy promotes several nutrition-specific interventions at the health facility and community level. These interventions include promoting dietary diversity; optimal IYCF and caring practices, treatment of acute malnutrition, nutrition care support and treatment for People Living with HIV (PLHIV) and Tuberculosis (TB) clients and micronutrient supplementation. The Health Policy also promotes, growth monitoring and promotion, provision of insecticide-treated bed nets, and de-worming.

3.2.4 National Education Policy, and the School Health and Nutrition Strategy

The National Education Policy advocates for the promotion of the school feeding programme, school health and Water, Sanitation and Hygiene (WASH), HIV/AIDS, gender and education interventions. The Policy also promotes mainstreaming of nutrition within the school curricula and facilitates keeping adolescent girls and young women in school.

3.2.5 National Gender Policy

The Gender Policy aims at mainstreaming gender in the national development process to enhance participation of women, men, girls, and boys at individual, household, and community levels for sustainable and equitable development. It also promotes a holistic approach to gender equality and social protection, and poverty reduction.

3.2.6 Decentralisation Policy

The Decentralization Policy seeks to create a democratic environment and institutions for governance and development at the local level. The Policy supports the roll out of nutrition interventions, and the operationalisation of the National Multi-Sector Nutrition Policy 2018–2022 and the Strategic Plan at the district and community level.

4 Nutrition in emergencies

Emergency situations occur when there is an exceptional and widespread threat to life, health, and basic subsistence that is beyond the coping capacity of individuals and communities. Malawi is prone to disasters, predominantly droughts and floods, which are further exacerbated by climate change.

The affected population groups are sometimes displaced from their homes, lose their livelihoods, and have little access to resources or services and become vulnerable to infectious diseases and malnutrition. The impact of these disasters on the population are particularly devastating due to the high dependence on subsistence farming, over-reliance on rain-fed agriculture, poverty, limited crop diversity, and a lack of disaster-risk management infrastructure and systems.

The key challenges during emergency situations are food insecurity, poor livelihoods, inadequate coping mechanisms resulting in limited availability, and access to food and nutrition that compromises the nutritional status of individuals, especially vulnerable groups.

4.2 Types of feeding programmes for emergencies

- Community-based Management of Acute Malnutrition
- Infant and Young Child Feeding in emergencies
- Nutrition Care Support and treatment
- Micronutrient supplementation
- Food/ ration distribution

4.3 Government Ministries, Departments and Agencies (MDAs) and UN agencies involved with humanitarian food assistance in emergency situations

- Ministry of Disaster Management Affairs
- Ministry of Health, Directorate off clinical services (Nutrition)
- Ministry of Health, Department of Nutrition and HIV/AIDS
- United Nations Development Programme (UNDP) Malawi
- Food and Agriculture Organization (FAO)
- World Vision international
- Red Cross
- United Nations Children’s Fund (UNICEF)
- United States Agency for International Development (USAID)