

REPRODUCTIVE HEALTH

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FOR

Health Science Students

Lecture Note

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University of Gondar

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PREFACE

This lecture note lecture note in reproductive health for health science students is prepared in accordance with the current curriculum, which we think will be of help to meet the millennium development goals in the health perspective, which is broader in scope and extensive in contents than the already existing maternal on child health. It will help students and other readers to understand the current reproductive health understandings.

Starting with the definition, we have gone through its components. Each component was dealt with extensively as a chapter. Emphasis was given to the service provision and challenges and on how to overcome the challenges which most of the time is not easily available and accessible for the students. In each reproductive health component, we tried to address important national and international up-dated figures and evidence based and practical reproductive health and related issues.

The authors

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CHAPTER 1

INTRODUCTION TO REPRODUCTIVE HEALTH

Learning objectives:

- To define reproductive health
- To know the historical development of RH
- Understand magnitude of RH problems
- Understand RH indicators and criteria for selection of indicators
- To understand the relationship of reproductive health and gender
- Know the targets of reproductive health

1. Definition and introduction

Reproductive health is defined as” A state of complete physical, mental, and social well being and not merely the absence of disease or infirmity, in all matters related to the reproductive system and to its functions and process”. This definition is taken and modified from the WHO definition of health. Reproductive health

addresses the human sexuality and reproductive processes, functions and system at all stages of life and implies that people are able to have “a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so.”

Men and women have the right to be informed and have access to safe, effective, affordable and acceptable methods of their choice for the regulation of fertility which are not against the law, and the right of access to appropriate health care services for safe pregnancy and childbirth and provide couples with the best chance of having a healthy infant. Reproductive health is life-long, beginning even before women and men attain sexual maturity and continuing beyond a woman's child-bearing years.

1.1. Historical development of the concept

It is helpful to understand the concept and to examine its origins. During the 1960s, UNFPA established with a mandate to raise awareness about population “problems” and to assist developing countries in

addressing them. At that time, the talk was of “standing room only”, “population booms, demographic entrapment” and scarcity of food, water and renewable resources. Concern about population growth (particularly in the developing world and among the poor) coincided with the rapid increase in availability of technologies for reducing fertility - the contraceptive pill became available during the 1960s along with the IUD and long acting hormonal methods.

In 1972, WHO established the Special Program of Research, Development and Research Training in Human Reproduction (HRP), whose mandate was focused on research into the development of new and improved methods of fertility regulation and issues of safety and efficacy of existing methods. Modern contraceptive methods were seen as reliable, independent of people’s ability to practice restraint, and more effective than withdrawal, condoms or periodic abstinence. Moreover, they held the promise of being able to prevent recourse to abortion (generally practiced in dangerous conditions) or infanticide. Population policies became widespread in developing countries during the 1970s and 1980s and were supported by UN

agencies and a variety of NGOs of which international planned parenthood federation (IPPF) is perhaps the most well known.

The dominant paradigm argued that rapid population growth would not only hinder development, but was itself the cause of poverty and underdevelopment. Almost without exception, population policies focused on the need to restrain population growth; very little was said about other aspects of population, such as changes in population structure or in patterns of migration. Given their genesis among the social and economic elites, it is perhaps hardly surprising that the family planning programs that resulted were based on top-down hierarchical models and that their success was judged in terms of numeric goals and targets – numbers of family planning acceptors, couple-years of protection, numbers of tubal ligations performed. Donors, anxious to demonstrate that their aid money was being well-spent, encouraged such performance evaluation indicators. In the drive for efficiency and effectiveness, they supported the establishment of free-standing “vertical” family planning bodies, generally quite separate from other related government sectors such as health, often,

indeed, set up within the office of the president or the prime minister as a mark of their importance.

The 1994 ICPD has been marked as the key event in the history of reproductive health. It followed some important occurrences that made the world to think of other ways of approach to reproductive health. What was the impetus behind the paradigm shift that Cairo represents and that has been reinforced in the recent special session of the UN General Assembly? Three elements are of particular importance.

- The first was the growing strength of the women's movement and their criticism of the over-emphasis on the control of female fertility - and by extension, their sexuality - to the exclusion of their other needs.
- A second key development was the advent of the HIV/AIDS pandemic; suddenly it became imperative to respond to the consequences of sexual activity other than pregnancy, in particular sexually transmitted diseases. But perhaps more important, it became possible (and essential) to talk about sex, about sexual

relations outside of marriage as well as within it, and about the sexuality of young people.

- A third development, that brought a unity to the others, was the articulation of the concept of reproductive rights. An interpretation of international human rights treaties in terms of women's health in general and reproductive health in particular gradually gained acceptance during the 1990s.

Three rights in particular were identified:

- The right of couples and individuals to decide freely and responsibly the number and spacing of children and to have the information and means to do so;
- The right to attain the highest standard of sexual and reproductive health; and,
- The right to make decisions free of discrimination, coercion or violence.

Subsequent articulations of reproductive rights have gone further, so that, for example, maternal death is defined as a "social injustice" as well as a "health

disadvantage” thus, placing an obligation on governments to address the causes of poor maternal health through their political, health and legal systems. These strands became fused in the concept of reproductive health, which was first clearly articulated in the preparations for Cairo and which has become a central part of the language on population. The new paradigm reflects a conceptual linking of the discourse on human rights and that on health. It proposes a radical shift away from technology-based, directive, top-down approaches to programme planning and implementation. It argues that it is possible to achieve the stabilization of world population growth, while attending to people’s health needs and respecting their rights in reproduction. It reinforces and gives legitimacy to the language of health and rights, and validates concerns raised by the international women’s movement and by health professionals who had recognized the needs of people in sexuality and reproduction beyond fertility regulation.

1.2. Development of Reproductive Health

Before 1978 Alma-Ata Conference

- Basic health services in clinics and health centers

Primary health care declaration 1978

- MCH services started with more emphasis on child survival
- Family planning was the main focus for mothers

Safe motherhood initiative in 1987

- Emphasis on maternal health
- Emphasis on reduction of maternal mortality

Reproductive health, ICPD in 1994

- Emphasis on quality of services
- Emphasis on availability and accessibility
- Emphasis on social injustice
- Emphasis on individuals woman's needs and rights

Millennium development goals and reproductive health in 2000

- MDGs are directly or indirectly related to health
- MDG 4, 5 and 6 are directly related to health, while MDG 1,2,3, and 7 are indirectly related to health
- World Summit 2005, declared universal access to reproductive health
- *“Sexual and reproductive health is fundamental to the social and economic development of communities and nations, and a key component of an equitable society.”*

The Lancet 2006

1.3. Magnitude of Reproductive Health Problem

The term “Reproductive Health “is most often equated with one aspect of women’s lives; motherhood. Complications associated with various maternal issues are indeed major contributors to poor reproductive health among millions of women worldwide.

Half of the world’s 2.6 billion women are now 15 – 49 years of age. Without proper health care services, this group is highly vulnerable to problems related to sexual intercourse, pregnancy, contraceptive side effects, etc. Death and illnesses from reproductive causes are the highest among poor women everywhere. In societies where women are disproportionately poor, illiterate, and politically powerless, high rates of reproductive illnesses and deaths are the norm. Ethiopia is not an exception in this case. Ethiopia has one of the highest maternal mortality in the world; it is estimated to be between 566 – 1400 deaths per 100,000 live births. Ethiopian DHS survey of 2005 indicates that maternal mortality is 673per 100,000 live births. In Ethiopia, contraception use in women is 14.7% and about 34% of women want

to use contraceptive, but have no means to do so according to the Ethiopian Demographic and Health Survey (EDHS 2005).

Women in developing countries and economically disadvantaged women in the cities of some industrial nations suffer the highest rates of complications from pregnancy, sexually transmitted diseases, and reproductive cancers. Lack of access to comprehensive reproductive care is the main reason that so many women suffer and die. Most illnesses and deaths from reproductive causes could be prevented or treated with strategies and technologies well within reach of even the poorest countries. Men also suffer from reproductive health problems, most notably from STIs. But the number and scope of risks is far greater for women for a number of reasons.

1.4. Components of Reproductive Health

- Quality family planning services
- Promoting safe motherhood: prenatal, safe delivery and post natal care, including breast feeding;
- Prevention and treatment of infertility
- Prevention and management of complications of unsafe abortion;
- Safe abortion services, where not against the law;
- Treatment of reproductive tract infections, including sexually transmitted infections;
- Information and counseling on human sexuality, responsible parenthood and sexual and reproductive health;
- Active discouragement of harmful practices, such as female genital mutilation and violence related to sexuality and reproduction;
- Functional and accessible referral

The approach recognizes the central importance of gender equality, men's participation and responsibility.

2. Reproductive health indicators

Following on a number of international conferences in the 1990s, in particular the 1994 ICPD, many countries have endorsed a number of goals and targets in the broad area of reproductive health. Most of these goals and targets have been formulated with quantifiable and time-bound objectives.

Evidence for monitoring: Reproductive health indicators

A health indicator is usually a numerical measure which provides information about a complex situation or event. When you want to know about a situation or event and cannot study each of the many factors that contribute to it, you use an indicator that best summarizes the situation. For example, to understand the general health status of infants in a country, the key indicators are infant mortality rates and the proportion of infants of low birth weight. Maternal health care quality, availability

and accessibility can be measured using maternal mortality.

Reproductive health indicators summarize data which have been collected to answer questions that are relevant to the planning and management of RH programs. The indicators provide a useful tool to assess needs, and monitor and evaluate program implementation and impact. Indicators are expressed in terms of rates, proportions, averages, categorical variables or absolute numbers.

2.1. CRITERIA FOR SELECTING INDICATORS

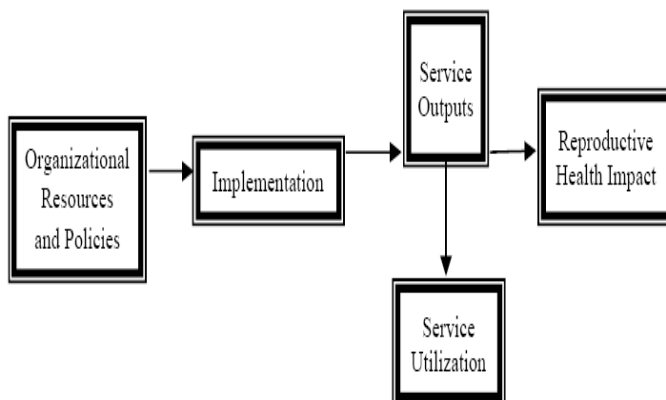
Indicator selection raises technical questions about the implications of data collection as well as other operational issues. A good indicator has a number of important attributes, and those recommended by the World Health Organization (WHO, 1997c) are outlined below.

1. To be **useful**, an indicator must be able to act as a “marker of progress” towards improved reproductive health status, either as a direct or proxy measure of impact or as a measure of progress towards specified process goals.
2. To be **scientifically robust**, an indicator must be a valid, specific, sensitive and reliable reflection of that which it purports to measure. A *valid* indicator must actually measure the issue or factor it is supposed to measure. A *specific* indicator must only reflect changes in the issue or factor under consideration. The *sensitivity* of an indicator depends on its ability to reveal important changes in the factor of interest. A *reliable* indicator is one which would give the same value if its measurement was repeated in the same way on the same population and at almost the same time.
3. To be **representative**, an indicator must adequately encompass all the issues or population groups it is expected to cover.

4. To be **understandable**, an indicator must be simple to define and its value must be easy to interpret in terms of reproductive health status.
5. To be **accessible** the data required for an indicator should be available or relatively easy to acquire by feasible data collection methods that have been validated in field trials.
6. To be **ethical**, an indicator requires data which are ethical to collect process and present in terms of the rights of the individual to confidentiality, freedom of choice in supplying data, and informed consent regarding the nature and implications of the data required.

These indicators can be input, process, out-put and impact indicators.

Figure 1: A Conceptual Framework for Monitoring and Evaluating Reproductive Health Programme Components



Inputs	Process	Outputs	Outcomes
<u>Resources</u>	<u>Services</u>	<u>Results</u>	<u>Impacts</u>
Manpower	Contacts	Knowledge	Fertility
Material	Visits	Acceptance	Mortality
Finance	Examinations	Practice	Morbidity
	Morbidity	Utilization	
	Referrals	Prevalence	

<u>Policies & Procedures</u>	<u>Products</u> <u>Advocacy and IEC</u>
National policies and legislation	Contraceptives Logistics

Source: A.T.P.L. Abeykoon (1999).

2.2. Sources of data

- **Routine service statistics:** summaries of health service records can give information and it is very cheap, but may be incomplete or sometimes may not give enough information. It gives input and process indicators.
- **Population Census:** The data collected at population censuses such as population by age and sex, marital status, and urban and rural residence provide the denominator for the construction of process, output and impact indicators.
- **Vital statistics reports:** The vital registration system collects data on births, deaths and marriages. These data are available by age, sex

and residence. These data provide the numerator for the construction of process, output and impact indicators.

- **Special studies:** collection and summarization of information for a particular purpose.
- **Sample surveys :** For Example Demographic and Health survey

2.3. Reproductive Health Indicators for Global Monitoring

There are seventeen reproductive health indicators developed by the United Nation Population Fund (UNFPA). The list and description of these indicators are given below.

1. **Total fertility rate:** Total number of children a woman would have by the end of her reproductive period, if she experienced the currently prevailing age-specific fertility rates throughout her childbearing life. TFR is one of the most widely used fertility measures to assess the impact of family planning programmes. The

measure is not affected by the age structure of the female population.

2. **Contraceptive prevalence (any method):** Percentage of women of reproductive age who are using (or whose partner is using) a contraceptive method at a particular point in time.
3. **Maternal mortality ratio:** The number of maternal deaths per 100 000 live births from causes associated with pregnancy and child birth.
4. **Antenatal care coverage:** Percentage of women attended, at least once during pregnancy, by skilled health personnel for reasons relating to pregnancy.
5. **Births attended by skilled health personnel:** Percentage of births attended by skilled health personnel. This doesn't include births attended by traditional birth attendants.

- 6. Availability of basic essential obstetric care:** Number of facilities with functioning basic essential obstetric care per 500 000 population. Essential obstetric care includes, Parenteral antibiotics, Parenteral oxytocic drugs, Parenteral sedatives for eclampsia, Manual removal of placenta, Manual removal of retained products, Assisted vaginal delivery. These services can be given at a health center level.
- 7. Availability of comprehensive essential obstetric care:** Number of facilities with functioning comprehensive essential obstetric care per 500 000 population. It incorporates obstetric surgery, anesthesia and blood transfusion facilities.
- 8. Perinatal mortality rate:** Number of perinatal deaths (deaths occurring during late pregnancy, during childbirth and up to seven completed days of life) per 1000 total births. Deaths which occur starting from the stage of viability till completion of the first week after birth (22 weeks of gestation up to end of first week after birth, WHO). Total

birth means live birth plus IUFD born after fetus reached stage of viability.

9. **Low birth weight prevalence:** Percentage of live births that weigh less than 2500 g.
10. **10. Positive syphilis serology prevalence in pregnant women:** Percentage of pregnant women (15–24) attending antenatal clinics, whose blood has been screened for syphilis, with positive serology for syphilis.
11. **Prevalence of anaemia in women:** Percentage of women of reproductive age (15–49) screened for haemoglobin levels with levels below 110 g/l for pregnant women and below 120 g/l for non-pregnant women.
12. **Percentage of obstetric and gynaecological admissions owing to abortion:** Percentage of all cases admitted to service delivery points providing in-patient obstetric and gynaecological services, which are due to abortion (spontaneous and induced, but excluding planned termination of pregnancy)

- 13.. Reported prevalence of women with FGM:**
Percentage of women interviewed in a community survey, reporting to have undergone FGM.
- 14. Prevalence of infertility in women:** Percentage of women of reproductive age (15–49) at risk of pregnancy (not pregnant, sexually active, non-contraception and non-lactating) who report trying for a pregnancy for two years or more.
- 15. Reported incidence of urethritis in men:**
Percentage of men (15–49) interviewed in a community survey, reporting at least one episode of urethritis in the last 12 months.
- 16. HIV prevalence in pregnant women:**
Percentage of pregnant women (15–24) attending antenatal clinics, whose blood has been screened for HIV, who are sero-positive for HIV.
- 17.. Knowledge of HIV-related prevention practices:** The percentage of all respondents who correctly identify all three major ways of

preventing the sexual transmission of HIV and who reject three major misconceptions about HIV transmission or prevention.

3. Gender and Reproductive Health

Sex refers to biological and physiological attributes of that identify a person as male or female

Gender refers to the economic, social and cultural attributes and opportunities associated with being male or female in a particular social setting at a particular point in time.

Gender equality means equal treatment of women and men in laws and policies, and equal access to resources and services within families, communities and society at large.

Gender equity means fairness and justice in the distribution of benefits and responsibilities between women and men. It often requires women-specific programmes and policies to end existing inequalities.

Gender discrimination refers to any distinction, exclusion or restriction made on the basis of socially

constructed gender roles and norms which prevents a person from enjoying full human rights.

Gender stereotypes refer to beliefs that are so ingrained in our consciousness that many of us think gender roles are natural and we don't question them.

Gender bias refers to gender based prejudice; assumptions expressed without a reason and are generally unfavorable.

Gender mainstreaming: the incorporation of gender issues into the analysis, formulation, implementation, monitoring of strategies, programs, projects, policies and activities that can address inequalities between women and men

Gender analysis is a research tool that helps policy makers and program managers appreciate the importance of gender issues in the design, implementation, and evaluation of their projects.

The Social Construction of Gender

The people involved, Family members, peers, teachers and people in educational and religious institutions are

usually the first to introduce a child to appropriate codes of gendered behaviour.

Place

This often corresponds with the kinds of people involved. The home or family for example, at play, in school or in church for peers, teachers and adults in general.

Division of labour: the kind of household chores that girls are expected to do compared to boys; girls work inside the home and boys outside; girls work for others in the home, for example cooking, washing dishes, cleaning the house and washing clothes; boys are sent out on errands; girls do things for boys like serving food, cleaning up after them and doing their washing; boys in some cultures are asked to escort girls in public.

Dress codes: across cultures, girls and boys are expected to be dressed differently right from the moment they are born. These differences may vary across cultures and societies.

Physical segregation of boys and girls: in many cultures, especially in Asia, physical segregation starts

at an early age. Common experiences often include, being told not to play with members of the opposite sex, or not to get involved in any activity that will bring one into physical contact with people of the opposite sex.

The kinds of games girls and boys play: girls are not encouraged to play games like football, which involve vigorous physical activity and physical contact with each other; boys are often not allowed to play with dolls or play as homemakers. Boys who do not engage in rough physical games are thought to be “sissies”.

Emotional responses: girls and boys are expected to respond differently to the same stimulus; while it is acceptable for girls to cry, it is seen as a weakness in boys.

Intellectual responses: there is an expectation that girls are not to talk back or express their opinions. This is often mentioned in relation to school and how teachers pay more attention to boys since they expect more from boys.

In one training program, a participant from Japan told the story of how, when she obtained the highest marks in class, her teacher called her and asked her to agree

that instead he would give the highest marks to the boy who was really second. He explained that it would not be good for the boy to come second and the boys would not treat the girl well if she did better than them. Class, caste, ethnic and other differences. Explore how differences across class, caste, ethnicity and nationality affect how girls and boys are expected to behave. For example, the physical segregation of boys and girls may not be as strict in other parts.

Women's Health Coalition, 1995.

The social construction of sexuality refers to the process by which sexual thoughts, behaviours, and conditions (for instance, virginity) are interpreted and given cultural meaning. It incorporates collective and individual beliefs about the nature of the body, about what is considered erotic or offensive, and about what and with whom it is appropriate or inappropriate for men and women (according to their age and other characteristics) to do or to say about sexuality. In some cultures, ideologies of sexuality stress female resistance, male aggression, and mutual antagonism in the sex act; in others, they stress reciprocity and mutual pleasure. The social construction of sexuality recognizes that women's and men's bodies

play a key role in their sexuality, but also looks carefully at the specific historical and cultural contexts to gain an understanding of how specific meanings and beliefs about sexuality are generated, adopted and adapted.

3.1. Gender differences:

- Women give birth to babies, men do not. In many societies child rearing is the sole responsibility of women.
- According to United Nations statistics, women do 67 per cent of the world's work, yet their earnings for it amount to only 10 per cent of the world's income.
- In one case, a child brought up as a girl learned that when he was actually a boy, his school marks improved dramatically.
- Sex is not as important for women as it is for men.
- In ancient Egypt, men stayed at home and did weaving. Women handled family businesses.

- Women inherited property and men did not.
- Men's voices break at puberty, women's don't.
- In a study of 224 cultures, there were 5 in which men did all the cooking and 36 in which women did all the house building.
- Men are naturally prone to violent behaviour
- Women are more vulnerable to STDs than men.

For example, women may have access to health services, but no control over what services are available and when. Another common example is women having access to an income or owning property, but having no control over how the income is spent or how the property is used. There are many different types of resources which women have less access to, and less control over. These include:-

Power and decision-making

Having greater access to and control over resources usually makes men more powerful than women in any social group. This may be the power of physical force, of knowledge and skills, of wealth and income, or the power to make decisions because they are in a position of authority. Men often have greater decision-making power over reproduction and sexuality. Male power and control over resources and decisions is institutionalized through the laws and policies of the state, and through the rules and regulations of formal social institutions. Laws in many countries of the world give men greater control over wealth and greater rights in marriage and over children. For centuries, religious institutions have denied women the right to priesthood, and schools often insist that it is the father of the child who is her or his legal guardian, not the mother.

Figure 2: The Life Cycle approach in Women's and Men's Health:

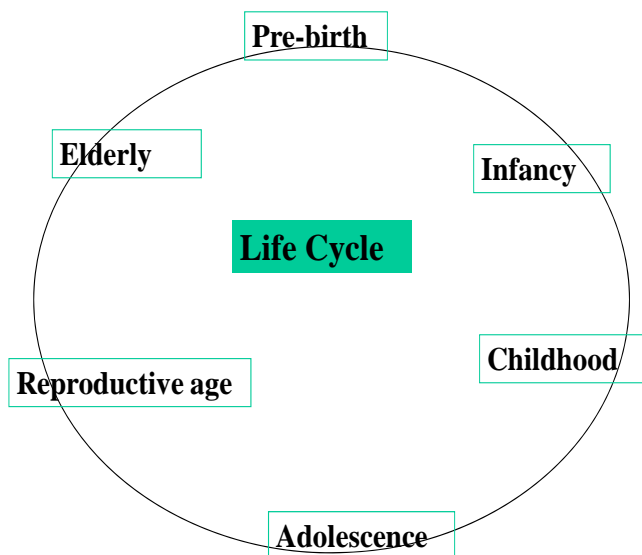
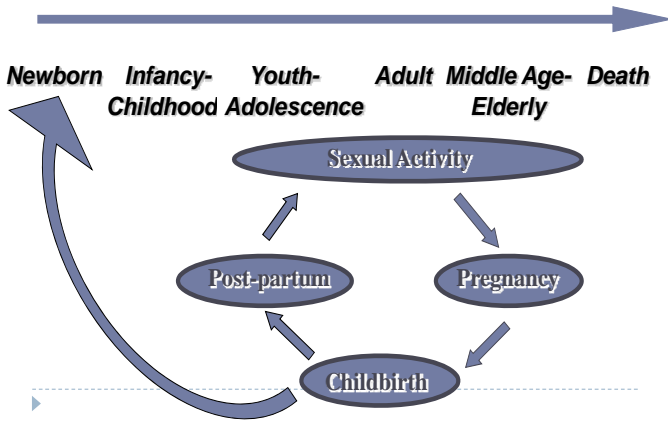


Figure 3: The reproductive life cycle



A woman's reproductive years, which typically span almost four decades, can be divided in stages

1. Menarche to intercourse
2. Intercourse to marriage
3. Marriage to first birth
4. First birth to attainment of desired family size
5. Attainment of desired family size to menopause

4. REPRODUCTIVE HEALTH AND DEFINING TARGET POPULATION

Rationale for Defining Target Population

- To set priority and deliver appropriate services to high risk groups.
- To utilize resources efficiently,
- To determine the number of eligible for the services,
- To plan the type of services to be provided,
- To focus the efforts towards the target group,
- To measure / evaluate changes,
- To address equity in delivery of the health services

The target population of a service includes for whom the service is primarily or solely intended. These people may be of a certain age or sex or may have other common characteristics.

a. Women of child-bearing age (15 – 49 years old)

1. Women alone are at risk of complications from pregnancy and childbirth

2. Women face high risks in preventing unwanted pregnancy; they bear the burden of using and suffering potential side effects from most contraceptive methods, and they suffer from the consequences of unsafe abortion.
3. Women are more vulnerable to contracting and suffering complications of many sexually transmitted infections including HIV/AIDS.
4. From the equity point of view, this population group constitutes about 24% of the population; which is a significant proportion.
5. Deaths and illnesses from reproductive causes are highest among poor women everywhere.

b. Adolescents (Both sexes)

1. Adolescents lack reliable reproductive health information, and thus the basic knowledge to make responsible choice regarding their reproductive behavior.
2. In many countries around the world, leaders, community members, and parents are reluctant

to provide education on sexuality to young men and women for fear of promiscuity.

3. Many adolescents are already sexually active, often at a very young age.
4. The reproductive health status of young people, in terms of sexual activity, contraceptive use, child bearing, and STIs lays the foundation for the country's demographic feature.
5. During adolescence normal physical development may be adversely affected by inadequate diet, excessive physical stress, or pregnancy before physiological maturity is attained.
6. Adolescents are at high risk to acquire infertility associated with STIs and unsafe abortion
7. Conditions of work are designed for adults rather than adolescents and put them at greater risk of accidental injury and death.

8. Current health services are generally not organized to fulfill the reproductive need and demands of adolescents.

C. Under Five Children

1. Children's health is a base for healthy adolescence and childbearing ages.
2. Proper health service for children serves to increase the opportunities of women to have contact with the health institution.
3. The health of children and women is inseparable
4. The morbidity and mortality of children in Ethiopia is one of the highest in the world.
5. Bearing high number of children has adverse consequences on health of the mother, the general income distribution and health status of the family.

Estimation of the Eligible Population Number (Target Groups) for Reproductive Health

Knowing the number or estimate of the eligible for reproductive health is important for the following purposes.

- To plan usage targets for services
 - To plan for supplies
 - To assign service providers
 - To monitor utilization of services
 - To monitor coverage of the service
1. The techniques to be utilized to estimate the eligible for reproductive health should include:
- Deciding the catchments area for the health institution providing reproductive health service.
 - Identify all kebeles in the catchments area;
 - Prepare a sketch map of the catchments area,
 - Divide the catchments area in to zones for ease of operation
 - Divide the catchment area in to zones for ease of operation

2. Determining the number of the eligible population from the total population in the catchment area.

The methods for estimating the number of the eligible could be;

- By conducting census of the population in the catchment area
- By estimation of those eligible from the total population using national, regional or district standard figures.

CHAPTER 2

MATERNAL HEALTH

Learning objectives:

- Describe the safe motherhood initiative and services included under safe motherhood
- Understand important causes of maternal mortality and morbidity
- Describe maternal health services
- Understand methods of maternal mortality measures and their challenges

1. Introduction

Motherhood should be a time of expectation and joy for a woman, her family, and her community. For women in developing countries, however, the reality of motherhood is often grim. For those women, motherhood is often marred by unforeseen complications of pregnancy and childbirth. Some die in the prime period of their lives and in great distress: from

hemorrhage, convulsions, obstructed labor, or severe infection after delivery or unsafe abortion.

Worldwide, it is estimated that 529,000 women die yearly from complications of pregnancy and childbirth—about one woman every minute. Some 99 percent of these deaths occur in developing countries, where a woman's lifetime risk of dying from pregnancy-related complications is 45 times higher than that of her counterparts in developed countries. The risk of dying from pregnancy-related complications is highest in sub-Saharan Africa and in South-Central Asia, where in some countries the maternal mortality ratios are more than 1,000 deaths per 100,000 live births.

Sixty to eighty percent of maternal deaths are due to obstetric hemorrhage, obstructed labor, obstetric sepsis, hypertensive disorders of pregnancy, and complications of unsafe abortion. These direct complications are unpredictable and most occur within hours or days after delivery.

2. The Safe Motherhood Initiative

In 1987 the World Bank, in collaboration with WHO and UNFPA, sponsored a conference on safe motherhood in Nairobi, Kenya to help raise global awareness about the impact of maternal mortality and morbidity. The conference launched the Safe Motherhood Initiative (SMI), which issued an international call to action to reduce maternal mortality and morbidity by one half by the year 2000. It also led to the formation of an Inter-Agency Group (IAG) for Safe Motherhood, which has since been joined by UNICEF, UNDP, IPPF, and the Population Council.

The SMI's target has subsequently been adopted by most developing countries. Under the Safe Motherhood Initiative, countries have developed programs to reduce maternal mortality and morbidity. The strategies adopted to make motherhood safe vary among countries and include:

- Providing family planning services.
- Providing post abortion care.
- Promoting antenatal care.
- Ensuring skilled assistance during childbirth

- Improving essential obstetric care.
- Addressing the reproductive health needs of adolescents.

As we can see from the following table, risk of death from pregnancy is very high in developing countries, while being very low in the developed world. This shows that the difference is due to the quality of care provided to mothers.

2.1. Essential Services for Safe Motherhood

Safe motherhood can be achieved by providing high-quality maternal health services to all women. These services for safe motherhood should be readily available through a network of linked community health care providers, clinics and hospitals. These services could be provided at different levels including home and health institutions.

Essential Services include:

1. Community education on safe motherhood
2. Prenatal care and counseling, including the promotion of maternal nutrition
3. Skilled assistance during childbirth
4. Care for obstetric complications, including emergencies
5. Postpartum care
6. Post-abortion care and, where abortion is not against the law, safe services for the termination of pregnancy
7. Family planning counseling, information and services
8. Reproductive health education and services for adolescents

Essential Obstetric Care

- Essential obstetric care is of two types basic essential obstetric care and comprehensive essential obstetric care. Ensuring access to

essential obstetric care is important in reducing maternal deaths.

- Basic essential obstetric care (also called basic emergency obstetric care) at the health centre level should include at least:
 - Parenteral antibiotics
 - Parenteral oxytocic drugs
 - Parenteral sedatives for eclampsia
 - Manual removal of placenta
 - Removal of retained products
 - Assisted vaginal delivery

Comprehensive essential obstetric services at district hospital (first referral level) should include all of the above, plus:

- Obstetric Surgery
- Anesthesia
- Blood transfusion

- WHO recommends that there should be at least four BEOC and one CEOC facilities for every 500,000 population.
- This practice was the main intervention to reduce maternal mortality for about ten years until the Colombo technical consultative meeting on safe motherhood initiative in 1997 in Sri Lanka hosted by the inter Agency group. The goal was to review key lessons learned and articulate consensus on the most effective strategies and ways to implement these strategies at country level.
- Global experience showed maternal mortality and morbidity could be prevented with the existing knowledge and technology by:
 - Recognizing that every pregnancy faces risk
 - Increasing access to family planning services
 - Improving quality of ANC and postpartum care

- Ensuring access to essential obstetric care (including post-abortion care)
- Expanding access to midwifery care
- Training and deploying appropriate skilled health personnel
- Ensuring a continuum of care, connected by effective referral links, and supported by adequate supplies, equipment, drugs, and transportation
- Reforming laws to expand women's access to health services and to promote their health interests

Key Lessons Learned after ten years of safe motherhood strategy

- Strong political commitment at the national and/or local level can help facilitate the implementation of safe motherhood interventions and ensure their integration into the health care system.
- Involving national and local leaders and other key parties in the planning and implementation of

safe motherhood activities helps facilitate the delivery of maternal health services and ensure sustainability.

- Involving community members (particularly women and their families, health care providers, and local leaders) in efforts to improve maternal health helps ensure program success.
- Training and deploying a range of health care providers at appropriate service delivery levels help increase access to maternal health services, especially life-saving services.
- Effective communication between health care providers at both the community level and the district (first referral) level is essential for management of obstetric emergencies and for ensuring continuity of care.
- Community education about obstetric complications and when and where to seek medical care is important to ensure early recognition of complications and prompt care-taking behavior.

- The ten years review also recognized that there were strategic missteps:

ANC with focus on risk assessment

Training of TBAs to improve delivery care at community level

2.2. Causes of Maternal Mortality and Morbidity

2.2.1. Definitions

- The Tenth Revision of the International Classification of Diseases (ICD-10) defines a maternal death as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.
- **Maternal morbidity:** Any deviation, subjective or objective, from a state of physiological or psychological well being of women.

- **Women’s lifetime risk of Death:** Is the risk of an individual woman dying from pregnancy or childbirth during her lifetime. Of the 171 countries and territories, Niger has the highest lifetime risk of maternal death (1 in 7 women die for reasons associated with pregnancy and child birth)

Table 1: Women's Lifetime Risk of Death from Pregnancy, 2000

Region (United Nations regions)	Risk of Death
Africa	1 in 20
Asia	1 in 94
Latin American & Caribbean	1 in 160
Oceania	1 in 83
Europe	1 in 2,400
Less developed regions	1 in 61
More developed regions	1 in 2,800
Worldwide	1 in 74

Information adapted from AbouZahr C, Wardlaw, T. *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA*. Geneva: WHO; 2000

Epidemiology

In many developing countries, including Ethiopia, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age. More than one woman dies every minute from such causes. In 2005 more than 636,000 women died each year worldwide. From that, 99% was accounted for by developing countries. Of those, around 270,000 women died each year in Africa. Particularly being one of the less developed countries in the world, 46,000 women died each year in Ethiopia. A total of 14 countries had MMR greater than 1000 of which 13 were in sub-Saharan Africa, with Sierra Leone being in the top with MMR of 2100 per 100,000 live births.

Around 50 million pregnant women worldwide had morbid illness each year, of which 15% of them have disabilities like fistula, infertility, etc. Over 300 million women in the developing world currently suffer from short term and long term illness related to pregnancy and childbirth. At least 2 million women in developing countries are living with obstetric fistulas, and 50,000-

100,000 new cases occur each year. The prevalence of obstetric fistula in Ethiopia is 1 %.

Maternal mortality and morbidity can be reduced or avoided by providing and expanding resources and services that are principally targeted in achieving maternal health and safe motherhood.

More than one woman dies every minute from complications of pregnancy and childbirth.

Maternal care is in the lowest level of use particularly in the developing countries. Preventing maternal death is almost equivalent with upgrading the socioeconomic status of the country in particular. No body knows the exact number of maternal deaths each year due to poor epidemiological studies and poor recording of health care institution.

Women's lifetime risk of death is 40 times higher in developing countries compared to developed countries. In general, women lifetime risk of death in developing countries is 1 in 48 as opposed to 1:1800 in developed countries. Maternal mortality ratio is by far the greatest disparity between developed and developing countries.

More than seventy percent of maternal deaths are due to hemorrhage, unsafe abortion, hypertensive diseases of pregnancy, infection and obstructed labor, which are preventable. Out of this, more than 60% of maternal deaths occur following delivery, of which half occur in the first day after delivery.

Causes of maternal Mortality

Direct obstetric deaths are those that result from obstetric complications of the pregnancy state from interventions, omissions, incorrect treatment or from chain of events.

Examples: Abortion, Ectopic pregnancy, pre-eclampsia, Eclampsia, Obstructed labor, infection, etc.

Seventy percent of maternal deaths are usually preventable. The commonest causes of maternal deaths include:

- A. **Hemorrhage:** Includes antepartum, postpartum, abortion, and ectopic pregnancy.

Hemorrhage accounts for 21% of maternal deaths in Ethiopia.

- B. **Unsafe Abortion:** It is claimed as the commonest cause of maternal death in our country accounting for 20 –40% of deaths.

- C. **Hypertensive disorders of pregnancy:** This includes pre-eclampsia, eclampsia, etc. Preclampsia and eclampsia account for 10-12% of maternal deaths.

- D. **Obstructed Labor and uterine rupture:** The prevalence of obstructed labor is **said to be 47 % in Ethiopia**. It accounts for 9% of the total maternal death.

- E. **Infection:** The introduction and multiplication of microbial agents in the pelvic organs and other systems having an effect on the health of the mother and newborn. It includes infection of the uterus, tubes, urinary system and fetal infection. It accounts for 10% of maternal deaths.

Indirect Obstetric Death

Deaths resulting from previous existing diseases or diseases that developed during pregnancy, which are aggravated by the physiologic effects of pregnancy. This includes:-

- A. **Anemia:** This is the commonest indirect cause of maternal death in our country, since malaria is endemic and iron supplementation is low.
- B. Other indirect causes include, heart disease, diabetes mellitus, HIV/AIDS, TB, Malnutrition, etc. **The indirect obstetric death:**

Incidental/Coincidental/ causes of maternal Death:

Deaths that are neither due to direct nor indirect obstetric causes: E.g. Car accident, fire burn, bullet injury

2.2.2. Medical Causes of Maternal Death

Direct Causes	Indirect causes
• Hemorrhage	• HIV
• Hypertensive diseases	• Malaria

- Infection and sepsis
- Obstructed labor
- Abortion
- Others
 - Embolism
 - Anesthesia
 -
- Anemia
- Cardiovascular diseases
- Others

2.2.3. Maternal Mortality in Context: The Three D's (Delays)

- Delays can kill mothers and newborns. There are three phases during which delays can contribute to the death of pregnant and postpartum women and their newborns.

1. Delay in deciding to seek care

- Failure to recognize signs of complications
- Failure to perceive severity of illness
- Cost consideration
- Previous negative experience with the health system
- Transportation

2. Delay in reaching care

- o Lengthy distance to a facility
- o Conditions of roads
- o Lack of available transportation

3. Delay in receiving appropriate care

- o Uncaring attitudes of providers
- o Shortages of supplies and basic equipment
- o Non-availability of health personnel
- o Poor skills of health providers

Life threatening delays can happen at home, on the way to care, or at the place of care. Therefore, plans and actions that can be implemented at each of these points are mandatory.

- o Birth preparedness and complication readiness to reduce delays
- o Women-friendly care to enhance acceptability

2.2.4. Causes of Maternal Morbidity

Maternal morbidity is difficult to measure due to variation in the definition and criteria to diagnose. The risk factors for maternal morbidity include prolonged labor, hemorrhage, infection, preclampsia, etc. The commonest long term complication of pregnancy and child birth include:

- A. **Infection:** There is high risk of infection of the genital organs (cervix, uterus, tubes, ovaries and peritoneum) after prolonged labor, when delivery takes place in unclean settings, retained parts of conception after unsafe abortion and delivery.

- B. **Fistula:** are holes in the birth canal that allow leakage from the urethra, bladder or rectum into the vagina. They present with continuous leakage of urine or feces or both. The commonest cause in our country is obstructed labor as opposed to surgery and cancer in the developed world.

- C. **Incontinence:** is leakage of urine upon straining or standing.
- D. **Infertility:** Unable to be pregnant for a year despite unprotected sexual intercourse.
- E. **Uterine prolaps:** the falling or sliding of the uterus from its normal position into the vaginal canal. Commonest predisposing factors include prolonged labor, heavy exercise, multiple childbirths, etc.
- F. **Nerve Damage:** As a result of prolonged labor, there may be compression or damage of the nerves in the pelvis (Sciatic nerve).
- G. **Psychosocial problems:** maternal blues aggravated by other conditions
- H. Others, Include, pain during intercourse, anemia, etc.

2. 2.5. Risk factors for Maternal Health

Socio-cultural factors: Like early marriage, early childbirth, harmful traditional practices including female genital mutilation, etc.

Economy: Socio economic status affects the women's status by affecting their decision making roles in the community, educational status, health coverage, level of sexual abuse, etc.

Inadequate Health Service Coverage: Most mothers do not get care during pregnancy and most deliveries are unattended. This is due to lack of transportation, distance from health facilities, small number of health facilities, etc.

Psychological factors: For instance, after sexual abuse women are at great risk of depression.

Health and nutrition services: The health status of women who are not getting adequate amount of nutrients and proper reproductive health services could be affected.

Interaction with providers: Some health care providers are, unsympathetic and uncaring as they do not respect women's cultural preferences. E.g. privacy, birth position, or treatment by women providers.

Gender Discrimination: E.g. lack of women empowerment, giving more attention to a male child.

2.3 Maternal health services

2.3.1. Antenatal Care

Antenatal care refers to care given to pregnant women so that they have safe pregnancy and healthy baby. Pregnancy is a normal physiological process associated with certain risks to health of the woman and the infant she bears. These risks can be overcome through proper antenatal care. (Figure 1).

Most women have some antenatal care

Data for the late 1990s and for 2000-2001 show that just over 70% of women worldwide have at least one antenatal visit with a skilled provider during pregnancy. In the industrialized countries, coverage is extremely high, with 98% of women having at least one visit. In the developing world, antenatal care use, is around 68% (data are not available for China), but this indicates considerable success for programmes aimed at making antenatal care available. The region of the world with the lowest levels of use is South Asia, where only 54% of pregnant women have at least one antenatal care

visit. In the Middle East and North Africa, use of antenatal care is somewhat higher at 65% of pregnant women. In sub-Saharan Africa, generally the region with the lowest levels of health care use, fully 68% of women report at least one antenatal visit. The levels in the remaining regions of the world range from 82% to 86%.

Ethiopia's ANC coverage is very low compared to the rest of sub-Saharan Africa. The 2005 DHS showed 28% coverage of ANC across the nation, while the rest of sub-Saharan Africa has ANC coverage of 46%.

Antenatal care (ANC) strategies target pregnant women in order to screen and detect early signs of or risk factors for disease, followed by timely intervention, originally with the aspiration of reducing maternal and perinatal mortality and morbidity. However, the contribution of antenatal care specifically to maternal mortality reduction has been challenged. The acknowledged benefits of antenatal care to the baby in terms of growth, risk of infection, and survival, however, remains. The justification of the benefits to the mother has now shifted to emphasizing the promotion of health and health-seeking behaviour, including birth preparedness. Furthermore, since antenatal care is one

of the most widespread health services and coverage is often high, it increasingly serves as a means of distribution for other packages, for example, the roll-out of antimalarial drugs or of antiretroviral therapy for maternal HIV/AIDS. As it is mentioned above, ANC service faces a lot of criticism recently for various reasons.

Criticisms of traditional ANC

- Ritualistic rather than rational: mostly the service is given without precise goals.
- Emphasis of visits on frequency and numbers of visits, rather than on essential goal-directed elements of each visit.
- Communication is minimal, and focused on findings: there is no much counseling on the changes the woman going to face and the danger signs.
- Preparation/planning is not stressed: there should be a birth plan and preparedness.
- Assessment of whether plan can be carried out is not made (can she come for her delivery?):

even though there is a plan to deliver in an institution there are other variables that can affect the situation during labor and delivery.

- Risk assessment based on predetermined parameters: height, age, parity, past obstetric history, these variables are usually the basis to classify whether the pregnancy is at risk or not. But this has been found out to be less helpful in identifying risk, Randomized controlled trials have been conducted including in less developed countries and the results have consistently pointed to the need for a new strategy for ANC.

Reducing antenatal care visits to 4-5 with proven effective interventions (goal oriented visits) produces similar maternal results. Based on the results of large-scale randomized controlled trials, the WHO Technical Working Group recommended a minimum level of care that is 4 visits per pregnancy. It was found out that Antenatal care delivered by midwife or general practitioner has similar clinical effectiveness as that of obstetrician/ gynecologist led shared care.

Antenatal care should be goal-oriented with interventions that have of proven value. Examples include:

- Prevention, detection, and investigation of anemia and treatment of iron-deficiency anemia
- Prevention of obstructed labor by external cephalic version
- Immunization against tetanus and promotion of clean delivery

The Risk Approach in Pregnancy

The risk approach is a managerial tool for health services to identify people at risk as early as possible and intervene in order to reduce the risk. It is the screening and classification of the risk level of pregnancies based on maternal characteristics. The “at risk pregnancy” is a pregnancy in which there is a likelihood of an adverse outcome for the mother and/or baby which is greater than that of the general pregnant population.

The concept of the risk approach originates from the assumption that vulnerability to death and disability is

not equally distributed among all pregnant women and their children. If high risk factors as well as their effects are identified, diseases and deaths can be prevented by providing appropriate health care and services. The main objective of the risk approach is the optimal use of existing resources for the benefit of the majority. However, recently there have been a lot of criticisms against routine screening procedures to identify women at risk and take the necessary measures to prevent morbidity and mortality. Risk screening has been blamed to have low sensitivity and specificity.

Why Doesn't Risk Assessment Work?

The broad characteristics used by most risk assessment systems are not precise enough to predict an individual woman's risk. As a result, a large number of women are identified as "high risk" even though they never develop any complications.

E.g. A study in Zaire found that 90 % of women identified as "at risk" for obstructed labor ended up in not having any problem.

Most of the women who develop complications do not have any risk factors, and are therefore, are classified as “low risk”.

E.g. The same study found that 71 % of the women who did develop obstructed labor did not have any history of problems.

Even if a woman is correctly identified as being at risk of complications, there is no guarantee that she will get appropriate care:

- Many health systems cannot provide adequate services
- Women themselves may be unable or unwilling to seek medical care when they are told they are “high risk.”
- Women may not receive life-saving care
- Personal cost and inconvenience is high
- Health systems are overburdened

Based on the above reasons, it is recommended that detection of high risk pregnancies needs to be done

according to clear guidelines which have been shown to have a **high predictive value specific to the index population**. Since risk assessment cannot predict which women will experience pregnancy complications, it is critical that all women who are pregnant, in labor or recently had a baby have access to high quality maternal health care and every pregnancy should get due attention as a potential risk. Based on these reasons as well, every pregnant woman must be prepared to give birth in a place where she can find at least basic services for delivery and new born care.

A. Focused antenatal care (New ANC approach)

Traditional antenatal care uses risk approach to classify which women are more likely to develop complication and assumes that more visits means better outcome for the mother and the baby. However, many women who have risk factors do not develop complications, while women without risk factors may do so. Using a risk approach with its more frequent visits, therefore, does not necessarily improve pregnancy outcomes. However, to achieve the full life-saving potential that ANC promises for women and babies, four visits providing essential evidence based interventions – a

package often called focused antenatal care – are required. Essential interventions in ANC include identification and management of obstetric complications such as preclampsia, tetanus toxoid immunisation, intermittent preventive treatment for malaria during pregnancy (IPTp), and identification and management of infections including HIV, syphilis and other sexually transmitted infections (STIs). ANC is also an opportunity to promote the use of skilled attendance at birth and healthy behaviours such as breastfeeding, early postnatal care and planning for optimal pregnancy spacing.

Only 4-5 ANC visits were proven to be equally effective interventions, with higher number of visits if provided with goal oriented approach to the services. Services provided by a Midwife or general practitioner have similar clinical effectiveness with care given by obstetrician and gynecologist shared care.

The main goals of the focused antenatal care are:

Goals of Focused ANC: The new approach to ANC emphasizes the quality of care rather than the quantity. For normal pregnancies, WHO recommends only four

antenatal visits. The major goal of focused antenatal care is to help women maintain normal pregnancies through:

- Identification of pre-existing health conditions
- Early detection of complications arising during the pregnancy
- Health promotion and disease prevention
- Birth preparedness and complication readiness planning.

Identification of Pre-existing Health Conditions: As part of the initial assessment, the provider talks with the woman and examines her for signs of chronic conditions and infectious diseases. Pre-existing health conditions such as HIV, malaria, syphilis and other sexually transmitted diseases, anemia, heart disease, diabetes, malnutrition, and tuberculosis may affect the outcome of pregnancy, require immediate treatment, and usually require a more intensive level of monitoring and follow-up care over the course of pregnancy.

Early Detection of Complications: The provider talks with and examines the woman to detect problems of pregnancy that might need treatment and closer

monitoring. Conditions such as anemia, infection, vaginal bleeding, hypertensive disorders of pregnancy, and abnormal fetal growth or abnormal fetal position after 36 weeks may be or become life-threatening if left untreated.

Health Promotion and Disease Prevention:

Counseling about important issues affecting a woman's health and the health of the newborn is a critical component of focused ANC. Discussions should include:

- How to recognize danger signs, what to do, and where to get help
- Good nutrition and the importance of rest
- Hygiene and infection prevention practices
- Risks of using tobacco, alcohol, local drugs, and traditional remedies
- Breastfeeding
- Postpartum family planning and birth spacing.

All pregnant women should receive the following preventive interventions:

- Immunization against tetanus
- Iron and folate supplementation.

In areas of high prevalence women should also receive:

- Presumptive treatment of hookworm
- Voluntary counseling and testing for HIV
- Protection against malaria through intermittent preventive treatment and insecticide-treated bed nets
- Protection against vitamin A and iodine deficiencies.

Birth Preparedness and Complication Readiness:

Approximately 15 percent of women develop a life-threatening complication, so every woman and her family should have a plan for the following:

- A skilled attendant at birth
- The place of birth and how to get there including how to obtain emergency transportation if needed

- Items needed for the birth
- Money saved to pay the skilled provider and for any needed medications and supplies
- Support during and after the birth (e.g., family, friends)
- Potential blood donors in case of emergency.

The essential elements of a focused approach to antenatal care can be summarized as:

- Identification and surveillance of the pregnant woman and her expected child
- Recognition and management of pregnancy-related complications, particularly pre-eclampsia
- Recognition and treatment of underlying or concurrent illness
- Screening for conditions and diseases treatments such as anemia, STIs (particularly syphilis), HIV infection, mental health problems, and/or symptoms of stress or domestic violence

- Preventive measures, including tetanus toxoid immunization, de-worming, iron and folic acid supplementation, intermittent preventive treatment of malaria in pregnancy (IPTp), insecticide treated bed nets (ITN) provision.
- Advice and support to the woman and her family for developing healthy home behaviours and a birth and emergency preparedness plan to:
 - Increase awareness of maternal and newborn health needs and self care during pregnancy and the postnatal period, including the need for social support during and after pregnancy
 - Promote healthy behaviours in the home, including healthy lifestyles and diet, safety and injury prevention, and support and care in the home, such as advice and adherence support for preventive interventions like iron supplementation, condom use, and use of ITN

- Support care seeking behaviour, including recognition of danger signs for the woman and the newborn as well as transport and funding plans in case of emergencies
- Help the pregnant woman and her partner prepare emotionally and physically for birth and care of their baby, particularly preparing for early and exclusive breastfeeding and essential newborn care and considering the role of a supportive companion at birth
- Promote postnatal family planning/birth spacing

Antenatal Care in Ethiopia

- ANC coverage according to EDHS 2005 is 27.6 %; little improvement from the 2000 finding.
- Large differences between urban (69 %) and rural areas (24 %)
- Huge regional differences: ranges from 7.4 % in Somali region to 88.3 % in Addis Ababa

- Women with at least secondary education more likely to receive ANC (81%) than women with primary education (39 %) and those with no education (22 %)
- Women in the highest wealth quintile are nearly **five** times more likely to receive ANC than those in the lowest quintile
- Only **12.2 %** women make four or more antenatal care visits during their entire pregnancy: urban (55 %) and rural (8 %)
- Women start ANC at a late stage of pregnancy. Median duration of pregnancy for the first ANC visit is 5.6 months (6 months for rural women). Only 6 % make their first ANC visit before the 4th month

2.3.2. Delivery Care

Normal birth is defined as Spontaneous in onset, low risk at start of labour and remaining so throughout labour and delivery. The infant is born spontaneously in the vertex position between 37-42 completed weeks of pregnancies. After birth, mother and baby (child) are in

good condition. Describes as the process by which the fetus, placenta with its membrane is expelled through birth canal.

It is not always possible to anticipate which pregnancies end up with complications. Therefore, it is essential to extend delivery services to all pregnant women in order to provide timely help for complications of labour and delivery. Delivering women should be observed at least for 24 hours after delivery as most of the deaths post partum occur at this time.

Aims of delivery care are to achieve:

- A healthy mother and child with the least possible level of intervention
- Early detection and management of complications
- Timely referral of obstetric emergencies (if any) to a level where it can be managed appropriately

More than three-quarters of all maternal deaths in developing countries take place during or soon after childbirth. Based on these aims, the single most critical intervention for safe motherhood is to ensure that a

skilled attendant is present in every birth, and transportation is available in case of an emergency referral.

Who is a skilled attendant?

In 1999, the WHO/UNFPA/UNICEF/World Bank statement recognised skilled attendants as health professionals such as midwives, doctors, or nurses with midwifery skills who have been educated and trained to proficiency in the skills necessary to manage normal pregnancies, childbirth and the immediate postnatal period, and in the identification, management, and referral of complications in women and newborns.

Skilled care during childbirth is important because millions of women and newborns develop hard-to-predict complications during or immediately after delivery. Skilled attendants can also recognize these complications, and either treat them or refer women to health centers or hospitals immediately if more advanced care is needed. Skilled attendance depends on a partnership of skilled attendants, an enabling environment, and access to emergency obstetric care services. This means **Skilled attendance** can only be

provided when health professionals operate within a functioning health system, or 'enabling environment', where drugs, equipment, supplies, and transport are all available.

In 1996, skilled birth attendants were present at only 53 % of births in the developing world. In the developed world, skilled birth attendance is almost universal. Countries where skilled attendance at delivery is very low tend to have higher rates of maternal death and disability. The maternal mortality ratio and the proportion of deliveries with a skilled attendant are used to monitor progress towards achieving the MDG goal of improving maternal health.

The best person to care for women during delivery is a health professional with midwifery skills who lives in or near to the community he or she serves. However, most midwives work in hospitals and urban areas. In parts of Asia and Africa, there is only one midwife for every 15,000 births. Adequate equipment, drugs and supplies are also essential to enable skilled attendants to provide good quality care. In addition, skilled attendants need to be supported by appropriate supervision. When delivery is taking place at home or in a local health facility, an

emergency transport system must be available to take women to facilities that can provide more advanced care.

In developing countries women commonly seek the help of traditional birth attendants. These attendants may have some training. However, without emergency back-up support (including referral), training TBAs does not decrease a woman's risk of dying during childbirth. As countries try to ensure that a qualified health professional is present at the birth of every child, they face a number of significant problems. Which are:-

- Existing health workers often lack the skills they need to save the lives of women who suffer emergency complications
- Curricula used to teach midwifery skills are often out of date and do not reflect new techniques and research
- In many places, especially in Africa and Asia, women give birth with the help of a relative, or alone

- Refresher training in family planning and maternal health care are often inadequate
- Many midwives and physicians have no training in traditional belief systems, communication and community organizing

Recommended ways to increase skilled birth attendance

- ❑ Increase the number of professionals with midwifery skills in underserved regions.
- ❑ Train, authorize and equip midwives, nurses and community physicians to provide all feasible obstetric services needed within communities, especially emergency interventions and to prescribe medications.
- ❑ Upgrade, establish and expand comprehensive midwifery training programmes that include life-saving skills for dealing with obstetric emergencies.
- ❑ Create clearly defined protocols for routine care and the management of complications.

- ❑ Establish systems for supervising and supporting skilled attendants, and for emergency referral and Rx.

Because TBAs already exist in many developing country communities, it has been suggested that they could perform the role of the skilled attendant, where required with some training. Research indicates that training of TBAs has not contributed to reduction of maternal mortality. However, it is recognized that for some women TBAs are the only source of care available during pregnancy. And as experience from some countries such as Malaysia has shown, TBAs can become an important element in a country's safe motherhood strategy and can serve as key partners for increasing the number of births at which a skilled attendant is present.

The impact of training TBAs on maternal mortality appears to be limited and the greatest benefit may be improved referral and linkages with the formal health system. Results from a meta-analysis suggest that TBA training may increase antenatal attendance rates. In Zambia, traditional birth assistants serve as culturally knowledgeable social support women during labor and

delivery, but have little accurate knowledge of appropriate management of labor and delivery. It is now generally accepted that one of the main reasons why many TBA-based maternity care programmes of the past did not work, or were unsustainable, was that the programmes failed to link TBAs to a functioning health care system. In practical terms, TBAs can help in the provision of skilled care to women and newborns by serving as advocates for skilled attendants and maternal and newborn health needs, disseminating health information through the community and families.

In all countries, emphasis should be placed on training and deploying an adequate number of professional, skilled midwives to provide the majority of delivery care. Where TBAs account for a significant portion of deliveries, safe motherhood programs should include activities aimed at providing adequate supervision and integrating them into the health system.

- Appropriate training (skilled trainers and appropriate teaching methodologies)
- Linkages to the health system that include proper supervision and referral for complicated cases

- ❑ Ongoing assessment of the impact of TBA programs

2.3.3. Postnatal Care

The postnatal period is the period when most maternal deaths occur compared to the antepartum and intrapartum periods. Post natal care is the care provided to the woman and her baby during the six weeks period following delivery in order to promote healthy behavior and early identification and management of complications. It should include assessment, health promotion and care provision. Care during the immediate postpartum period (6-24 hours) needs to be viewed as part of care during delivery. If no skilled attendant is present at delivery, one should see the woman as early as possible. WHO recommends a postpartum visit within 1-3 days, if possible through home visits by community health workers. The main life-threatening complications of the postnatal period include hemorrhage, anemia, genital trauma, hypertension, sepsis, urinary tract infections and mastitis.

Delivery care in Ethiopia (EDHS 2005 report)

- ❑ Delivery in a health facility: 5.3 %
- ❑ Births attended by a health professional: 5.7 %, this includes care given by doctors, nurses and midwives
- ❑ Births attended by a TBA: 28.1 %
- ❑ The majority of births (60.5 %) are attended by a relative or some other person
- ❑ Institutional delivery is generally low in most regions. Highest in AA (79 %)
- ❑ Post natal care coverage is 6.3 %
- ❑ Only 4.6 % of mothers receive postnatal care within the critical first two days after delivery

Children born in **urban** areas are **20 times** more likely to be delivered in a health facility than their **rural** counterparts. Institutional delivery is **2 %** among **uneducated** mothers compared to **52 %** among those with at least secondary education. Births to women in the highest wealth quintile are much more likely to be assisted by a trained health professional (27 %) than to women in the lowest wealth quintile (1 %).

Reasons for low utilization rates for maternal health services

- No physical access
- High costs
- Poor information
- Cultural preferences
- Lack of decision-making power by women
- Poor quality of care
- Delays in referring women from community health facilities to hospitals

2.3.4. Essential Newborn Care

Any intervention to prevent fetal deaths must focus on the mother, since direct causes of neonatal deaths such as asphyxia, respiratory distress syndrome and sepsis are related to the health or care of the mother. The majority of neonatal deaths (around 66%) occur in the first week of life.

You are expected to provide the following essential newborn care during this period:

- Initiation of breathing and resuscitation when needed

- Cleanliness
- Prevent heat loss, (Warming and drying of baby and keeping the delivery room warm)
- Early breast-feeding
- Eye care
- Management of newborn illness
- Immunization
- Vitamin K administration.

Specific maternal health topics that have to be disseminated at community level are summarized below.

1. Promote healthy behaviors to women, families and communities
2. Promote appropriate use of maternal health care
3. Increase community awareness and organization.
4. Discourage practices which harm maternal health

2.3.5. Maternal Nutrition

Poor nutrition before and during delivery contributes in a variety of ways to poor maternal health, obstetric problems and poor pregnancy outcomes.

1. **Stunting** - exposes women to the risk of cephalo-pelvic disproportion.
2. **Anemia**- the cause may be due to inadequate intake of iron, parasitic infestation and malaria. Women with severe anemia are therefore, more vulnerable to infection and at increased risk of death due to obstetric hemorrhage.
3. **Severe vitamin A** deficiency may make women more vulnerable to obstetric complications, including infection and associated maternal mortality.

A diet of pregnant and non-pregnant women should contain daily allowance of Vitamin A of 800mg. It is good to advice for women to have dark green, yellow or orange fruits and vegetables, liver as a source of vitamin A.

It is recommended to give supplemental vitamin A to pregnant and lactating women 200,000IU during pregnancy and 500,000IU during breast feeding. But remember, high doses of vitamin A during pregnancy causes teratogenic effect on fetus (consider doses higher than 50,000 IU is toxic).

4. **Iodine deficiency** increases the risk of stillbirth and spontaneous abortion in severely deficient areas in country like Ethiopia. It also contributes to maternal death through hypothyroidism. The daily allowance of iodine is 150 mg and 175 mg for non-pregnant and pregnant women respectively. Diets containing iodine such as iodized salt and seafoods should be encouraged.

In summary the health care provider should encourage women to take foods of varieties and able to supplement available drugs during antenatal visits (Iron, vitamin A, Iodine etc)

5. **Folate** Periconceptional folate supplementation has a strong protective effect against neural tube defects. Information about folate should be made more widely available throughout the health and education systems. Women whose fetuses or babies have neural tube defects should be advised of the risk of recurrence in a subsequent pregnancy and offered continuing folate supplementation. The benefits and risks of fortifying basic food stuffs, such as flour, with added folate remain unresolved.

2.3.6. Immunization

Prevention of Tetanus can be achieved by a combination of two approaches: -

1. Improving maternity care with emphasis on increasing the proportion of deliveries attended by trained attendants.
2. Increasing the immunization coverage of women of child bearing age, especially pregnant women with tetanus toxoid (TT).

Important control measures include, licensing health care providers providing professional supervision and health education as to methods, equipment and techniques of asepsis in childbirth; educating mothers, relatives and attendants in the practice of strict asepsis of the umbilical cord of the newborn. Any women of childbearing age visiting a health facility should be screened and offered immunization, no matter, what the reason for visit.

2.4. Estimation of maternal mortality

2.4.1. Definitions and measures of maternal mortality

Definitions

The Tenth Revision of the International Classification of Diseases (ICD-10) defines a maternal death as *the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.*

The 42-day limit is somewhat arbitrary, and in recognition of the fact that modern life-saving procedures and technologies can prevent maternal death, ICD-10 introduced a new category, namely the *late maternal death*, which is defined as *the death of a woman from direct or indirect obstetric causes beyond 42 days, but less than one year after termination of pregnancy.*

According to ICD-10, maternal deaths should be divided into two groups:

Direct obstetric deaths are those resulting from obstetric complications of the pregnancy state (pregnancy, labour and the puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above.

Indirect obstetric deaths are those resulting from previous existing disease or disease that developed during pregnancy and which was not due to direct obstetric causes, but was aggravated by physiologic effects of pregnancy. The drawback of this definition is that maternal deaths can escape being so classified because the precise cause of death cannot be given even though the fact of the woman having been pregnant is known. Such under-registration is frequent in both developing and developed countries. Deaths from “accidental or incidental” causes have historically been excluded from maternal mortality statistics. However, in practice, the distinction between incidental and indirect causes of death is difficult to make. To facilitate the identification of maternal deaths in circumstances where cause of death attribution is

inadequate, ICD-10 introduced a new category, that of *pregnancy-related death*, which is defined as: *the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.*

In practical terms then, there are two distinct approaches to identify maternal deaths, one based on **medical cause of death** following the ICD definition of **maternal death**, and the other based on **timing of death relative to pregnancy** that is, using the ICD definition of **pregnancy-related** death. This has important implications for the approaches to measurement described below.

Measures of maternal mortality

There are three distinct measures of maternal mortality in widespread use: the **maternal mortality ratio**, the **maternal mortality rate** and the **lifetime risk of maternal death**. The most commonly used measure is the maternal mortality ratio, that is the number of maternal deaths during a given time period per 100,000 live births during the same time period. This is a measure of the risk of death once a woman has become

pregnant. The maternal mortality rate, that is, the number of maternal deaths in a given period per 100,000 women of reproductive age during the same time period, reflects the frequency with which women are exposed to risk through fertility. The lifetime risk of maternal death takes into account both the probability of becoming pregnant and the probability of dying as a result of that pregnancy cumulated across a woman's reproductive years. In theory, the lifetime risk is a cohort measure, but it is usually calculated with period measures for practical reasons. It can be approximated by multiplying the maternal mortality rate by the length of the reproductive period (around 35 years). Thus, the lifetime risk is calculated as $[1 - (1 - \text{maternal mortality rate})^{35}]$.

2.4.2. Maternal mortality: The measurement challenge

Why maternal mortality is difficult to measure

Maternal mortality is difficult to measure for both conceptual and practical reasons. Maternal deaths are hard to identify precisely because this requires information about deaths among women of reproductive

age, pregnancy status at or near the time of death, and the medical cause of death. All three components can be difficult to measure accurately, particularly in settings where deaths are not comprehensively reported through the vital registration system and where there is no medical certification of cause of death. Moreover, even where overall levels of maternal mortality are high, maternal deaths are nonetheless relatively rare events and thus, prone to measurement error. As a result, all existing estimates of maternal mortality are subject to greater or lesser degrees of uncertainty. Broadly speaking, countries fall into one of four categories:

- Those with complete civil registration and good cause of death attribution – though even here, misclassification of maternal deaths can arise, for example, if the pregnancy status of the woman was not known or recorded, or the cause of death was wrongly ascribed to a non-maternal cause.
- Those with relatively complete civil registration in terms of numbers of births and deaths, but where cause of death is not adequately classified; cause of death is routinely reported for only 78

countries or areas, covering approximately 35% of the world's population.

- Those with no reliable system of civil registration where maternal deaths – like other vital events – go unrecorded. Currently, this is the case for most countries with high levels of maternal mortality.

Those with estimates of maternal mortality based on household surveys, usually using the direct or indirect sisterhood methods. These estimates are not only imprecise as a result of sample size considerations, but they are also based on a reference point some time in the past, at a minimum six years prior to the survey and in some cases much longer than this .

WHO, UNICEF and UNFPA have developed estimates of maternal mortality primarily with the information needs of countries with no or incomplete data on maternal mortality in mind, but also as a way of adjusting for underreporting and misclassification in data for other countries. A dual strategy is used that adjusts existing country information to account for problems of underreporting and misclassification and uses a simple

statistical model to generate estimates for countries without reliable data.

Approaches for measuring maternal mortality

Commonly used approaches for obtaining data on levels of maternal mortality vary considerably in terms of methodology, source of data and precision of results. The main approaches are described briefly below. As a general rule, maternal deaths are identified by medical certification in the vital registration approach, but generally on the basis of the time of death definition relative to pregnancy in household surveys (including sisterhood surveys), censuses and in Reproductive Age Mortality Studies (RAMOS).

Vital registration

In developed countries, information about maternal mortality is derived from the system of vital registration of deaths by cause. Even where coverage is complete and all deaths medically certified, in the absence of active case-finding, maternal deaths are frequently missed or misclassified. In many countries, periodic confidential enquiries or surveillance are used to assess the extent of misclassification and underreporting. A

review of the evidence shows that registered maternal deaths should be adjusted upward by a factor of 50% on average. Few developing countries have a vital registration system of sufficient coverage and quality to enable it to serve as the basis for the assessment of levels and trends in cause-specific mortality including maternal mortality.

Direct household survey methods

Where vital registration data are not appropriate for the assessment of cause-specific mortality, the use of household surveys provides an alternative. However, household surveys using direct estimation are expensive and complex to implement since large sample sizes are needed to provide a statistically reliable estimate. The most frequently quoted illustration of this problem is the household survey in Addis Ababa, Ethiopia, where it was necessary to interview more than 32,300 households to identify 45 deaths and produce an estimated MMR of 480. At the 95% level of significance, this gives a confidence interval of plus or minus about 30%, i.e. the ratio could lie anywhere between 370 and 660. The problem of wide confidence intervals is not simply that such estimates are imprecise.

They may also lead to inappropriate interpretation of the figures. For example, using point estimates for maternal mortality may give the impression that the MMR is significantly different in different settings or at different times whereas, in fact, maternal mortality may be rather similar since the confidence intervals overlap.

Indirect sisterhood method

The sisterhood method is a survey-based measurement technique that in high-fertility populations substantially reduces sample size requirements since it obtains information by interviewing respondents about the survival of all their adult sisters. Although sample size requirements may be reduced, the problem of wide confidence intervals remains. Furthermore, the method provides a retrospective rather than a current estimate, averaging experience over a lengthy time period (some 35 years, with a midpoint around 12 years before the survey). For methodological reasons, the indirect method is not appropriate for use in settings where fertility levels are low [total fertility rate (TFR) <4] or where there has been substantial migration, civil strife, war, or other causes of social dislocation.

Direct sisterhood method

The Demographic and Health Surveys (DHS) use a variant of the sisterhood approach, the “direct” sisterhood method. This relies on fewer assumptions than the original method, but it requires larger sample sizes and the information generated is considerably more complex to collect and to analyze. The direct method does not provide a current estimate of maternal mortality, but the greater specificity of the information permits the calculation of a ratio for a more recent period of time. Results are typically calculated for a reference period of seven years before the survey, approximating a point estimate some three to four years before the survey. Because of relatively wide confidence intervals, the direct sisterhood method cannot be used to monitor short-term changes in maternal mortality or to assess the impact of safe motherhood programmes. The Demographic and Health Surveys have published an in-depth review of the results of the DHS sisterhood studies (direct and indirect methods) and have advised against the duplication of surveys at short time-intervals. WHO and UNICEF have issued guidance notes to potential users of sisterhood methodologies, describing

the circumstances in which it is or is not appropriate to use the methods and explaining how to interpret the results.

Reproductive Age Mortality Studies

The Reproductive Age Mortality Study – RAMOS – involves identifying and investigating the causes of all deaths of women of reproductive age. This method has been successfully applied in countries with good vital registration systems to calculate the extent of misclassification and in countries without vital registration of deaths.

Successful studies in countries lacking complete vital registration use multiple and varied sources of information to identify deaths of women of reproductive age; no single source identifies all the deaths. Subsequently, interviews with household members and health-care providers and reviews of facility records are used to classify the deaths as maternal or otherwise. Properly conducted, the RAMOS approach is considered to provide the most complete estimation of maternal mortality, but can be complex and time-consuming to undertake, particularly on a large scale.

Verbal autopsy

Where medical certification of cause of death is not available, some studies assign cause of death using verbal autopsy techniques. However, the reliability and validity of verbal autopsy for assessing cause of death in general and identifying maternal deaths in particular, has not been established. The method may fail to correctly identify a proportion of maternal deaths, particularly those occurring early in pregnancy (ectopic, abortion-related), those in which the death occurs some time after the termination of pregnancy (sepsis, organ failure), and indirect causes of maternal death (malaria, HIV/AIDS).

Census

There is growing interest in the use of decennial censuses for the generation of data on maternal mortality. A high-quality decennial census could include questions on deaths in the household in a defined reference period (often one or two years), followed by more detailed questions that would permit the identification of maternal deaths on the basis of time of death relative to pregnancy (verbal autopsy). The

weaknesses of the verbal autopsy method have already been noted. Nonetheless, the advantages of such an approach are that it would generate both national and sub-national figures and that it would be possible to undertake analysis according to the characteristics of the household.

Trend analysis would be possible because sampling errors would be eliminated or greatly reduced. However, data obtained from enquiries into recent deaths in the household in a census require careful evaluation, and often adjustment. A number of countries have used the census to generate maternal mortality figures, and work is under way to assess the extent to which such approaches may prove of value in measuring maternal mortality.

2.4.3. Maternal mortality in Ethiopia

Since the launch of the Safe Motherhood Initiative in 1987, attention to reproductive health has increased worldwide and so has the need to provide reliable countrywide estimates of maternal deaths. In response to this increased interest, DHS surveys began collecting maternal mortality data through a series of questions

designed to gather information and obtain a direct measure of maternal mortality. These questions were included in the 2000 Ethiopian DHS and later in DHS 2005.

Maternal mortality estimates need a comprehensive and accurate reporting of maternal deaths. Such estimates can be obtained through vital registration, longitudinal studies of pregnant women, or repeated household surveys. However, there is no vital registration system in Ethiopia nor has there been any national household survey carried out for the purpose of estimating maternal mortality. The Ethiopian DHS is the first population-based national survey to incorporate questions on maternal mortality.

Direct estimates of maternal mortality use data on the age of surviving sisters of survey respondents, the age at death of sisters who have died, and the number of years since the death of sisters. Interviewers in the Ethiopian DHS were asked to list all the brothers and sisters born to the natural mother of female respondents on chronological order starting with the first. Information was then obtained on the survivorship of each the siblings, the ages of surviving siblings, the year of death

or years since death of deceased siblings, and the age at death of deceased siblings. For each sister who died at age 12 or over, the respondents were asked additional questions to determine whether the death was maternity related ; that is, whether the sister was pregnant when she died, and if so, whether the sister died during childbirth, and if not, whether the sister died within two months of the termination of a pregnancy or childbirth, listing all the siblings in chronological order of their birth is believed to result in better reporting of events than would be the case if only information on sisters were sought. Moreover, the information collected also allows the direct estimates of adult male and female mortality.

Information on maternal mortality for the period 0-6 years before the survey, as mentioned, this period was chosen to reduce any possible heaping of reported years since death on five-year intervals. Age-specific mortality rates are calculated by dividing the number of maternal deaths by years of exposure. Maternal deaths are defined as any death that occurred during pregnancy, childbirth or within two months after the birth or termination of pregnancy. This time-specific definition

includes all deaths that occurred during the specified period even if the death is due to non pregnancy-related causes. However, this definition is unlikely to result in over reporting of maternal deaths because most deaths to women in the specified period are due to maternal causes, and maternal deaths in general are more likely to be underreported than over reported.

Maternal mortality rate in Ethiopia is high relative to developed countries. There were 263 maternal deaths in the seven years preceding the survey. The maternal mortality rate, which is the annual number of maternal deaths per 1000 women age 15-49, for the period 1994-2000 is 1.68. maternal deaths accounted for 25 % of all deaths to women age 15-49; in other words, one in four Ethiopian women who died in the seven years preceding the survey died from pregnancy or pregnancy-related causes.

The maternal mortality ratio, which is obtained by dividing the age-standardized maternal mortality rate by the age-standardized general fertility rate, is often considered a more useful measure of maternal mortality since it measures the obstetric risk associated with each live birth. The maternal mortality ratio for Ethiopia for the

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period 1994-2000 is 871 deaths per 100,000 live births (or alternatively 9 deaths per 1,000 births).

Table 2: Direct estimates of maternal mortality for the period 0-6 years prior to the survey, Ethiopia 2000.

Age	Maternal deaths	Exposure years	Mortality rates ¹	Proportion of maternal deaths to female deaths
15-19	32	34,277	0.919	18.8
20-24	63	34,082	1.843	30.6
25-29	56	28,641	1.957	31.8
30-34	61	23,757	2.585	31.6
35-39	34	17,445	1.940	22.9
40-44	12	10,968	1.102	13.3
	5	7,164	0.690	8.6
Total	263	156,334	1.680	25.3
General Fertility Ratio (GFR)				0.190
Maternal Mortality Ratio (MMR) ²				871
Expressed per 1,000 woman-years of exposure				
Expressed per 100,000 live-birth; calculated as the maternal mortality rate divided by the general fertility rate				
Age-adjusted rate				

CHAPTER 3

ABORTION

Learning Objectives

At the end of the chapter, the student is expected to:

- Understand the magnitude of abortion
- Identify reasons behind unplanned pregnancy
- Define Unsafe abortion and know contributing factors
- Understand different components of post abortal care
- Know the revised Penal Code of Ethiopia on Safe abortion

Abortion is the termination or initiation of termination of pregnancy before reaching viability (before 20weeks or <500grams according to WHO or before 28 weeks of gestation or less than 1kg fetal weight in Ethiopia and UK). It can be spontaneous where termination is not provoked deliberately or induced when there is a deliberate interference with the pregnancy for the sake

of terminating it. Clinical stages of spontaneous abortion are: threatened, inevitable, incomplete, complete or missed abortion. If any of the stages mentioned get infected it is called septic abortion.

About Fifteen percent of all clinically recognizable pregnancies end in spontaneous abortions. It is estimated that 30 to 50 million induced abortions are performed annually in the world and about half of these are performed illegally. In Ethiopia it is estimated that there are 3.27 million pregnancies every year of which approximately 500,000 end in either spontaneous or unsafely induced abortion

WHO characterizes unsafe abortion by the lack of skilled providers, safe techniques, and/or sanitary facilities. Unsafe abortion is the commonest cause of maternal mortality accounting for up to 32% of all maternal deaths in Ethiopia.

Abortion is more than a medical issue, or an ethical issue, or a legal issue. It is above all a human issue, involving women and men as individuals, as couples and as a member of the society.

3.1. Public Health Importance of Abortion

3.1.1. Abortion-related morbidities and mortalities

Unsafe abortion is a global problem. Millions of women around the world risk their lives and health to end an unwanted pregnancy. Every day, 55, 000 unsafe abortions take place—95 % of them in developing countries—and lead to the deaths of more than 200 women daily. Globally, one unsafe abortion takes place for every seven births.

Every year, 68,000 deaths and about 5 million disabilities occur globally due to unsafe abortion. One out of every eight maternal deaths is due to abortion related complications. In some settings a quarter or more of all maternal deaths are abortion-related.

Many women fail to seek treatment for abortion-related complications, leading to countless—and uncounted—deaths outside of health care systems. Unsafe abortion is, however, one of the most easily preventable and treatable causes of maternal death and disability.

Between 20 and 50 % of all women who undergo unsafe abortions need hospitalization for complications.

Acute Complications

- Incomplete abortion
- Sepsis
- Hemorrhage
- Uterine Perforation
- Bowel injury

Long-term Complications

- Chronic pelvic pain
- Pelvic inflammatory disease
- Tubal blockage and secondary infertility
- Ectopic pregnancy
- Increased risk of spontaneous abortion or premature delivery in subsequent pregnancies.

These complications can limit women's productivity inside and outside the home, constrain their ability to care for children and adversely affect sexual life.

3.1.2 Impact on the public health system

Treatment of abortion-related complications:

- Often require several days of hospitalization and staff time, as well as
- Blood transfusions, antibiotics, pain control medications and other drugs.

Providing this care depletes funds and medical supplies needed for other types of treatment. As much as 50 % of some hospital budgets in developing countries are used to treat complications of unsafe abortion. For example, a recent study in Tanzania showed that 34 to 57 % of all admissions to the gynecological ward of a hospital in Dares Salaam were women suffering from complications of abortion, costing the hospital \$7.5 per day to treat each woman. The national health budget allocates only \$1 per person per year for health care.

Magnitude of Abortion in Ethiopia

Accurate estimates are difficult to get, but it is clear that abortion is widespread and generally performed by untrained persons. It is the leading cause of maternal mortality. In a community-based study, abortion

accounted for 54.2 % of the direct causes of maternal deaths. It is one of the top ten causes of admissions among women. Unsafe abortion accounts for nearly 60 % of all gynecologic admissions and almost 30 % of all obstetric and gynecologic admissions. In a study done in Addis Ababa; abortion hospital occupancy rate among mothers was 32. 2 %.

3.2. Why Women Find Themselves with Unwanted Pregnancy?

3.2.1 Non-use of contraception

The majority of unwanted pregnancies occur in Non-users of contraceptive methods.

Despite the fact that family planning services are more effective and available than ever before, estimates suggest that ,worldwide:

- 350 million couples lack access to information about contraceptives and a full range of modern family planning methods
- 105 million married women have unmet need for family planning

- 12 to 15 million women may also lack access to services that will enable them to achieve their reproductive intentions.
- Even after treatment for complications of unsafe abortion, many women leave hospitals without any counseling on how to prevent future pregnancies, and without a contraceptive method.

In Zambia, for example, 78 % of women treated for abortion complications indicated that they would like to receive information about family planning, and 44 % indicated they would have liked to receive a method. However, Family planning was discussed with only 33 % of the women, and none was offered a method to take home.

3.2.2 Contraceptive failure

Contraceptive failure results in 8-30 million pregnancies each year either from inconsistent or incorrect use of family planning methods or method-related failure.

3.2.3 Sexual coercion or rape

Twenty to fifty percent of women and girls report sexual abuse, rape or sexual coercion which carries about 5% risk of pregnancy in those in reproductive age unless emergency contraceptives given.

3.2.4 Other factors include:

- Lack of control over contraception;
- Young age or single marital status;
- Abandonment or unstable relationship;
- Mental or physical health problems;
- Severe malformation of the fetus; and
- Financial constraints.

3.3 Why does induced Abortion Occur?

Each year women around the world experience 80 million unwanted pregnancies. Out of these mothers, nearly 42 million decide to have an abortion and about 20 million of them undergo unsafe abortion.

A woman's decision to get an abortion is not made in a vacuum, but is bound up in society's feelings about abortion as well as her feelings about the pregnancy:

- Several social factors influence the emotional decision of obtaining abortion
- The cultural attitudes toward family size also influence woman's perception of abortion. When large families are the norm, she is viewed as, at best, odd. However, as norms change and children become more of an economic burden, this should remove another source of external pressure.
- Religious attitudes strongly affect the decision
- Personal and interpersonal reasons for continuing the pregnancy can be a great source of conflict. Often, pregnancy is the unwanted by-product of wanted sexual relations, while a pregnancy that is desired to prove her ability as a woman may have little relationship to desire for the actual child.

- Age and marital status are important factors in the decision along with number of other children already born.

In some instances abortion is the first responsible decision the woman has made, and often the effect is beneficial to other children in a large family or to the woman planning an unwise marriage. Counseling helps the outcome. A large benefit of legalized abortion is the opportunity to talk with a trained counselor.

Unsafe abortion is a public health problem, particularly among young women since:

- Poor access to family planning information and services →unplanned pregnancy
- They are less likely than older women to have the social contacts and financial means to obtain a safe abortion
- Young women are more likely to delay seeking help and hence seek terminations at more advanced stages of gestation when the risks of morbidity and mortality are higher.

In many African countries, up to 70 % of all women hospitalized for abortion complications are younger than 20.

3.4 Legislation and policies

National laws and policies on abortion vary widely. In 98 % of the world's countries; danger to the woman's life is recognized as a legal basis for terminating a pregnancy. Only in a few countries- Chile, the Holy See, El Salvador, Nicaragua, and Malta-is abortion illegal in all circumstances.

When abortion is illegal,

- It is most difficult for a woman to obtain it,
- Society is generally against abortion, and
- The psychological trauma is generally great.

Evidence shows that restrictive legislation is associated with higher rates of unsafe abortion and correspondingly high mortality.

Once abortion is legalized, a supportive relationship can be established and the decrease in external stress will be accompanied by a similar decrease in negative feelings.

- Up to 23 unsafe abortion/1000 women restrictive laws compared to 2/1000 in permissive laws
- Mortality 34/1000 live births in restrictive countries compared to 1 or less per 1000 live birth in liberal laws

In Romania, for example, abortion-related deaths increased sharply when the law became very restrictive in 1966 (to 148/100,000), and fell after 1990 with a return to less restrictive legislation (9/100,000) in 2002.

3.5 Inadequate services

In many developing countries, safe abortion services are not available to the full extent permitted by law. Many health workers lack vital information about the legal status of abortion, and do not know how to perform abortions. When women experience complications due to unsafe abortion, appropriate medical care is often unavailable or inaccessible.

Lack of protocols for post-abortion care, misdiagnosis, negative attitudes on the part of health care providers and case overload result in life-threatening. These

factors also costly, delay services for women seeking treatment from the health system.

3.6 What can be done about unwanted pregnancies and unsafe abortions?

- Ensure universal access to family planning
- Increase the availability of safe abortion services to the extent allowed by law
- Improve the quality and accessibility of post-abortion care
- Educate communities about reproductive health and unsafe abortion; and
- Work for changes in policies to safeguard women's reproductive health.

I. Contraceptive services and information

Prevent unwanted pregnancies through comprehensive, client-oriented reproductive health services especially family planning.

- During service provision one must be non-judgmental in attitudes,

- Confidential counseling and quality family planning information and services, including emergency contraception, should be universally accessible to all women,
- Special attention should be given to the needs of young people, marginalized women, women living in situations of conflict, and women at risk of sexual abuse, rape and violence.

II. Providing high quality appropriate services

In more than 131 developing countries, induced abortion is permitted in certain circumstances. In countries where abortion is legal:

- Services should be safe and available
- Service providers must be carefully trained to offer high quality services and compassionate counseling.
- Providers must be well-informed about the legal status of abortion and protocols for providing services, so that women who are eligible can access services quickly and without unnecessary delays or bureaucratic procedures.

Available services should also be publicized within the community and links should be strengthened with women's groups, health centers and related organizations to ensure that women who need services are informed about where and when to seek care. Appropriate technologies such as vacuum aspiration should be available. New technologies, such as non-surgical abortion, should be made available, where appropriate and feasible.

III. Offering post-abortion care

Whatever the legal status of abortion, high quality services for treating and managing complications of abortions should be accessible to all women to reduce related maternal death. The recently promoted abortion care approach is women-centered approach of provision of the services. In the woman –centered approach, the provider asks for and focuses on woman's concerns and interests and takes a comprehensive approach to meeting every woman's medical and psychological needs at the time of treatment.

Key elements of post abortion care include:

1. Treatment of incomplete and unsafe abortion;
2. Counseling;
3. Family planning services;
4. Links to comprehensive reproductive health services;
and
5. Community and service provider partnerships.

IV. Educating communities

Education is critical for reducing the public health problem of unsafe abortion. Health education messages should be based on the incidence and impact of unsafe abortion within communities, and be sensitive to people's beliefs, attitudes and practices. They should offer information on: the legal status of abortion; preventing unwanted pregnancy; avoiding unsafe abortion; and recognizing and seeking appropriate treatment for abortion complications.

V. Supportive laws and policies

When laws are modified to allow greater access to abortion-related services, such as legal changes, must

be accompanied by changes in the health service structure.

- Development of appropriate service delivery standards; protocols, guidelines and administrative procedures;
- Restructuring of the health system to ensure that high quality, safe services are available at the lowest levels compatible with good quality care.
- Staff must be trained and willing to provide services; and
- Supplies of necessary equipment and drugs must be available
- Requisite funds must be allocated for all these activities.

Policies and laws can contribute to unsafe abortion by impeding women's ability to protect their sexual and reproductive health.

Examples

- Prohibitions on contraceptive delivery to unmarried women and adolescents

- Requirements for spousal consent for the use of family planning services

Such policies and laws should be reviewed and revised, taking into account the cultural, religious and moral values of the communities concerned.

3.7 Grounds on Which Abortion is Permitted, revised abortion law of Ethiopia, (House of Parliament, 2005)

- When the pregnancy puts the woman's life at risk
- Fetal impairment or deformity
- When pregnancy follows Rape or incest (based on the woman's complaint only)
- When pregnancy occurs in minors (stated maternal age <18 years)
- The woman is physically and mentally unable to care for the would-be born child

References for Further Reading

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- The Lancet Series on SRH. Unsafe abortion, 2006
- UN. World Abortion Policies, 2007
- MOH abortion protocol

CHAPTER 4

FAMILY PLANNING

Learning objectives

At the end of the chapter, the student is expected to:

- Understand the rationale for FP Programs in developing countries
- Understand steps in counseling
- Understand the reasons behind non-use of contraceptive methods
- Know different FP delivery systems

Introduction

Family Planning Refers to the use of various methods of fertility control that will help individuals (men and women) or couples to have the number of children they want and when they want them in order to assure the well being of children and the parents. Family planning simply means preventing unwanted pregnancies by safe methods of prevention. This is considered to be part of the basic human rights of all individuals or couples as it

was endorsed by the International Conference on Population and Development in Cairo in 1994.

Family planning programs provide services that help people achieve:

- The number of children they desire
- Reduce the number of unwanted pregnancies
- Reduce the risk of sexually transmitted infection (especially condom), and
- Improve the health of women and children by spacing birth.

To achieve the above objectives, the service should offer:

- A wide range of contraceptives and counseling for well informed choice
- Screening and follow up
- Integrated services like prevention and treatment of STIs

4.1. Origins and Rationale for Family Planning Programs in Developing Countries

4.1.1. Demographic Rationale

Reducing high fertility and slowing population growth provided the dominant rationale for FP programs in the 1960s and 1970s. The rationale was based on concerns over the potentially negative effects of rapid population growth and high fertility on living standards and human welfare, economic productivity, natural resources, and the environment in the developing world, but still surveys showed substantial unmet need for family planning.

4.1.2. Health Rationale

During the 1980s, the public health consequences of high fertility for mothers and children are set of concerns for international community especially for developing countries. High rates of infant, child, and maternal mortality as well as abortion and its health consequences, were pressing health problems in many

developing nations and had also become of greater concern for international development agencies.

4.1.2. 1. Benefits to women's health

Simply by providing contraceptives to women who desire to use it, we can reduce maternal deaths by as much as one-third because:

- Avoiding pregnancy at the extremes of maternal age
- Decreasing risks by decreasing parity: If all women had five births or fewer, the number of maternal deaths could drop by 26 % worldwide.
- Preventing high-risk pregnancies: decrease maternal deaths by quarter
- Prevention of unwanted pregnancy: reduces unnecessary risks of pregnancy, childbirth and risks of induced abortion
- Improving health through non-contraceptive benefits including prevention of STIs and reproductive cancers

4.1.2.2. Family planning benefits children's health

Family planning indirectly contributes to children's health, development and survival by reducing the risk of maternal mortality and morbidity.

Spacing births at least 2 years apart has to do with their survival:

- On average, babies born less than two years after the previous birth in the family are about twice as likely to die in the first year as babies born after at least a 2-year interval.
- Even older children who are spaced too closely face an increased risk of death during the toddler and childhood years.

Planning births during the mother's optimal age-not too old or too young: women who are very young or very old are more likely to have an infant or child death. Family planning prevents further pregnancies in a mother who has had numerous pregnancies already and avoids close birth spacing and sharing limited resources such as food.

4.1.2.3. Family planning benefits women and their societies

Family planning reduces the health risks of women and gives them more control over their reproductive lives. With better health and greater control over their lives, women can take advantage of education, employment, and civic opportunities. If couples have fewer children in the future, the rate of population growth would decrease. As a result, future demands on natural resources such as water and fertile soil will be less. Everyone will have a better opportunity for a better quality of life.

4.1.3. Human Rights Rationale

This rationale became preeminent in the 1990s, in part because of the excesses reactions to the demographic rationale. It rests on the belief that individuals and couples have a fundamental right to control reproductive decisions, including family size and the timing of births. This rationale found its strongest articulation at the ICPD, held in Cairo, in 1994.

4.2. Family Planning methods

The commonly used family planning methods are:

1 Natural Method

- Breast feeding
- Abstinence
- Withdrawal (Coitus interrupts)
- Calendar methods
- Cervical mucus (Billing's Method)
- Sympathothermal

2 Artificial methods

- Barrier methods
 - Diaphragm
 - Condom
- Intra-uterine device (IUD)
- Hormonal
 - Pills
 - Implants
 - Injectable

- Surgical methods (Permanent)
 - Tubal ligation (ligating the oviduct).
 - Vasectomy (ligating the sperm duct).

Emergency contraception

- IUD
- Levonorgestrel-only or combined estrogen-progesterone
- RU486

Even though various methods are available and accessible, clients do not get the opportunity to discuss with health care providers how/when to use and where to go. Therefore, it is important to ensure provision of information and counseling in family planning services.

The major activities to be carried out are:

1. Review of all available methods in a simple and understandable manner.
2. Understanding and respecting the clients' right.
3. Follow the acronym **GATHER**- greet, ask, tell, help, explain, and return

4.3. Fertility Trends and Contraceptive Use

Contraceptive use and fertility rates vary substantially among developing countries. In a few countries of Asia and Latin America, at least three-fourths of married women use a contraceptive method—levels equal to those in developed countries. In contrast, in some sub-Saharan African countries fewer than 10% of married women use contraception. An estimated 105 million married women, about 1 in every 5, have an unmet need for family planning—that is, they are sexually active and want to avoid pregnancy, but are not using contraception. The percentage of women with unmet need fell since 1990, but still large number of women have no access to family planning services. Sub-Saharan Africa stands out as the region having the highest unmet need for contraception in the world (24 %). Among the 60 developing countries surveyed since 1990, the TFR varies from 2.3 children per woman in Vietnam to 7.2 in Niger. The average is 4.5 children per woman for those 60 countries as a whole.

The fertility decline in developing countries that began in the 1960s and 1970s continued through the 1990s. Among 38 developing countries with more than one survey since 1990, the total fertility rate (TFR) fell in almost all. Among developing countries surveyed since 1990, fertility is highest in sub-Saharan Africa, at an average of 5.3 children per woman, but subsequent surveys suggest that parts of Africa have started down the path already taken in other regions. Behind fertility declines, there is continued increase in contraceptive use, particularly use of modern methods. **Population Reports** estimate that in 2000 about 55% of married women of reproductive age in developing countries were using a contraceptive method. This level of contraceptive use is well below the level in the developed world of 75 % to 84 % of married women which is the level of contraceptive use generally considered necessary to achieve replacement-level fertility (each couple having an average number of two children with contraceptive prevalence rate of 75% to 84%).

Replacement-level fertility is the fertility rate at which each generation has only enough children to replace itself. In industrialized countries, where mortality is lower than in most developing countries, the replacement fertility level is a TFR of about 2.1. In developing countries with higher mortality levels, particularly among children, can push replacement-level fertility higher—to as high as a TFR of 3.5 or 4.0. Compared with earlier demographic transitions elsewhere, the transition in sub-Saharan Africa is much slower. Many factors—cultural, economic, political, and demographic—help explain the difference. Some researchers point to continued strong cultural preference for large families, to large rural populations relying on subsistence farming, and to low levels of economic development. In addition, continued high rates of infant and child mortality have contributed to high fertility levels, because many couples may have “extra” children to make up for those who die young.

In the past, lack of government commitment to family planning programs in some countries limited access to the range of contraceptive methods and services needed to meet people’s needs. Moreover, some sub-Saharan countries have faced internal conflicts that

have made it difficult to provide family planning. Nevertheless, if recent fertility trends in sub-Saharan Africa are any indication, fertility rates in the region will fall in the future as they already have elsewhere. Reflecting such an expectation, the latest medium variant UN projection shows a TFR in Africa of 2.4 children per woman by 2045-2050.

4.4. Men's Attitude towards FP

Men's attitude towards contraceptive use exerts an important influence on their partner's attitude and eventual adoption of a method. Since 1990, 46 countries, most in sub-Saharan Africa, have taken nationally representative surveys of men's family planning attitudes and behavior. In nearly all surveyed countries, most men know and approve of contraception. Most married men say that they want to have more children, however, and on average, they want more children than married women do.

4.5. Fertility among Different Groups

Fertility levels vary according to women's educational attainment, residence, and other social and economic characteristics. Such differences often are substantial.

In most surveyed countries, the more years of school that women have completed, the lower their fertility. Women's educational attainment has a stronger effect on fertility than does men's education or other characteristics of households, such as wealth for example in Malawi, among women with no education the TFR is 7.3, while among women who have completed secondary education, it is only 3.0. Education affects fertility through a number of interrelated factors, including women's social and economic status, status within the household, age at marriage, family size desires, access to family planning information and services, and use of contraception. In all countries surveyed, the TFR is lower in urban than rural areas.

4.6. Counseling in Family Planning

4.6.1. Goal of Family Planning Counseling

The main goal of family planning is to improve the quality of life and reproductive health by empowering individuals and couples to exercise their right to safe sexuality, and to decide whether and when to have children and how many to have. This goal is to provide opportunities for people to discuss their circumstances,

needs and options to help clients make informed decisions about contraception, fertility and sexual health.

The counselor should be trained with regards to FP. He/she should also have some personal qualities. The following points can be seen in this context.

a) Bridge Knowledge Gap

- Brief anatomy and physiology of reproductive health to clients.
- Explain about the contraceptive technology - the benefits, risks, effectiveness and mode of action for all available family planning methods.
- Myths and belief should be told.

b) Help Clients Make Informed Choice

- Consider that women may be unprepared to make their own choice.
- Encourage clients to take responsibility for decision- making.
- Give complete information about the method chosen by the client.

C) Provide Services

- Record should be kept for a client.

- Give family planning services.
- Should schedule follow - up visits.

4.6.2. Steps in Family Planning Counselling

Counseling new clients about family planning needs a step-by-step process. The process includes learning, making choices, making decisions and carrying them out. It consists of six steps which can be remembered with the acronyms GATHER. Not every new client needs all the steps; some clients need more attention to one step than another.

The GATHER Steps

- G -Greet clients in an open, respectful manner. Assure the client of confidentiality. Give as much time listening as talking.
- A -Ask clients about themselves. Help client talk about their family planning practices, intentions, concerns, and wishes.
- T -Tell clients about choices. Depending on the clients need, tell the client what reproductive health choices she/he might take. Focus on methods that interest

the client. Also explain other services that the client may want.

- H -Help clients make an informed choice. Help the client think about the options. Encourage the client to express opinions and ask questions. Consider medical eligibility criteria for the family planning method that interest the client. In the end, make sure that the client has made clear decision.
- E -Explain fully how to use the chosen method: after a client chooses a family planning method, give her or him the supplies if appropriate. Encourage questions, and answer them openly and fully. Give condoms to any one at risk for sexually transmitted diseases (STD's) and encourage using condoms along with any other family planning method. Check that the clients understand how to use their method.
- R -Return visits should be welcomed: Discuss and agree when the client will return for follow-up or more supplies if needed. Always invite the client to return any time for any reason.

Counseling is crucial to help clients make and carry out their own choices about reproductive health and family planning, makes clients more satisfied and helps clients use family planning longer and more successfully.

Counseling should be tailored to each client. At the same time, most counseling about method choice covers six topics.

- Effectiveness
- Advantages and disadvantages
- Side effects and complications
- How to use
- STI prevention
 - When to return

4.6.3. Adolescent Counseling on Family Planning

Most of the fertility related problems affecting adolescents come about because of family life, education both at home and school. Therefore, giving family life education and counseling are important to adolescents in order to tackle the problems.

Adolescence, married or unmarried, face several potential problems in relation to their sexual and Reproductive Health. These includes:-

- Consequences of unwanted pregnancy which may result in unsafe abortion.
- High risks of early child bearing for the mother, infant and child.
- Diminished opportunities for education and education especially for females.
- Unprotected sexual intercourse exposes adolescents to a high risk of STD's. Consistent and correct use of condom is highly effective in preventing pregnancy and STI (dual protection).

4.7. Trends in Contraceptive Use in Ethiopia

According to EDHS, majority (79.5 %) of current contraceptive users obtain methods from the public sector. Thirty-four percent of currently married women have unmet need for family planning. Men desire larger family size than women:

- Mean ideal number of children is 4.5 for all women and 5.1 for currently married women
- Mean ideal number of children is 5.2 among all men and 6.4 for currently married men

The TFR in the rural areas is 6.0, two and half times higher than the TFR in the urban areas (2.4). There are also substantial differences in fertility among regions. The level of fertility is inversely related to women's educational attainment, decreasing rapidly from 6.1 children among women with no education to 2.0 children among women who have at least some secondary education, which is similar to reports from other regions.

4.8. Family Planning Delivery Strategies

Service delivery strategies need to be tailored to reach populations in different locations- urban areas, rural towns, villages, and remote areas. The most common service delivery sites include clinics, community-based distribution programs, commercial retail sales, workplace programs, postpartum programs, and private physicians.

1. Clinic-based services

A clinic-based approach is reasonable in areas where clients do not live far from the clinic. Clinics often have the advantage of being able to provide methods that are more medically complex, such as IUDs, implants, Injectable and sterilization. In urban areas and rural towns, FP is most often provided by clinics that integrate it with other health services for women and children or offer it only on certain days of the week.

2. Community-Based Distribution (CBD)

In areas that do not have clinics nearby, family planning services may be made available through CBD programs. In this approach, CBD workers, usually village women are trained to educate their neighbors about family planning and to distribute certain contraceptives. In some programs, CBD workers also provide some primary health care services. In some programs, the workers receive some kind of payment; in others they are strictly volunteers. A midwife, family planning nurse, program coordinator, or other staff member is usually responsible for supervising the CBD workers' activities and managing any problems that occur. FP administrators may find that CBD services are most

effective when a program is fairly new and people are not familiar with contraceptives. Adding CBD services to existing clinic services has been shown to make family planning more acceptable to a community and to increase a program's impact. In Ethiopia, CBD workers provide FP to 1.7 % of current users from the public sector and 1.4 % of the private sector.

To establish CBD

- Selection of CBD workers
- Training (initial/in-service)
- Supervision
- Integrating into a functional referral system
- Incentives to CBD workers

3. Commercial Retail Sales

If people are willing to obtain contraceptives from sources outside the health care system, commercial retail sales can make contraceptive methods very accessible. In this approach, contraceptives such as OCPs and condoms are sold at reduced, subsidized prices in pharmacies, stores, shops, bars, beauty salons

and barber shops and are advertised on the mass media. When this approach is used, retailers should be given training in basic information about the products and how to refer people who have problems with a contraceptive.

4.9. Reasons for Not Using Contraceptives

An understanding of the reasons why people do not use family planning methods is critical in designing programmes that are effective in reaching women with unmet need and to improve the quality of family planning services.

Main Reasons for Not Intending to Use are:

- Outside sub-Saharan Africa: At little risk of becoming pregnant.
- Sub-Saharan Africa: Currently pregnant or want to have more children.

Other reasons for not intending to use:

- Concerns with contraceptive side effects
- Religious or other opposition to family planning.

Major Reasons in Ethiopia (EDHS)

- Fertility-related reasons (40 %) mainly desire for more children
- Opposition to use (23.6 %)
- Lack of knowledge (11.2%),
- Method-related reasons (13.6%)

The proportion of women who cited a desire for more children has dropped markedly from 42 percent in 2000 to 18 percent in 2005, suggesting that women are realizing the disadvantages of large family sizes.

References for Further Reading

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CHAPTER 5

SEXUALLY TRANSMITTED INFECTIONS

Learning Objectives

At the end of the chapter, the student is expected to:

- Describe the Classification of STIS
- Outline the public health significance of STIS
- Understand STI Control strategies and obstacles
- Understand advantages and limitations of syndromic approach

5.1 Introduction

Reproductive tract infections (RTIs) are infections of the genital tract of women and men. There are three types of RTIs:

1. Sexually transmitted infections (STIs)

- Infections caused by organisms that are passed through sexual activity with an infected partner.

More than 40 have been identified, including Chlamydia, gonorrhea, hepatitis B and C, herpes, HPV, syphilis, trichomoniasis, and HIV.

2. Endogenous infections

- Infections that result from an overgrowth of organisms normally present in the vagina.
- These infections are not usually sexually transmitted, and include bacterial vaginosis and candidiasis.

3. Iatrogenic infections

- Infections introduced into the reproductive tract by a medical procedure such as menstrual regulation, induced abortion, IUD insertion, or childbirth.
- This can happen if surgical instruments used in the procedure are not properly sterilized, or if an infection already present in the lower

reproductive tract is pushed through the cervix into the upper reproductive tract.

These three types of RTIs overlap and should be considered together. For example, some STIs, like gonorrhoea or Chlamydia, can be spread in the reproductive tract if not treated prior to a procedure. In addition, some non-sexual infections, such as candidiasis, can be passed on through sexual activity. Not all STIs are RTIs; and not all RTIs are sexually transmitted; STI refers to the way of transmission whereas RTI refers to the site where the infections develop.

5.1.1. Main STI Pathogens

More than 30 pathogens are transmissible through sexual intercourse-oral, anal, or vaginal. The main sexually transmitted bacteria are:

Neisseria gonorrhoeae (causes gonorrhoea)

Chlamydia trachomatis (chlamydial infections)

Treponema pallidum (causes syphilis)

Haemophilus ducreyi (causes chancroid)

The main sexually transmitted viruses are:

- *Human immunodeficiency virus* (causes AIDS)
- *Herpes simplex virus* (causes genital herpes)
- *Human papilloma virus* (causes genital warts)
- *Hepatitis B virus*
- *Cytomegalovirus*
- The main parasitic organisms are:
 - *Trichomonas vaginalis* (causes vaginal trichomoniasis)

5.1.2. Public Health Significance of STIs

Over 340 million curable, and many more incurable, STIs occur each year. Among women, non-sexually-transmitted RTIs are usually even more common. In developing countries, STIs and their complications rank in the top five disease categories for which adults seek health care. In women (15-49 years), STIs, even excluding HIV, are second only to maternal factors as causes of disease, death and healthy life lost. Self-

reported prevalence of STIs in Ethiopia is 2 % in women and 1.5 % in men.

The links between STIs and HIV is one of the reasons that force the world to give attention to almost neglected sexually transmitted infections, because:

- The presence of an untreated STI enhances both acquisition and transmission of HIV. HSV-2 plays an important role in the transmission of HIV infection.
- STI treatment is an important HIV prevention strategy in a general population
- Integration of HIV/AIDS programs with STIs prevention and care programs is economically advantageous (similar interventions and target audiences)
- Clinical services offering STI care are important for providing information and education about STIs including HIV in order to promote lower risk behavior.

Another reason to consider STIs as public health problems is because STIs can lead to the development of serious complications like:

- Women: cervical cancer, pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility.
- Men: sub-fertility
- Newborn: blindness and lung damage
- Syphilis can result in congenital syphilis for the baby and fatal cardiac, neurological and other complications in adults
- Genital warts can lead to ano-genital cancers

Untreated gonococcal and chlamydial infections in women will result in pelvic inflammatory disease in up to 40% of cases. One in four of these will result in infertility. In pregnancy, untreated early syphilis will result in a stillbirth rate of 25% and be responsible for 14% of neonatal deaths – an overall perinatal mortality of about 40%. Syphilis prevalence in pregnant women in Africa, for example, ranges from 4% to 15%. Human papillomavirus (HPV) causes about 500 000 cases of cervical cancer annually with 240,000 deaths, mainly in resource poor countries. Worldwide, up to 4000 newborn babies become blind every year because of

eye infections attributable to untreated maternal gonococcal and chlamydial infections.

STIs constitute a huge health and economic burden, especially for developing countries, where they account for 17 % of economic losses due to ill-health. Herpes simplex virus type 2 (HSV-2) infections is the leading cause of genital ulcer disease (GUD) in developing countries. Data from sub-Saharan Africa show that 30%–80% of women and 10%–50% of men are infected. Throughout the world, HSV-2 seropositivity is uniformly higher in women than in men and increases with age. HSV-2 plays an important role in the transmission of HIV infection. A study in Mwanza, the United Republic of Tanzania, showed that 74% of HIV infections in men and 22% in women could be attributable to HSV-2 ulcers. Hepatitis B virus (HBV), which may be transmitted sexually results in an estimated 350 million cases of chronic hepatitis and at least one million deaths each year from liver cirrhosis and liver cancer. A vaccine to prevent hepatitis B infection, and thereby reduce the incidence of liver cancer, exists.

The socioeconomic costs of STIs and their complications are substantial:

- Ranks among the top 10 reasons for health-care visits in most developing countries, and substantially drain both national health budgets and household income.
- Care for the sequel of STIs accounts for a large proportion of tertiary health-care costs
- The social costs of STIs include conflict between sexual partners and domestic violence.

These are the main reasons to consider STIs as public health problems and to design and implement appropriate intervention both preventive and curative.

5.2 Classification of STIs

1. Diseases characterized by genital ulcer

- Chancroid, Genital herpes simplex virus, Granuloma inguinale (Donovanosis), Lymphogranuloma Venarum, Syphilis

2. Diseases characterized by urethritis and cervicitis

- Chlamydial infection, Gonorrhoea

3. Diseases characterized by vaginal discharge

- Bacterial vaginosis, trichomoniasis, Vulvo-vaginal candidiasis

4. Pelvic Inflammatory Disease (PID)

5. Epididymitis

6. Human papillomavirus infection (Genital wart)

7. Vaccine preventable STDs

- Hepatitis A, Hepatitis B

8. Proctitis, Proctocolitis and enteritis

9. Ectoparasitic Infections

- Pediculosis Pubis, Scabies

Prognostic classification of STDs

Curable (mostly bacterial)

Gonorrhea

Syphilis

Chlamydia

Trichomoniasis

Incurable (virus)

- HIV/AIDS
- Hepatitis

- Herpes
- Human papilloma virus

5.3 Traditional Approaches to STI Diagnosis

1. **Etiologic diagnosis:** using laboratory tests to identify the causative agent
2. **Clinical diagnosis:** using clinical experience to identify the symptoms typical for a specific STI.
 - Even in a well-structured health system, etiological and clinical diagnoses are problematic because they are low in sensitivity.
 - **Etiological diagnosis** is expensive and time-consuming; it requires special resources and delays treatment.
 - With **clinical diagnosis**, it is easy to diagnose some STIs incorrectly and also to miss mixed infections.

5.4 The STI Syndromes and the Syndromic Approach to Case Management

Many different agents cause STIs, however, some of these agents give rise to similar or overlapping clinical manifestations.

Aim of Syndromic management of STIs:

- Prompt and effective detection and treatment of STDs
- Decrease STD incidence and prevalence by reducing period of infectiousness

The main STI syndromes are:

- Urethral discharge
- Genital ulcer
- Inguinal bubo
- Scrotal swelling
- Vaginal discharge
- Lower abdominal pain
- Neonatal conjunctivitis

NB. Some of the flow charts are annexed at the end of the book.

Main Features of Syndromic Management

- Periodic laboratory-based classification of the main causal pathogens by the clinical syndromes they produce
- Use of flow charts derived from this classification to manage a particular syndrome
- Treatment for all important causes of the syndrome
- Education and counseling of the patient on how to prevent re-infection
- Notification and treatment of self

Principles in the Syndromic management

- Many STIs can be identified and treated on the basis symptoms and signs.
- Treatment covers several possible infections responsible for the syndrome
- Syndromic management will reduce the cost of laboratory work up and extra visits to the clinic and treatment delay.

Advantages and Limitations of Syndromic Management

Advantages of Syndromic management:

- **Immediate treatment:** Clients receive diagnosis and treatment within a single visit.
- **Effectiveness:** Clients are treated for a potential mixed infection. The use of flowcharts with appropriate treatment recommendations reduces the chance of ineffective treatment. This approach helps to prevent incorrect diagnoses in settings where clinical diagnosis is common.
- **Ease of use:** It is easy to teach and learn. So, all levels of health care providers and facilities can use it. It requires good training, but not specialized knowledge about STIs/RTIs.
- **Low costs:** There are cost savings since expensive lab tests are not used.

Limitations and concerns:

- **Limitations in diagnosing vaginal discharge:** Vaginal discharge poses a particular challenge since the syndrome might not be related to an

STI. Because of the potential for negative reactions from clients and partners when the infection may not even be caused by an STI, it is important to consider each case on an individual basis. Women who do not have STIs, but who have non-sexually transmitted RTIs that cause vaginal discharge may be told that they should have their partners come for treatment; this can lead to relationship problems, including violence.

- **Potential for over treatment:** Clients are treated for multiple infections, although some will have no infection or only one. This is costly in terms of unnecessary drug use, waste of drugs that could be used to treat other clients, and the potential for microorganisms to develop resistance to antimicrobial drugs.
- **Ineffectiveness against asymptomatic infections:** This approach cannot be used with clients who are infected, but show no signs and symptoms.
- **Need for data:** Algorithms, risk assessment tools, and treatment protocols should be based on information that is difficult to collect in many

settings, including: disease surveillance data, studies of risk factors, and microbial resistance tracking in the geographic location where the Syndromic approach is being used.

5.5 Why Invest in STI Prevention and Control Now?

To reduce STI-related morbidity and mortality

- To prevent HIV infection because:
 - Genital ulcer diseases have been estimated to increase the risk of transmission of HIV 50–300-fold per episode of unprotected sexual intercourse
 - Improved syndromic management of STIs reduced HIV incidence by 38% in a community intervention trial in Mwanza, Tanzania
 - Thailand also reduced HIV prevalence by effectively controlling STIs
- To prevent serious complication in women
 - STIs are main preventable cause of infertility

- PID, ectopic pregnancy and cervical cancer
- To prevent adverse pregnancy outcome
 - Perinatal deaths
 - Spontaneous abortions
 - Preterm deliveries
 - Ophthalmia neonatorum

Universal institution of an effective intervention to prevent congenital syphilis should prevent an estimated 492 000 stillbirths and perinatal deaths per year in Africa alone.

5.5. STI Control Strategies

1. Prevention by promoting safer sexual behaviors;

What is safer sex? It is any sexual activity that reduces the risk of passing STI and HIV from one person to another.

Some safer sex practices:

- Consistent use of condom every time individual is having sex
 - Reducing the number of sex partners-sex with uninfected monogamous is safe
 - Massaging, rubbing touching, dry kissing, hugging or masturbation instead of intercourse
 - To be away from unsafe sexual practices, like “dry sex”
 - Not to have intercourse with partner having genital sore or discharge
2. General access to quality condoms at affordable prices;
 3. Promotion of early recourse to health services by people suffering from STIs and by their partners;
 4. Inclusion of STI treatment in basic health services;
 5. Specific services for populations with frequent or unplanned high-risk sexual behaviors

6. Proper treatment of STIs, i.e. use of correct and effective medicines; treatment of sexual partners; education and advice; reliable supply of condoms;
7. Screening of clinically asymptomatic patients;
8. Provision for counseling and voluntary testing for HIV infection;
9. Prevention and care of congenital syphilis and neonatal conjunctivitis;
10. Involvement of all relevant stakeholders, including the private sector and the community, in prevention of STIs and prompt contact with health services for those requiring care.

Many people with an STI/RTI do not seek treatment since they are asymptomatic or have mild symptoms and do not realize that anything is wrong. Others who have symptoms may prefer to treat themselves or seek treatment at pharmacies or from traditional healers. Even those who come to a clinic may not be properly diagnosed and treated. In the end, only a small proportion of people with an STI/RTI may be cured and avoid re-infection.

In order to address these challenges, health providers should:

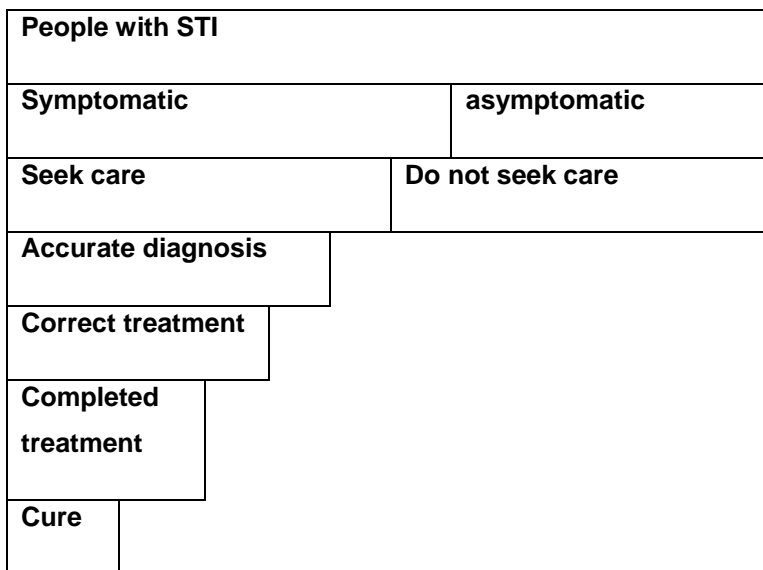
- Raise awareness in the community about STIs/RTIs and how they can be prevented
- Promote early use of clinic services.
- Promote safer sexual practices when counseling clients.
- Detect infections that are not obvious.
- Prevent iatrogenic infection
- Manage symptomatic STI/RTI effectively
- Counsel patients on staying uninfected after treatment.

5.6 Obstacles to Provision of Services for STI Control

- Decline in interest and resources for STIs prevention and control globally in favor of ART and VCT
- Lack of integration of prevention and care activities for STIs (including HIV) into sexual and reproductive health services

- Problem with Syndromic management of women with vaginal discharge, especially in low prevalence areas
- Intervention efforts to prevent STIs have failed to take into consideration the full range of the underlying determinants
- Inability to ensure consistent supplies of STI medicines and condoms
- Counseling on risk reduction is also usually lacking
- Inadequate participation of partners, especially communities
- Diagnostic problem: either asymptomatic or do not seek care

Barriers to STI control-finding people with STI



Source: WHO integrating STI/RTI care for reproductive health, a guide to essential practice, 2005

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CHAPTER 6

HIV/AIDS AND REPRODUCTIVE HEALTH

Learning objective

- To know the HIV/AIDS Global, regional and national status
- To understand main modes of transmission of HIV
- To know the main preventive strategies

6.1. Introduction

AIDS (acquired immune deficiency syndrome) is a human tragedy. Since the epidemic began in the early 1980s, AIDS has caused more than 30 million deaths and orphaned more than 14 million children worldwide. With no cure in sight, the AIDS-causing virus, human immunodeficiency virus (HIV), continues to spread around the world, causing more than 13,000 new infections each day.

By the end of 2007, 33.2 million people were living with HIV, including 2.5 million children under 15 years old. Over 95 percent of these HIV cases occurred in the developing countries of sub-Saharan

Africa and South and Southeast Asia.

In 2007, approximately 2.5 million new adult HIV infections with 420,000 newly infected under 15 years children and 2.1 million AIDS-related adult deaths occurred worldwide with 330,000 deaths of children under 15 years. Women accounted for approximately more than half of the new infections and 2.1 million AIDS deaths.

HIV/AIDS exacts a heavy toll on its victims. People living with HIV/AIDS face tremendous health risks from opportunistic illnesses (such as tuberculosis) that compromise their way of life and dramatically increase their risk of death. In sub-Saharan Africa, average life expectancy has dropped to 47 years, 15 years less than it would have been without AIDS. In addition to health risks, people living with HIV/AIDS face social and cultural barriers, including stigmatization, discrimination, and rejection from health-service providers, friends, and relatives. These barriers, often worsened by the

concurrence of the HIV and tuberculosis epidemics, can affect their access to health and medical services, the quality of services they receive, and their daily livelihoods.

The consequences of HIV/AIDS extend beyond its immediate victims, also affecting surviving family members, communities, and societies. It is estimated that for each woman who dies of AIDS in Africa, two children will be orphaned. More than 90 percent of children orphaned by AIDS live in sub-Saharan Africa, and the numbers are increasing daily. In the next decade, the number of orphans is also expected to increase in Asia, the Americas, Central and Eastern Europe, and the countries of the Newly Independent States (NIS). In developing countries, AIDS orphans face extreme economic uncertainty and are at higher risk of malnutrition, illness, abuse and sexual exploitation than children orphaned by other causes. In addition, these surviving children face the stigma and discrimination that accompany HIV/AIDS, leaving them socially isolated and often deprived of basic social services such as education.

Because HIV/AIDS affects people during their most productive years, when they are responsible for the support and care of others, it carries profound social and economic repercussions for communities and societies. HIV/AIDS is the primary cause of disease burden in developing countries and accounts for about 2.8 percent of the global burden of disease worldwide. It is now the leading overall cause of death in Africa, accounting for more than 6 percent of the disease burden in some cities, and is the fourth greatest cause of death worldwide.

Table 3: Global Summary of the HIV/AIDS Epidemic, December 2007

Number of people living with HIV/AIDS	Total	33.2 million (30.6-36.1 million)
	Adults	30.8 million [28.2-33.6 million]
	Women	
	Children under 15 years	15.4 million 2.5 million
People newly infected with HIV in 2003	Total	2.5 million
	Children under 15 years	420,000
AIDS deaths in 2007	Total	2.1 million (2.1 - 2.9 million)
	Children under 15 years	330,000

AIDS epidemic in sub Saharan Africa (2007 AIDS epidemic update)

Sub Saharan Africa continues to be the most affected region by HIV/AIDS with:

- More than 68% of adults infected with HIV (>22.5 million)
- 90% of infected children with HIV
- 70% of AIDS deaths in 2007
- 1.7 million people newly infected
- Majority of people living with HIV/AIDS are women.

UNAIDS/WHO classification of HIV epidemic states

Low level: HIV prevalence has not consistently exceeded five percent in any defined sub- population

Concentrated: HIV prevalence is consistently over 5 percent in at least one defined sub-pulation, but below one percent in pregnant women in urban areas.

Generalized: HIV prevalence is consistently over one percent on pregnant women nation-wide.

6.2. Modes of Transmission of HIV

Several large studies have confirmed that there is no risk of transmission through casual contacts with household members, such as sharing meals, sleeping together (without sexual contact), handshaking, hugging, or holding a baby. There have been no reports of transmission in out-of-home childcare settings or in schools.

The primary modes of transmission of HIV are: sexual transmission, transfusion, or exposure to, infected blood products, or exposure to contaminated needles and other equipment; and MTCT. Each mode of transmission is associated with a different risk of acquiring HIV infection. The greatest risk of transmission of HIV infection follows an HIV-contaminated blood transfusion. Ninety percent of individuals who receive a transfusion of HIV-contaminated blood acquire infection. In many developing countries, screening of blood products before transfusion is inadequate or nonexistent.

Contaminated blood products continue to be a significant source of new HIV infections. Re-use of needles or syringes in the health care setting has led to many infections in infants and children. If equipment must be re-used, strict adherence to proper decontamination and sterilization procedures is essential. Intravenous drug abuse carries a risk of approximately 0.5 to 1% per exposure if needles or injection equipment used by an HIV-infected person are shared.

When visible blood or other body fluids are present, (for example, on bandages) there may be a small risk of HIV transmission through an intact skin. Therefore, in such situations, gloves should be worn. Hands should be washed immediately with soap and water, if contact with blood or other bodily fluids occurs.

6.2.1. Sexual Transmission of HIV

Heterosexual transmission is the primary mode of acquiring HIV in developing countries. Women, especially young girls, are more likely than men to become infected following heterosexual intercourse. Cases of HIV infection resulting from sexual abuse of

children, and even infants, have been reported. Adolescents are increasingly at risk from unprotected sexual intercourse or the use of contaminated needles.

Disturbing gender differences in rates of HIV infection have been reported in developing countries, especially in sub-Saharan Africa, where several countries report that the number of teenage girls infected with HIV is up to six times greater than the number of teenage boys who are infected. Studies suggest that girls are more susceptible than mature women to HIV infection per sexual act.

Many girls are exposed to older HIV-infected men who seek sexual partners less likely to be HIV infected, or to men who request sexual favors in exchange for economic support. Worldwide, sexual abuse and trafficking of children increases the risk of HIV infection in very young children. Some studies place the number of children in forced prostitution as high as 10 million. The fairly widespread (and false) myth that having sex with a virgin can cure HIV infection has resulted in HIV infected men seeking younger sexual partners. Young girls, who are viewed as less likely to be HIV infected,

may command a premium as prostitutes, placing them at high risk for acquiring HIV.

6.2.2. MTCT of HIV

Children can become infected with HIV through the same modes as those by which adults are infected (exposure to contaminated blood or other body fluids, eg, through transfusions of infected blood products, through contact with needles or other instruments contaminated with infected blood or other body fluids, and through sexual abuse), and also through MTCT.

Perinatal transmission encompasses MTCT before delivery (antepartum), during delivery (intrapartum), or following delivery through breast-feeding in the first few days of life (postnatal). In medical literature, the term "perinatal" is used synonymously with "vertical" to describe MTCT, but generally does not include transmission by breast-feeding after the first few days of life. In resource-rich countries, where safe alternatives to breast-feeding are available perinatal (intrauterine and intrapartal), HIV transmission accounts for virtually all new cases of HIV infection in children. A small

proportion of children may be infected as the result of sexual abuse.

Rates of MTCT

The majority of children born to HIV-infected mothers are uninfected. Without interventions to prevent MTCT of HIV, rates of MTCT range from 13% in Europe to approximately 40% in Africa. Although there are many possible explanations for this difference, the distinct difference in the prevalence of breast-feeding among HIV-infected mothers in resource-rich versus resource-poor settings is likely implicated.

Timing of MTCT

MTCT of HIV occurs during three different time periods: antepartum, intrapartum, and postnatally through breast-feeding. With the advent of highly sensitive techniques for detecting virus in the peripheral circulation of the infant, it is possible to estimate the timing of MTCT more accurately. In the absence of breast-feeding, an estimated 50 to 70% of transmissions occur around the time of delivery, with the remainder occurring in utero. Therefore, without breast-feeding, most MTCT is presumed to be a result of exposure to HIV during late

pregnancy, during parturition via the placenta, or during passage of the infant through the vagina. Intrapartum transmission is presumed to occur across the infant's mucous membranes, principally in the oropharynx and possibly in the esophagus and stomach.

Table 4: Describes the rate of Mother-to-child Transmission in the absence of intervention.

Estimated Risk of MTCT	
Timing	Transmission rate without intervention
During pregnancy	5-10%
During labour and delivery	10-15%
During breastfeeding	5-20%
Overall without breastfeeding	15-25%
Overall with breastfeeding to six months	20-35%
Overall with breastfeeding to 18-24 months	30-45%
Note: Rates vary because of differences in population characteristics such as maternal CD4+ cell counts, RNA viral load and duration of breastfeeding.	
"HIV transmission through breastfeeding: A review of available evidence." Marie Louise Newell; endorsed by UNICEF, UNFPA, WHO, UNAIDS. 2004 (adapted from De Cock KM et al., 2000.).	

Source; FMOH, PMTCT guideline, July 2007

Risk Factors for MTCT

Several factors put a woman at a higher risk of transmitting HIV to her child.

Maternal Factors

- High maternal viral load
- Low CD4 count
- Advanced maternal disease
- Viral or parasitic placental infections during pregnancy, labour and childbirth
- Maternal malnutrition (including iron and folate, vitamin A, and zinc deficiencies)
- Nipple fissures, cracks, mastitis and breast abscess

Infant factors

- First infant in multiple birth
- Preterm low birth weight
- Duration of breastfeeding
- Mixed feeding
- Oral diseases in child

Obstetric and Delivery Practices

- Rupture of membrane for more than four hours
- Injuries to birth canal during child birth (vaginal and cervical tears)
- Ante partum procedures e.g. amniocentesis, external cephalic version
- Invasive childbirth procedures (e.g. episiotomy, fetal scalp monitoring)
- Vaginal delivery
- Delayed infant cleaning and eye care
- Routine infant airway suctioning

6.2.3. Breast-Feeding Transmission

Breast-feeding is associated with increased transmission overall. A randomized clinical trial comparing breast-feeding with formula feeding demonstrated the efficacy of complete avoidance of breast-feeding for the prevention of MTCT.

In resource-poor settings, breast-feeding offers the best opportunity for inexpensive, readily available, and safe infant nutrition. In most communities, breast-feeding is

naturally viewed as a caring and nurturing response of a mother toward her infant. There are many studies that document the beneficial aspects of breast-feeding in protecting against many kinds of infection. Unfortunately, HIV is one particularly serious infection that can be transmitted by means of breast-feeding. This presents a dilemma for the HIV-infected mother when alternative means of safely feeding her infant are difficult to obtain. There were many recommendations for this problem, but the current recommendation for mothers who are living in developing countries is exclusive breast feeding for six months and abrupt weaning with no mixing of breast milk with weaning food.

HIV/AIDS prevention and control

The steady growth of HIV prevalence throughout the world stems not from the deficiencies of available prevention strategies and tools, but rather from the failure to use them. At present, there are more HIV infections every year than AIDS-related deaths. The trends in increasing infections pose a major threat to the global response to AIDS.

Effective HIV prevention programming focuses on the critical relationships between the epidemiology of HIV infection, the risk behaviours that transmit HIV, and the cultural, institutional and structural factors that drive risk behaviours. Risk behaviours are enmeshed in complex webs of economic, legal, political, cultural and psychosocial determinants that must be analyzed and addressed by policies that are also effectively implemented and through scaled-up programming.

Prevention and treatment must be scaled up in a balanced way, to capitalize fully on synergies between the two. Comprehensive HIV prevention requires a combination of programmatic interventions and policy actions that promote safer behaviours, reduce biological and social vulnerability to transmission, encourage use of key prevention technologies, and promote social norms that favour risk reduction.

Essential Policy Actions for HIV Prevention

1. Ensure that human rights are promoted, protected and respected and that measures are taken to eliminate discrimination and combat stigma.

2. Build and maintain leadership from all sections of society, including governments, affected communities, nongovernmental organizations, faith-based organizations, the education sector, media, the private sector and trade unions.
3. Involve people living with HIV, in the design, implementation and evaluation of prevention strategies, addressing the distinct prevention needs.
4. Address cultural norms and beliefs, recognizing both the key role they may play in supporting prevention efforts and the potential they have to fuel HIV transmission.
5. Promote gender equality and address gender norms and relations to reduce the vulnerability of women and girls, involving men and boys in this effort.
6. Promote widespread knowledge and awareness of how HIV is transmitted and how infection can be averted.
7. Promote the links between HIV prevention and sexual and reproductive health.

8. Support the mobilization of community-based responses throughout the continuum of prevention, care and treatment.
9. Promote programmes targeted at HIV prevention needs of key affected groups and populations.
10. Mobilizing and strengthening financial, and human and institutional capacity across all sectors, particularly in health and education.
11. Review and reform legal frameworks to remove barriers to effective, evidence based HIV prevention, combat stigma and discrimination and protect the rights of people living with HIV or vulnerable or at risk to HIV.
12. Ensure that sufficient investments are made in the research and development of, and advocacy for, new prevention technologies.

HIV prevention strategies

The main strategies proposed by the United Nations AIDS programme are:-

1. Condom use
2. Education

3. HIV prevention for key population
4. HIV post exposure prophylaxis
5. Male circumcision
6. New HIV prevention technologies
7. Prevention of mother to child transmission
8. Social and behavior change

Condom use

Conclusive evidence from extensive research shows that correct and consistent condom use significantly reduces the risk of HIV transmission.

The male latex condom is the single, most efficient, available technology to reduce the sexual transmission of HIV and other sexually transmitted infections. Along with the female condom, it is a main component of comprehensive strategies to reduce risks of sexual exposure to HIV.

Condom promotion must be incorporated into a comprehensive prevention strategy that involves leadership from all sections of society, addresses cultural norms and beliefs, promotes gender equality, and promotes widespread knowledge and awareness of

how HIV is transmitted and how condoms can avert infection.

Prevention programmes need to ensure that high-quality male and female condoms are readily and consistently available to all those who need them, when they need them, and that people have the knowledge and skills to use them correctly. Condoms must be promoted in ways that help overcome sexual and personal obstacles to their use. Complex gender and cultural factors can be a challenge for HIV prevention education and condom promotion.

Education

The education sector is critical to HIV prevention for young people and can also play a vital role in support for orphans and vulnerable children affected by HIV.

Education in school settings

Simply ensuring young people's access to school or other educational opportunities is an important aspect of HIV prevention. Not only are higher levels of education associated with safer sexual behaviours and delayed

sexual debut, but school attendance provides students the benefits of school-based sexuality education and HIV prevention programming.

Young people in many parts of the world are denied sex and health education in schools because parents and other authorities fear that it encourages early sexual activity.

But there is compelling evidence from studies conducted around the world and in many different cultures that, in fact, sex education encourages responsibility. Knowledgeable young people tend to postpone intercourse or, if they do have sex, to use condoms.

Experience shows, however, that information is not enough. Young people also need life skills such as decision-making, communication and negotiation. They need to understand the concepts of risk behaviour, such as unprotected sex and the use of alcohol and drugs, the possible consequences of such behaviour and how to avoid them. And they need to know where to go for services and help. AIDS education should cover all these aspects.

Among the most effective approaches to sex and health education in schools are the use of role play to personalize issues, and peer education, in which young people are trained to spread messages and promote responsible behaviour among their friends and colleagues.

Education outside school settings

Out-of-school youth are a diverse group that includes young people who have dropped out of school or college, children kept out of school by families who cannot afford to send them or who need their labour at home, and children living on the streets. Such youngsters are often especially vulnerable to HIV. Bored, alienated and sometimes hopeless at finding them selves excluded from the mainstream, they may seek escape and thrills in drugs, alcohol or sex. Providing them with the information and skills they need to protect themselves from HIV is a special challenge. The fact that they are not part of an institution such as a school or workplace makes them difficult to reach. Moreover, their levels of literacy vary.

Experience shows that peer education, which involves training representatives among out-of-school youth to convey information, is one of the most effective strategies. Peer educators understand the lives and concerns of others out of school and are therefore more trusted.

Another effective strategy is to use entertainment such as street theatre, music and puppetry, which draws people in and provides a focus as well as an alternative pastime to risky activities.

HIV prevention among key populations

Although comprehensive HIV prevention programmes must be made available to all, actions must be taken to ensure that specialized and focused HIV prevention programmes are developed and available for people most at risk.

UNAIDS encourages countries to “know their epidemic and their current response”. Knowing their epidemic and response enables countries to “match and prioritize the response” by identifying, selecting and funding those HIV prevention measures that are most appropriate and

effective for the country in relation to its specific epidemic scenario(s) and settings. Matching and prioritizing the response entails identifying those populations most-at-risk and vulnerable, gauging the extent to which new HIV infections are occurring within these populations and the extent to which they are consulted and engaged in tailoring the response for their communities.

Engaging these key populations within HIV prevention activities is critical to an effective response, so too is ongoing analysis of what works, the costs and benefits of the different HIV prevention measures and their feasibility given the available human and financial resources.

Key populations include:

Children and orphans

Indigenous people

Injecting drug users

Men who have sex with men

Migrants and mobile workers

Peacekeepers

People in the education sector

People in the health sector

People living with HIV

Prisoners

Refugees and internally displaced people

Rural communities

Sex workers and their clients

Women and girls

Workplace populations

Young people

HIV post-exposure prophylaxis

The immediate use of antiretroviral drugs to prevent HIV sero conversion after exposure to potentially HIV-infected blood or body fluids is called Post-exposure prophylaxis for HIV infection (HIV-PEP).

The efficacy of HIV-PEP has been shown in occupational settings but, the evidence is indirect. Studies suggest that when initiated within 12, 24, or 36 hours after exposure, HIV-PEP is more effective than

initiation within 48 to 72 hours, and that HIV-PEP is not effective when given more than 72 hours following the exposure. Furthermore, a 28-day course of drug therapy appears to be more effective than courses lasting 3 or 10 days.

Since HIV-PEP is not 100% effective, the importance of primary prevention must be reinforced. The use of HIV-PEP following possible occupational exposure in settings such as hospitals has become a routine component of occupational safety policy in most of North America and Europe.

Non-occupational use of HIV-PEP has been introduced and is being studied in settings supporting sexual assault survivors, rape survivors in refugee camps, and persons in communities at high risk of HIV, such as sex workers, people who use injection drugs, men who have sex with men, and people in prisons. Risk behaviour has not been shown to increase substantially among HIV-PEP users and in communities where HIV-PEP is available.

A key consensus at the 2005 Joint International Labor Organization/World Health Organization Technical Meeting for the Development of Policy and Guidelines regarding occupational and non-occupational HIV-PEP was that HIV-PEP must be part of comprehensive HIV prevention, occupational health, and post-rape care service policies. Services must be provided as part of a comprehensive prevention package that emphasizes primary prevention.

Male circumcision

Male circumcision is one of the oldest and most common surgical procedures known. It is undertaken for cultural, religious, social as well as medical reasons.

The evidence that adult male circumcision is efficacious in reducing sexual transmission of HIV from women to men is compelling. The partial protective effect of male circumcision (approximately 60% reduction in risk of heterosexually acquired HIV infection) is remarkably consistent across the observational studies (ecological, cross-sectional and cohort) and the three randomized controlled trials conducted in diverse settings.

In response to the urgent need to reduce the number of new HIV infections globally, the World Health Organization (WHO) and the UNAIDS Secretariat convened an international expert consultation in March 2007 to determine whether male circumcision should be recommended as an HIV prevention measure. Based on the existing evidence, experts attending the consultation recommended that male circumcision now be recognized as an additional important intervention to reduce the risk of heterosexually acquired HIV infection in men.

Male circumcision should always be considered as part of a comprehensive HIV prevention package. Moreover, wherever male circumcision services are offered, training and certification of providers, as well as careful monitoring and evaluation of programmes, will be necessary to ensure that these meet their objectives and that quality services are provided safely, with adequate equipment and with appropriate counselling and other services.

The communication strategies around male circumcision will be critical, since men should not develop a false

sense of security and engaging in high-risk behaviours that could undermine the partial protection provided by male circumcision. Additional research is still required in a number of areas to inform the further development of male circumcision programmes such as the impact of male circumcision on sexual transmission from HIV-infected men to women, the protective benefit of male circumcision in the case of insertive partners engaging in anal intercourse, and research into the resources needed for, and most effective ways, to expand quality male circumcision services.

Prevention of mother-to-child transmission of HIV

Each day, approximately 1,800 children become infected with HIV, the vast majority of whom are newborns. A pregnant woman who is HIV-positive can pass the virus on to her baby in the womb or during childbirth, or postnatal, through breastfeeding.

In the absence of any intervention, the risk of mother-to-child-transmission (MTCT) of HIV is around 15-30%, if the mother does not breastfeed the child. But it can rise as high as 30-45% with prolonged breastfeeding.

The risk of transmission can be reduced by up to 50% with the administration of a short course of antiretroviral drugs to mother and baby around the time of delivery, in conjunction with replacement feeding.

However, less than 8% of pregnant women worldwide are currently offered services to prevent mother-to-child transmission (MTCT) of HIV.

Prevention of perinatal HIV transmission requires a comprehensive package of services that includes preventing primary HIV infection in women, preventing unintended pregnancies in women living with HIV, preventing transmission from pregnant women living with HIV to their infants, and providing care, treatment and support for women living with HIV and their families.

Health systems need to be strengthened so that interventions to prevent mother to child transmission of HIV infection, including the use of antiretroviral drugs, can be safely and effectively implemented. Moreover, HIV testing in pregnancy has a number of benefits in terms of prevention and care for mother and child, although to avoid or minimize negative consequences

testing must be voluntary and confidential and accompanied by quality counseling.

Timely administration of antiretroviral drugs to the HIV-diagnosed pregnant woman and her newborn significantly reduces the risk of mother-to-child HIV transmission. Positive mothers should also be provided with access to ART for the protection of their own health.

Combination regimes appear to be most effective, but were until recently regarded as too costly for widespread use in low- and middle-income countries. In recent years, projects to prevent mother-to-child transmission in resource-limited settings have primarily focused on provision of single-dose intrapartum and neonatal nevirapine, which cuts the risk of HIV transmission by more than 40%. While the benefits of single-dose nevirapine outweigh the risk of resistance in these settings, development of affordable regimens with superior resistance profiles is an urgent global priority.

National guideline recommendation for PMTCT (Ethiopian)

1. Women presenting during pregnancy

Facilities where ART service is functional and available:

Mother:

- Ante partum: AZT (300 mg Bid) starting at 28 weeks of pregnancy or as soon as feasible thereafter
- Intrapartum: Single dose (Sd) NVP (200 mg) + AZT (600 mg at onset of Labour) and 3TC (150 mg at onset of labour and every 12 hours until delivery)
- Postpartum : AZT (300 mg Bid) and 3TC (150 mg Bid) for 7 days

Infant:

- Single dose (Sd) NVP (2 mg/kg) + AZT (4 mg/kg Bid for 7 days)

Note: if mother did not receive adequate dose of, i.e. less than four weeks of, AZT before delivery, the AZT dose for the infant should be extended for four weeks

Facilities with no ART service OR when referral to the nearest ART clinic is not possible or difficult for the client):

Mother:

- Single dose (Sd) NVP (200 mg) at the onset of Labour

Infant:

- Single dose (Sd) NVP within the first 72 hours of birth

NB. *If mothers come to health institution and should be on ART they should start the recommended regiment of HAART any time after the first trimester with AZT based regime(AZT + 3TC+ NVP) unless they have anemia in which AZT is substituted with D4T (D4T +3TC + NVP).*

2. Women presenting in Labour who have NOT received any antenatal prophylaxis

Facilities where ART service is functional and available:

Mother

- Intra Partum: Single dose (Sd) NVP (200 mg) + AZT(600 mg during labour) + 3TC (150 mg during labour and every 12 hours until delivery)
- Postpartum : AZT (300 mg Bid) + 3TC (150 mg Bid) for 7 days

Infant

- Single dose (Sd) NVP (2 mg/kg) + AZT (4 mg/kg Bid) for four weeks

Facilities with no ART service AND referral to the nearest ART clinic is not possible or difficult for the client):

Mother

- Single dose (Sd) NVP (200 mg) at onset of labour

Infant

- Single dose (Sd) NVP within the first 72 hours of life

3. Infant born to women living with HIV who do not receive any ARV prophylaxis

Facilities where ART service is functional and available:

- Single dose (Sd) NVP (2 mg/kg) + AZT (4 mg/kg Bid for four weeks)

Facilities with no ART service AND referral to the nearest ART clinic is not possible or difficult for the client:)

- Single dose (Sd) NVP within first 72 hours of birth

NOTE: The best time to initiate ARV prophylaxis for the infant is immediately after delivery or within 12 hours if possible

- At any time during ARV provision for the mother and the infant; AVOID the use of double dosing of NVP

Social and behaviour change

Unlike some infectious diseases, transmission of HIV is mediated directly by human behaviour, so changing behaviours that enable HIV transmission is the ultimate

goal or outcome required for HIV prevention. Sexual behaviour, which remains the primary target of HIV prevention efforts worldwide, is widely diverse and deeply embedded in individual desires, social and cultural relationships, and environmental and economic processes. So too are the behaviours related to transmission through injecting drug use and from mother to child. This makes HIV prevention a complex task with multiple dimensions, that requires both policy and programmatic actions.

Effective, inexpensive and relatively simple HIV prevention interventions do exist, but the pace of the epidemic is clearly outstripping most country efforts in closing the coverage gap of effective HIV prevention services. This gap reinforces the importance of addressing the deep-rooted drivers of the epidemic – e.g. actions to address gender inequality and ensures that human rights are respected.

UNAIDS policy and practical guidance on HIV prevention stresses that effective and comprehensive HIV prevention would require addressing both individual

risk as well as vulnerability, and reducing the impact of HIV on individuals and communities.

In the context of HIV, risk is defined as the probability that a person may acquire HIV infection. Certain behaviours create, enhance and perpetuate such risk (UNAIDS, 1998). These include behaviours such as injecting drug use, unprotected casual sex, and multiple concurrent long term sexual partners with low and inconsistent condom use (UNAIDS, 2007). Risk arises from individuals engaging in risk behaviours for a variety of reasons such as lack of information, inability to negotiate safer sex, unavailability of condoms, etc. Over the recent years, the approach to HIV has broadened to not only focus on individual risks, but also on the environmental and social factors that influence such behaviour, and the key role that power relationships and gender inequalities play in influencing risk (UNAIDS, 1998).

On the other hand, vulnerability from a health perspective, results from societal factors that adversely affect one's ability to exert control over one's health. Vulnerability is influenced by the interaction of a range

of factors including certain personal, social, economic and political factors that make people or certain groups of people more vulnerable to infection than others. These include age, sex, poverty, gender inequalities, certain laws, etc. Factors affecting risk and vulnerability should be considered in designing an effective AIDS response, more so in behaviour change programmes.

Despite recent evidence in expansion of access to prevention, treatment, care and support services, the fundamental role of human behaviour in the continued spread of HIV is increasingly clear. Fostering health enhancing behaviour change outcomes demands a persistent commitment to meeting the diverse and changing needs of individuals, and to addressing the characteristics of their social, cultural and physical environments that place them at risk.

Communication for behaviour change

Information, Education and Communication – sometimes called IEC - are a critical part of the puzzle for achieving the goal of universal access to HIV prevention, treatment, care and support. However,

information, education and communications must be combined with other interventions to succeed.

Methods of communication range from one-to-one personal interactions to posters placed in school classrooms to prevention messages on national television. The focus may range from reducing stigma or decreasing HIV infection, but the ultimate goal is behaviour change.

Effective social mobilization involves an integrated communication strategy that includes a variety of communication actions such as sustained advertising, peer education, and community mobilization, all coherently focused so as to reinforce each other. The strategy is aimed at a defined group of people for an identified behavioral result.

Communication for behaviour change often involves reaching out to marginalized populations whose needs and behaviours are different from those of the rest of the community. Information must be provided in language familiar and appropriate to each group of people and in settings that are comfortable for them. Outreach and education by peers are two strategies that have been

shown to be highly successful in overcoming the mistrust of individuals who are marginalized. For example, sex workers can be trained to provide HIV prevention education and to promote condom use among their peers.

National programmes must identify the array of behaviour change needs and communication strategies throughout the country. Resources can then be devoted to development of programming specific to each cultural or behavioural group at high risk of HIV infection. UNAIDS and its partners provide technical assistance and guidance regarding the processes as well as the needs of various communities affected by HIV.

Whatever the local epidemiological and social conditions, effective HIV prevention programmes prioritize and focus on the intervention needs of people most at risk of exposure to HIV and likely to engage in HIV risk behaviours, and they focus programme efforts on reaching adequate numbers of these key audiences with good quality services. These audiences should be segmented, and information and services should be tailored to meet each subpopulation's needs.

Segmenting in this sense means identifying subpopulations within each key audience that are different enough to require different approaches or messages (for example, distinguishing transgendered persons from men who have sex with men, or street-based from brothel-based sex workers). It does not mean singling out those populations for blame or persecution, or stigmatizing an HIV prevention measure as only for specified people. Effective HIV prevention includes efforts to ensure that segmenting the response does not lead to stigmatization and other unintended adverse consequences.

Uniting for HIV prevention

Across the world, a small, but growing number of countries have reduced HIV prevalence through sound prevention efforts. However, in 2005, there were still 4.1 million new HIV infections with over 40% of new adult infections occurring among young people aged 15-24. According to latest estimates, HIV prevention services reach only one in ten of those most at risk.

In an era where the world has committed to working towards universal access to HIV prevention, treatment, care and support by 2010, there is clearly an urgent need to intensify HIV prevention efforts in both size and scale to halt growing infection rates and sustain the gains that have already been made in the AIDS response such as increased numbers of people on HIV treatment.

To this aim, UNAIDS is 'uniting for HIV prevention' with others who share this goal – including civil society, treatment activists, the private sector and governments - - to call for the global community to mobilize an alliance for intensifying HIV prevention.

At the XVI International AIDS Conference that took place in Toronto, Canada in August 2006, representatives from UNAIDS, the International Council of AIDS Service Organizations (ICASO), the Treatment Action Campaign (TAC), the governments of India and Sweden and Merck pharmaceuticals outlined the concept of 'uniting for HIV prevention'

“There is an urgent need to build on good work already taking place and mobilize an alliance for HIV prevention that goes ‘beyond the converted’ involving more than ‘the usual suspects’, and with strong links to HIV treatment activism,” said UNAIDS Executive Director Peter Piot.

“We need an alliance that is united by commitment to the goal of saving lives, even if we may have different tactics. We need an alliance that draws in the best and brightest minds of our generations, and that is a partnership between governments, people living with HIV, the most vulnerable groups, civil society, faith-based organizations, business and international institutions,” he said.

‘Uniting for HIV prevention’ is a consolidation of existing advocacy and public mobilization efforts around HIV prevention and aims to harness the collective strengths of organizations in bringing about a sustainable response to HIV epidemic. The UNAIDS policy position paper on intensifying HIV prevention provides a common ground around which advocacy for scaling up HIV prevention is based.

'Uniting for HIV prevention' aims to:

- Foster leadership on HIV prevention with key stakeholders at the global, regional and national level to achieve community action
- Promote and support joint activity, activism and partnership amongst a variety of stakeholders
- Promote sound evidence and draw on the experience of communities
- Act as a convening body around scaling-up HIV prevention

The broad and inclusive grouping of organizations 'uniting for prevention' will seek to influence policy makers as well as generate public opinion on the need to bridge the HIV prevention gap. Together, they seek to strengthen the movement and create the enabling environment which is required to achieve universal access to HIV prevention, treatment, care and support.

'Uniting for Prevention' – the players and their roles

Civil society

"Uniting for prevention" will bring together a large number of civil society organizations that work on different facets of the AIDS response across different sectors and with a variety of community groups. These include networks of people living with HIV, young people, women's groups, human rights organizations, faith-based organizations, AIDS service organizations and community groups. They can bring pressure on their constituencies to prioritize HIV prevention.

Governments

'Uniting for Prevention' will bring together government leaders to push for greater acceleration and resource allocation for HIV prevention efforts.

Treatment activists

As the forerunner of treatment activism, their push for HIV prevention is a wake-up call to the world on how gains made in treatment will not be sustained if the rate of scale up of HIV prevention does not dramatically increase in the next few years.

Private sector

The growth of the private sector is dependent upon a healthy and vibrant workforce and a healthy population that can propel economic growth. The private sector can also help in lending their expertise to rapidly scale up HIV prevention efforts and invest in innovations that can make HIV prevention simpler.

UNAIDS

UNAIDS will unite the various stakeholders involved in global HIV prevention efforts, and lead advocacy programmes calling for a comprehensive, scaled up and fully funded HIV prevention response.

CHAPTER 7

HARMFUL TRADITIONAL PRACTICES

Learning objectives

- To know the main harmful traditional practices
- To understand the concept, magnitude and effect of violence on women's reproductive health
- To see the problem and types of female genital cutting
- To know the problems associated with early marriage

7.1. Introduction

In April 1997, the World Health Organization, the United Nation's Children's Fund, and the United Nations Population Fund issued a joint statement that summarized the importance as well as the challenges inherent to addressing harmful health practices: "Human behaviors and cultural values have meaning and fulfill a function for those who practice them. People will change their behavior when they understand the hazards and

indignity of harmful practices and when they realize that it is possible to give up harmful practices without giving up meaningful aspects of their culture." Health professionals worldwide struggle with how to address harmful health practices. The basic question of whether a practice is harmful or necessary is often hotly debated—debates that sometimes rely on simplistic divisions between "Western" and local medical values. In many cases, this division masks more complicated reasons for defending harmful practices, the victims of which tend to be women and children and others who are less powerful in their society. These reasons often include power struggles, local and national politics, and/or lack of understanding about the risks of the practice. Sometimes a harmful practice is so deeply rooted that it seems impossible to change. But in every country people have pushed forward positive social changes, and harmful practices have been ended. For example, foot binding was once the norm in many parts of China. Women without tiny, hobbled feet were considered unmarriageable. Women were completely dependent on men since they were unable to walk well. Yet, the practice was eliminated in a short time, in conjunction with major political, social, and economic

changes in that society. In the nineteenth-century Europe, women endured pain and physical damage from constrictive whalebone corsets which caused their waists to appear slim. This practice was also recognized as dangerous, and fell out of favor. At the same time, Western medicine is recognizing the benefits of some traditional health practices, which fall into an overarching category described by some as "Indigenous Knowledge." Traditional plants are being researched by drug companies, and the health benefits of non-Western therapies such as Indian yoga, Chinese acupuncture, and African community support systems are increasingly being recognized. As leaders in Western medicine learn more about helpful traditional practices, and vice versa, health professionals in all countries can draw from the best of these worlds in order to help their clients make healthy choices.

Harmful Practices

- Female genital mutilation: primarily in Africa
- Early marriage: Asia, the Middle East, Africa
- Severely restricted weight gain during pregnancy: Philippines, France, other countries

- Withholding colostrum (initial breast milk with special nutritional value) from newborn: China, Guinea Bissau
- Low levels of breast feeding: United States, France, other European countries
- Postpartum nutritional restrictions: Latin America
- Vaginal douching: United States, selected European countries, other countries
- "Dry sex" practices (removal of vaginal fluid with absorbent materials): Africa, Latin America, Southeast Asia
- Breast and penis implants: United States, Europe, Southeast Asia, other countries

7.2. Violence against Women

Globally, at least one in three women has experienced some form of gender-based abuse during her lifetime. Violence against women is any act of gender-based violence that results in, or is likely to result in, physical, sexual, psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty, whether occurring in public or

private life. Abuse of women and girls is best understood within gender framework because it stems in part from women's and girls' subordinate status in the society. In addition to causing injury, violence increases women's long-term risk of a number of other health problems, including chronic pain, physical disability, drug and alcohol abuse, and depression. Women with a history of physical or sexual abuse are also at increased risk for unintended pregnancy, sexually transmitted infections, and adverse pregnancy outcomes. Females of all ages are victims of violence, in part because of their limited social and economic power compared with men.

Violence against women (VAW) encompasses, but is not limited to:

- Spousal battering
- Sexual abuse of female children
- Dowry-related violence
- Rape including marital rape
- Traditional practices harmful to women such as FGM

- Non-spousal violence
- Sexual harassment and intimidation at work and in school
- Trafficking in women
- Forced prostitution
- Violence perpetrated or condoned by the state, such as rape in war
- In the 1990s, Violence against women, VAW emerged as a focus of international attention and concern
 - In 1993, the UN General Assembly passed the Declaration on the Elimination of Violence against Women.
 - The Cairo Program of Action recognized gender-based violence as an obstacle to women's reproductive and sexual health and rights.
 - The Beijing Declaration and Platform for Action devoted an entire section to the issue of violence against women.

- In 1996, the 49th World Health Assembly adopted a resolution declaring violence a public health priority.
- In 1999, the United Nations Population Fund declared VAW a public health priority.

7.2.1. Magnitude of the Problem

Violence against women (VAW) is the most pervasive, yet least recognized human rights abuse in the world. Around the world, at least one woman in every three has been beaten, coerced into sex or otherwise abused in her lifetime. Two of the most common forms of violence against women are abuse by intimate partner violence (IPV) and coerced sex.

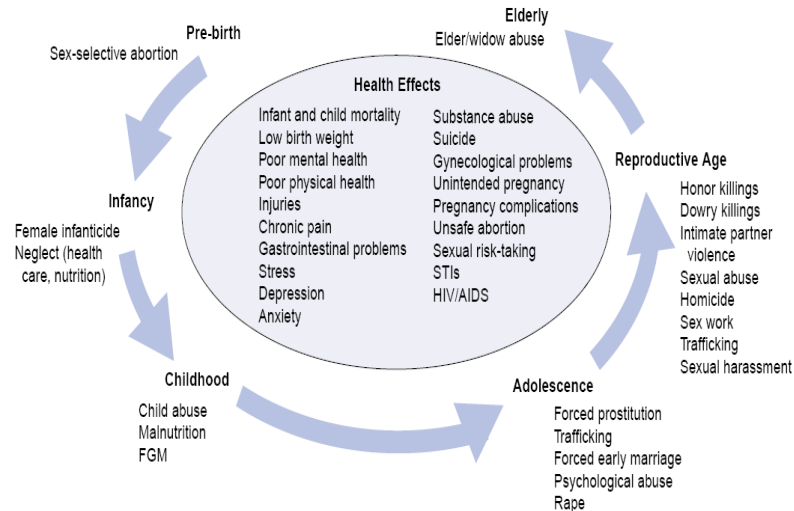
I. Intimate Partner Violence (IPV)

Intimate partner violence occurs in all countries, irrespective of social, economic, religious or cultural group. Although women can be violent in relationships with men, and violence is also sometimes found in same-sex partnerships, the overwhelming burden of partner violence is borne by women at the hands of

men. A multi-country population-based household surveys in 15 countries reported life-time prevalence of physical or sexual partner violence, or both from 15 % to 71 %, between 4 % and 54 % reported violence in one year. Although intimate partner violence is a common cause of injury in women, injury that requires treatment is not the most common outcome of such violence. Thus, increasingly emphasis has been placed on early identification of women during antenatal care, other obstetric or gynecological consultation, primary health-care, and mental health-services.

In Ethiopia, the life-time prevalence of physical and sexual violence were reported to be 48.7% and 58.6%, while the corresponding rates for the previous year were 29.0% and 44.4%, respectively. The proportion of women reporting life-time and current experience of either physical or sexual partner violence, or both was 70.9% and 53.7%. Research suggests that physical violence in intimate relationships is often accompanied by psychological abuse and in one-third to over one-half of cases by sexual abuse.

Figure 4: The Life Cycle of Violence Against Women and its Effects on Health*



*The categories of abuse and resulting health effects listed here are representative, not comprehensive.

Based on information from Watts and Zimmerman, 2002³ and Campbell, 2002.⁴

Events Triggering Violence

A wide range of studies have produced a remarkably consistent list of events that are said to trigger partner violence. These include:

- Not obeying the man
- Arguing back
- Not having food ready on time
- Not caring adequately for the children or home
- Questioning the man about money or girlfriends
- Going somewhere without the man's permission
- Refusing the man sex
- The man suspecting the woman of infidelity

In many developing countries, women often agree with the idea that men have the right to discipline their wives, if necessary by force. The EDHS 2005 reported that 81

% of women believed a man is justified in beating his wife at least for one reason. The most widely accepted reasons for wife-beating are going out without telling the partner and neglecting the children (about 64 percent).

II. Sexual Coercion

Sexual coercion exists along a continuum, from forcible rape, to non-physical forms of pressure that compel girls and women to engage in sex against their will. The touchstone of coercion is that a woman lacks choice and faces severe physical and social consequences if she resists the sexual advances.

Sexual violence includes:

- Rape within marriage or dating relationships
- Rape by strangers
- Systematic rape during armed conflict
- Sexual harassment
- Sexual abuse of children
- Forced first sex
- FGM

- Forced marriage
- Denial of the right to use contraception

III. Impact on Health

- **Physical:** injuries, bruises, chronic pain syndromes, disability, fractures, GI disorders, irritable bowel syndrome, reduced physical functioning
- **Sexual and reproductive health:** gynecological disorders, infertility, PID, pregnancy complications/miscarriage, sexual dysfunction, STIs including HIV/AIDS, unsafe abortion and unwanted pregnancy
- **Psychological and behavioral:** alcohol and drug abuse, depression and anxiety, poor self-esteem, psychosomatic disorders, unsafe sexual behavior, phobias and panic disorder
- **Fatal health consequences:** AIDS-related mortality, maternal mortality, homicide, and suicide

Impact on Reproductive Health

- Women who live with violent partners have a difficult time protecting themselves from unwanted pregnancy or disease.
 - Violence can lead directly to unwanted pregnancy or STIs, including HIV infection, through coerced sex, or else indirectly by interfering with a woman's ability to use contraceptives, including condoms.

- One in every four women is physically or sexually abused during pregnancy, usually by a partner.
 - Violence during pregnancy has been associated with miscarriage, late entry into prenatal care, stillbirth, premature labor and birth, fetal injury, and low birth weight.

What Can Be Done Against Gender Based Violence (GBV)?

- **Initiatives against gender-based violence** take many forms, including police and judicial reforms, legislative initiatives, community mobilization to encourage behavior change, and the reorientation of health services.
- The most effective approach is **integrated and multi-level**: in the short term it provides services for victims and punishes perpetrators, while in the long term it addresses the social and economic determinants of violence.
- Prevention strategies also need to focus on:
 - Empowering women and raising their status
 - Combating norms of violence, and
 - Reducing poverty and alcohol consumption
- PAHO's integrated strategy to address gender-based violence, which was developed and tested in Central America, operates at four different

levels: **the community, the clinic, the health sector, and the macro or political level**

Health care providers can do:

Health care providers can play a crucial role in addressing violence against women because health care providers often are well placed to recognize victims of violence and to help them. Since violence increases the risk of other health problems for women, early help can prevent serious conditions that follow from abuse.

Health care providers can help solve the problem of violence against women if they learn how to ask clients about violence, if they become better aware of signs that can identify victims of domestic violence, and help women protect themselves by developing a personal safety plan.

Health workers can educate themselves about physical, sexual, and emotional abuse, and explore their own biases, fears and prejudices. They can also provide supportive, non-judgmental care to victims of violence and ask clients about in a friendly, gentle way.

Leaders of Reproductive Health Programs Can:

- ❑ Establish policies and procedures to ask women clients about abuse
- ❑ Establish protocols that clearly indicate appropriate care and referral for victims of violence
- ❑ Promote access to emergency contraception
- ❑ Lend facilities to women's groups seeking to organize support groups and to hold meetings

Why have health care providers been slow to address violence against women?

- Lack of technical competence and resources
- Cultural stereotypes and negative social attitudes
- Institutional constraints
- Women's reluctance to disclose violence

HCPs can **screen** women for domestic violence when they come for:

- Antenatal and postnatal care
- Reproductive health services: Family planning and prevention of STIs
- Mental health services
- Emergency departments

Supporting Women Who Disclose Abuse

- Assess for immediate danger
- Provide appropriate care
- Document women's condition
- Develop a safety plan
- Inform women of their rights
- Refer women to community resources

Moving outside the clinic

- Community health promotion
- Communication campaigns

7.3. Female genital mutilation (FGM)

It is estimated that at least 2 million girls are at risk of female genital mutilation (FGM) each year. FGM is practiced in at least 26 of 53 African countries. Prevalence varies from 98 percent in Somalia and 97 percent in Egypt to 5 percent in Uganda. The practice is also found among some ethnic groups in Oman, the United Arab Emirates, and Yemen, as well as parts of India, Indonesia, and Malaysia. FGM has become a health and human rights issue in Australia, Canada, England, France, and the United States, due to the continuation of the practice by immigrants from countries where FGM is common.

FGM comprises all procedures involving partial or total removal of the external female genitalia or other injuries to the female genital organs for cultural or non-therapeutic reasons. In 1995, the World Health Organization developed the following four broad categories for FGM operations:

Type I: Excision (removal) of the clitoral hood with or without removal of part or the entire clitoris.

Type II: Removal of the clitoris together with part or all of the labia minora.

Type III (infibulation): Removal of part or all of the external genitalia (clitoris, labia minora, and labia majora) and stitching and/or narrowing of the vaginal opening leaving a small hole for urine and menstrual flow.

Type IV (unclassified): All other operations on the female genitalia, including pricking, piercing, stretching, or incision of the clitoris and/or labia; cauterization by burning the clitoris and surrounding tissues; incisions to the vaginal wall; scraping (angurya cuts) or cutting (gishiri cuts) of the vagina and surrounding tissues; and introduction of corrosive substances or herbs into the vagina.

These procedures are not reversible, and their effects last a lifetime. Type I and II account for up to 85 percent of FGM operations. Type III is common throughout

Djibouti, Somalia, and Sudan, as well as in parts of Egypt, Ethiopia, and Kenya. While health complications occur most frequently with Type III operations, they occur with all types and can lead to death.

Health consequences of FGM seem to vary according to the type and severity of the procedure. Complications may range from immediate, such as bleeding and shock, to a wide range of longer-term problems for women and their newborn children. Psychological effects may be profound and permanent. Additionally, FGM may increase the risk of HIV or Hepatitis B, due to unclean conditions often associated with the procedure.

Global efforts to promote alternatives to FGM are increasing

Efforts to promote alternatives to FGM are increasing worldwide. International health organizations and conventions have uniformly condemned the procedure. The 1994 Programme of Action of the International Conference on Population and Development (ICPD) included a recommendation to ". . . urgently take steps to stop the practice of female genital mutilation and to

protect women and girls from all such similar unnecessary and dangerous practices." The 1995 Platform for Action of the Fourth World Conference on Women urged governments, international organizations, and nongovernmental groups "to develop policies and programmes to eliminate all forms of discrimination against the girl child, including female genital mutilation." FGM is recognized as a human rights violation in the U.S. State Department's annual country reports. In 1997 United Nations agencies (WHO, UNICEF, and UNFPA) issued a joint position paper and are increasing their efforts to eradicate FGM.

7.4. Early Marriage (EM):

It has been a common practice, particularly in much of rural Ethiopia to get girls married at an early age as 10 – 15 years old. The young adolescent or preadolescent girl is not ready physically and psychologically for intercourse, pregnancy, child bearing and child rearing.

Some of the reasons for early marriage are:

- Parents desire to see the marriage of their daughters and their grandchild before they die
- Strengthen the family or business ties between the two parties to be married
- Avoid the possibility of a daughter not getting married or becoming not eligible for marriage
- Avoid premarital sex or loss of virginity and its consequences

Harmful effects of early marriage include:

- Psychological effect on the girl bride leading to different somatic problems. The small genitalia are traumatized ending up in tears, bruising, cystitis, and damage to the urethra.
- Preclampsia, prolonged and obstructed labour leading to fistula formation
- Haemorrhage and shock at delivery
- Still born babies
- Loveless marriage often ending in divorce

- Difficulty in managing a household by the young girl
- Deprivation of the girl of her education leading to poor opportunity for employment and gainful income

Marriage by abduction

Is a gross violation of women's rights. It has been common in some parts of Ethiopia. In some cases the girl may be willing and ready to proceed with the marriage. In these cases, the consequences are less grave. However, when the girl objects and fights against the abductors she can be severely hurt and even get killed.

Reasons for Marriage by Abduction:

- Refusal or anticipated refusal of consent by parents or girl
- Avoid excessive wedding ceremony expenses
- Ease the economic burdens of the conventional bride price

- Outsmart rivals when the girl has many suitors and/or the inclinations of the girl or her parents are not predictable
- Difference of ethnic origins or economic status of partners may also be reasons for possible abduction.

Harmful effects of marriage by abduction

- Battering, inflicting bodily harm, suffocation, and severe disabilities and death may ensue.
- Conflict created between families may lead to feuding lasting for generations. There are incidents of ethnic conflicts due to marriage by abduction
- The outcome may be an unhappy, unstable and loveless marriage
- Psychological stress on the girl. Might end up in suicide.
- There are large expenses related to conflict settlements as compensation to the family or for court cases

- Discontinuation of schooling and other opportunities for the girl.

Other harmful traditional practices that are prevalent in Ethiopia include Uvulectomy, milk teeth extraction, food prohibitions for mothers, eye brow incision, and soiling the umbilicus of the new born with cow dung. Each of these traditional practices have mistakenly perceived advantages.

Uvulectomy is supposed to prevent problems of feeding (swallowing), avoid noisiness and improve speech. Milk teeth extraction is assumed to prevent diarrhoea and cure various diseases. Eye brow incision is undertaken to prevent eye diseases and blindness. Certain food items which contain important nutrients are believed to cause diseases in women and children. These harmful traditional beliefs and practices might result in serious health outcomes including serious bleeding, acquiring dangerous and fatal infection and malnutrition.

Suggested intervention strategies to minimize and eliminate harmful traditional practices include:

- Educate the community and the leaders by using acceptable and effective methods
- Provide legal support against the negative aspects of traditional practices and formulate legislative measures to eliminate them
- User friendly health facilities to deal with problems related to harmful traditional practices
- Endeavour to educate practitioners of harmful traditional practices about the dangers of such practices
- Imposing punishment on such practitioners if they persist with the practice
- Should a victim be willing to testify or discuss his/her dilemma, on the case to the public as example to others.

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CHAPTER 8

ADOLESCENT REPRODUCTIVE HEALTH

Learning objectives

At the end of the chapter, the student is expected to:

- Understand why RH focuses on adolescents
- Know the RH risks and consequences in adolescents
- Discuss the challenges of adolescent RH
- Have some concept about adolescent RH services

Definition:

World Health Organization defines adolescents as individuals between 10 and 19 years of age. The broader terms "youth" and "young" encompass the 15 to 24 year-old and 10 to 24 year-old age groups, respectively.

For girls, puberty is a process generally marked by the production of estrogen, the growth of breasts, the appearance of pubic hair, the growth of external genitals, and the start of menstruation. For boys, it is marked by the production of testosterone, the enlargement of testes and penis, a deepening of the voice and a growth spurt.

Why Focus on Young People?

- Young people constitute a large and growing segment of the population.

At the turn of 21st century 1.7 billion people were between the ages of 10 and 24.

- Eighty six percent of these live in less developed countries.
 - In Ethiopia, young people age 10-24 constitute more than a third of the population.
- Certain health problems (like STIs and HIV) are more prevalent in this age group

- Behaviors starting in adolescence frequently lead to health problems, which may emerge in later life, at immense cost to the individual and their society.
- While young people face many new problems, there are also new opportunities which if combined with the energy and creativity of young people can bring tremendous dividends and can help them play vital role in their family and to the society as a whole.
- Future economic development depends on having increasing proportion of reasonably well educated, healthy and economically productive population.

8.1. Global Youth Today

The current generation of young people is the healthiest, most educated, and most urbanized in history. However, there still remain some serious concerns:

Education: Despite increasing attention given worldwide to education, 121 million children worldwide are out of school, with 9 million more girls than boys. As

of 2003/4, the net enrollment ratio in primary education was 86 % for developing countries and 64 % for sub-Saharan Africa. The net enrollment ratio for Ethiopia is 42.3 %. In the least developed countries, only 22 percent of boys and 13 percent of girls are able to continue their education beyond the primary level. In Ethiopia, the net attendance ratio for secondary school is only 15.6 %. The gap between boys' and girls' enrollment is most apparent at the secondary level. In Ethiopia, the ratio of girls to boys is 0.91 in primary education and 0.65 in secondary education. Youth with low levels of education experience severely limited future prospects for economic self-sufficiency. Educating girls is essential to reducing child mortality, HIV/AIDS, and other diseases. Furthermore, educated women will most likely have healthy children who will complete schooling. Decades of research have shown that educated women have greater control of their reproductive lives, such as decisions about the number and spacing of their children.

Sexuality: Globally, most people become sexually active during adolescence. Premarital sexual activity is common and is on the rise worldwide. Rates are highest in sub-Saharan Africa, where more than half of girls aged 15-19 are sexually experienced. Millions of adolescents are bearing children, in sub-Saharan Africa, more than half of women give birth before age 20. In Latin America and the Caribbean, this figure drops to one third. For example, unwanted and out of wedlock pregnancy, is poorly tolerated in many societies. If it happens, the blame is usually put on the girl and regarded as disgrace to the family and reduced chance of getting husband. The traditional society solves this problem or conflict by early marriage. The need for improved health and social services aimed at adolescents, including reproductive health services, is being increasingly recognized throughout the world. Approximately one billion people – nearly one out of every six persons on the planet are adolescents; 85 percent live in developing countries. Many adolescents are sexually active and, in some regions, as many as half are married.

Health: Sexual activity puts adolescents at risk of various reproductive health challenges. Each year, about 15 million adolescents aged 15-19 years give birth, as many as 4 million obtain an abortion, and up to 100 million become infected with a curable sexually transmitted disease (STI). Globally, 40 percent of all new human immunodeficiency virus (HIV) infections occur among 15-24 year olds; recent estimates are that 7,000 are infected each day. These health risks are influenced by many interrelated factors, such as expectations concerning early marriage and sexual relationships, access to education and employment, gender inequities, sexual violence, and the influence of mass media and popular culture.

Challenges: Adolescents often lack basic reproductive health information, skills in negotiating sexual relationships, and access to affordable, confidential reproductive health service. Incompetent providers further limit access to services where they exist, as do legal barriers to information and services. Many adolescents lack strong stable relationships with parents

or other adults whom they can talk to about their reproductive health concerns.

Despite these challenges, programs that meet the information and service needs of adolescents can make a real difference. Successful programs help young people develop life-planning skill, respect the needs and concerns of young people, involve communities in their efforts, and provide respectful and confidential clinical services.

Characteristics of the adolescence period

The period is characterized by:

- The period when the individual progresses from the point of initial appearance of secondary sex characteristics to sexual maturity.
- It is period when psychological processes and patterns of identification to those of an adult.
- Transition from the state of total socio-economic dependence to relative independence.

- Period of rapid physiological changes and vulnerability to physical, psychological and environmental influences.
- Period of physical, biological, psychological and social maturity from childhood to adulthood.

Transition from childhood to adulthood involves adjustment encompassing physiological, psychological, cognitive, social and economic changes. The process is universal, but varies by individual and culture.

Table 5: Effects of social environment on adolescent RH behavior

Factors	Positive influences	Negative influences
Education	Good health and sex education followed by correct behavior	Early unwanted pregnancy, school dropping, unemployment, prostitution, drug abuse, crime, etc,
Media	Spread information on healthy sexuality	Pornography, smoking, crime (films, papers, advertisement)
Entertainment	Sports, in door games, educational films	Crimes, drugs and alcohol abuse, prostitution, early sexual activities
Family	Integrated stable families are role models. They can give appropriate information and guidance on healthy life style	Abusive behaviour in families Disintegrated families

Reproductive Health

Residence	Healthy neighborhood	"negative neighborhood" e.g. prostitution areas
Religion	Spiritual support Facilitation of the adolescents in different activities	Prohibition of information on sexuality
Health services	Accessible information and services for adolescents	Negative attitudes of health professionals on adolescent sexuality

Sexual activity among women 15-19

Country	Married	single, sexually active
Botswana	6%	60%
Kenya	20 %	26%
Costa Rica	18%	11%
Jamaica	20%	35%
Bangladesh	48 %	NA
Indonesia	18%	NA
United States	5%	52%

8.2. Reproductive Health Risks and consequences for adolescents

Adolescent reproductive health is affected by pregnancy, abortion, STIs, sexual violence, and by the systems that limit access to information and clinical services. Reproductive health is also affected by nutrition, psychological well-being, and economic and

gender inequities that can make it difficult to avoid forced, coerced, or commercial sex.

8.2.1. Pregnancy:

In many parts of the world, women marry and begin childbearing during their adolescent years. Pregnancy and childbirth carry greater risk of morbidity and mortality for adolescents than for women in their 20s, especially where medical care is scarce. Girls younger than age 18 face two to five times the risk of maternal mortality as women aged 18-25 due to prolonged and obstructed labor, hemorrhage, and other factors. Potentially life-threatening pregnancy-related illnesses such as hypertension and anemia also are more common among adolescent mothers, especially where malnutrition is endemic. One in every 10 births worldwide and 1 in 6 births in developing countries is to women aged 15-19 years.

Unsafe abortion: About one in 10 abortions worldwide occurs among women age 15-19 and each year one million to 4.4 million adolescents in developing countries undergo abortion, and most of these procedures are performed under unsafe conditions due to:

- Lack of access to safe services.
- Self-induced methods
- Unskilled or non-medical providers
- Delay in seeking procedure

Adolescent unwanted pregnancies often end in abortion. Surveys in developing countries show that up to 60 percent of pregnancies to women below age 20 are mistimed or unwanted. In Canada, Great Britain, New Zealand, and the United States in the late 1980s, more than 50 percent of all abortions occurred in women under 25. Pregnant students in many developing countries often seek abortions to avoid being expelled from school.

For example, the percentage of women aged 20-24 who gave birth by age 20, in some regions are shown below: **China 14%, Latin American/Caribbean 27-50%; North Africa/Middle East 13-41%; Sub-Saharan African 25-75%, South Asia 16-66%; Southeast Asia 21-33%; United States 22%.**

Induced abortion often represents a greater risk for adolescents than for older women. Adolescents tend to wait longer to get help since they cannot access a provider or because they may not realize that they are pregnant; this risk is compounded in conditions. In Nigeria, for example 50-70 percent of mothers hospitalized for complications of induced abortion are younger than 20; 3 of 5 women seeking health care for unsafe abortion in developing countries are under 20. Some of the complications of abortion are infection, hemorrhage, and intestinal perforation, injury to reproductive organs and toxic reactions to drugs. These complications can result in infertility, psychological trauma or death.

Reproductive Health

Every day, 55,000 unsafe abortions take place-95% of them in developing countries. They are responsible for one in eight maternal deaths. Globally, one unsafe abortion takes place for every seven births.

Table 6: Unsafe abortion: Regional Estimates of Mortality and Risk of Death

Region	Risk of dying after unsafe abortion	% of maternal deaths due to unsafe abortion
Africa	1 in 150	13 %
Asia	1 in 250	12 %
Latin America	1 in 900	21 %
Eastern Europe	1 in 1900	17 %

8.2.2. STIs, including HIV/AIDS

The highest rates of infection for STIs, including HIV, are found among young people aged 20 to 24; the next

highest rate occurs among adolescents aged 15 to 19. Sexually transmitted infections can lead to life-long health problems, including infertility. Worldwide, half of all sexually transmitted infections occur in adolescents. Approximately 333 million cases of curable STIs occur each year and each day half a million young people are infected with a sexually transmitted diseases, available data suggest that one-third of STIs infections in developing countries occur among 13-20 year olds, one out of every 20 adolescents contracts STI,. In rural Kenya, for example, 41 percent of women aged 15-24 attending maternal and child health or family planning clinics had STI, compared to about 16 percent of all women of reproductive age. Adolescents also are at increased risk of contracting HIV/AIDS. Recent estimates are that over 40 percent of HIV infections occur in young people aged 15-24; 7,000 of 16,000 new infections each day. New infections among females outnumber males by a ratio of 2 to 1.

Young people tend to be at higher risk of contracting STIs, including HIV/AIDS, for several reasons. Intercourse often is unplanned or unwanted. Even when she is consensual, adolescents often do not plan ahead for condom or other contraceptive use, and inexperienced users are more likely to use methods incorrectly. Furthermore, adolescent girls are at greater risk of infection than older women because of the immaturity of their reproductive system. Other reasons are little knowledge of STIs, failure to seek treatment, multiple partners, partners with multiple partners and use of drug and alcohol.

8.2.3. Female Genital Cutting (FGC)

FGC, the partial or complete removal of external genitalia or other injuries to the female genitalia, is a deeply rooted traditional practice that has severe reproductive health consequences for girls. In addition to the psychological trauma at the time of the cutting, FGC can lead to infection, hemorrhage, and shock. Uncontrolled bleeding or infection can lead to death

within hours or days. Some forms of FGC can lead to Dyspareunia, recurrent pelvic infection, and dystocia. The ICPD Programme of Action calls FGC a basic human rights violation and urges governments to stop the practice. In some countries, such as India arranged marriage of girl younger than 14 is still common.

8.2.4. Commercial Sex

- Sexual exposure is occurring at ages as young as 9-12 years as older men seek young girls as sexual partners to protect themselves from STD/HIV infection. In some cultures, young men are expected to have their first sexual encounter with a prostitute.
- Adolescents, especially young girls, often experience forced sexual intercourse in sub-Saharan Africa, some girls' first sexual experience is with a sugar daddy, who provides clothing, school fees, and books in exchange for sex.

- Millions of children live and work on the streets in developing countries and many are involved in “survival sex”, where they trade sex for food, money, protection or drugs. For example, a survey in Guatemala City found that 40 percent of 143 street children surveyed had their first sexual encounter with someone they did not know; all had exchanged sex for money, all had been sexually abused, and 93 percent had been infected with an STD. In Thailand, an estimated 800,000 prostitutes are under age 20; of those, 200,000 are younger than 14. Some are sold into prostitution by parents to support other family members.

8.2.5. Sexual violence

Sexual abuse occurs worldwide. One-third of teenagers experience abuse, with in heterosexual relationships, in United States. Rape and involuntary prostitution can result in physical trauma, unintended pregnancy, STIs, psychological trauma and increased likelihood of high-risk sexual behavior.

8.2.6. The health risks of adolescent sexuality is more than older people

1. Maternal death: Girls aged 15-19 are up to twice as likely to die during pregnancy or delivery as women aged 20-34.

Maternal mortality per 100,000 live births by age group: younger versus older mothers

Country	20-34 years	15-19 years
Ethiopia	435	1270
Indonesia	575	1100
Bangladesh	479	869
Nigeria	223	526
Brazil	80	108

- 2. Infant and child mortality:** children born to adolescents are more likely to die during their first five years of life than those born to women age 20-29.

- 3. Sexually transmitted infections (STIs):** each year, 1 in 20 adolescents worldwide contracts STIs (including HIV/AIDS).

- 4. Violence/sexual abuse:** Adolescent girls may lack the confidence and decision-making skills to refuse unwanted sex.

- 5. Unwanted pregnancy**

Every year, approximately 50 million unwanted pregnancies are terminated. Some 20 million of these abortions are unsafe. About 95 % of unsafe abortions take place in developing countries, causing the deaths of at least 200 women each day. Many adolescents face unintended births for example in sub-Saharan Africa about 50 % of last births in women under 20 years were

unintended, in Latin America about 30 % of last births in women under 20 years were unintended.

6. Psychological and socio-economic consequences of pregnancy for unmarried adolescents

- Psychological stress, poor self esteem, lack of hope and social stigma
- Disrupted education, poor academic achievement
- Leaving home and prostitution
- Poor socio-economic future, poor earning capacity: fewer career or job opportunities.
- Unstable marriage
- Unwanted child- mistreated, abandoned
- Their children face psychological, social and economic obstacles

8.3 Causes for early unprotected sexual intercourse in adolescents

- Lack of knowledge on physiology of the reproductive system and human sexuality
- Declining age of menarche
- Early marriage
- Urbanization, migration, (western cultural influences)
- Sexual violence and coercion
- Peer influence
- Lack of knowledge on family planning
- Unavailability and inaccessibility (including culturally) of services
- (negative) attitude of the society (including service providers) towards use of family planning services by the adolescents

- Sense of guilt, fear of discovery, disapproval or rejection

8.4 Effects of gender roles

- Expectations of sexual activity of boys and girls
- Views regarding responsibility for contraception
- Social consequences of pregnancy

Factors affecting RH needs of adolescents

- Age
- Marital status
- Gender norms
- Sexual status
- School status
- Child bearing status
- Rural/urban residence
- Peer pressure
- Cultural/ political conditions

8.5 Adolescents' contraceptive use

Few married adolescents use contraception before first pregnancy. After becoming sexually active, unmarried adolescents delay use of contraceptives for about a year. Two common reasons for non-use of contraceptives among youth are:

- Did not expect to have sex
- Lacked knowledge about contraception

8.5.1 Barrier to Contraceptive Use

Adolescents' contraceptive use is limited due to:

- Do not plan ahead or anticipate consequences
- Think they are not at risk
- Lack of confidence or motive to use
- Embarrassed or not assertive
- Lack power and skill to negotiate use
- Clinics not friendly to adolescent's use

- Providers reluctance to serve unmarried adolescents
- Prohibition by law/policy to serve adolescents
- Adolescent's reluctance to use service for fear of judgment or concerned about having pelvic examination

8.6 Adolescent Reproductive Health Services

8.6.1. Making clinical services available

Adolescent clinical health services are best staffed by providers trained to deal with specific adolescent health concerns and to counsel adolescents about sensitive reproductive health issues and contraceptive use. In all interventions, providers must consider adolescents' marital status, over all health, and how much power they have in sexual activity. Adolescents often name the following characteristics as important to meeting their

health needs confidentiality; convenient location and hours; youth friendly environment; open to men and women; strong counseling component; specially trained providers; and comprehensive clinical service.

8.6.2. Providing information

Providing appropriate and relevant information about reproductive health is essential to any program. Clinic-based education and counseling are important to this effort, as are school-based programs. Obviously, parents are a key source of information, although they may feel ill-informed or embarrassed to discuss these topics with their children, or simply may disapprove of young people expressing an interest in sexuality. Youth-friendly approaches such as radio call-in shows, drop-in centers, magazines, and hotlines also can be effective strategies for reaching adolescents.

Adolescents need to develop practical skills for improving their health. One approach to this challenge is the “Choose a Future” program to be implemented such

as exercises, role-plays, and community visits, and other means to teach health skills, including how to avoid STDs, set goal, and improve communication with family and friends. The curriculum should also address gender inequities that affect health and promotes shared male-female responsibility for health. Another example of this approach is a life planning skills curriculum being implemented in selected secondary schools in Kenya. In addition to providing information about STDs, pregnancy, and contraception, the program should train peer educators to provide school based AIDS education.

The perspectives of young people around the world are molded by the situations in which they live. Girls with little, if any, education may view early marriage and childbearing as their only path in life. Children living in poverty may feel no reason to plan for the future and protect their health. Other factors that influence adolescent health and behavior include:

- Gender inequities and sexual exploitation
- Cultural expectations about childbearing.

Program planners must first identify clearly what group of adolescents a new program will serve, and then involve them in a meaningful way in the development of the program. Some organizations like the International Planned Parenthood Federation have done this by creating youth advisory panels to help shape program ideas. The Street Children project, initiated by WHO's Programme on Substance Abuse recommends that groups working with street children keep current of changing needs among their clients by holding three or four series of focus groups per year.

Open, discussions on sexuality are:

- Difficult topic to discuss openly for both adolescents and adults
- Includes a wide range of issues, such as peer pressure, sexual identity, sexual orientation, sexual capability, and sexual coercion.
- Helps adolescents understand and express their feelings.

- Promotes responsible sexual behavior thus helps prevent unintended pregnancy and STDs.

Early sex education

- Gives adolescents skills to delay sexual activity
- Does not lead to earlier or increased sexual activity
- Can increase contraceptive use

Health clinic Designed for adolescents:

- Separate units for adolescents
- Outreach clinics with specially trained staff
- Mobile clinics
- Special hours
- Convenient and safe locations
- Youth-to-youth promotions
- Low or no-cost services

Providers' communications skills:

- Sincerity
- Honesty
- Non-judgmental
- Respect
- Sense of humor
- Confidentiality, very critical

Range of providers are needed to reach adolescents:

- Teachers
- Peer educators
- Health workers
- Community workers

Provider training:

- Technical knowledge
- Knowledge of issues facing adolescents
- Gender awareness
- Counseling skills

- Skills in training adolescents

Important education information topics for adolescents

1. Risks and consequences of sexuality:

- Contraception and STDs
- Sexual education
- Fertility issues for men and women
- Gender issues

2. Potential sites for information and services for adolescents:

- Home
- Health institutions
- School
- Youth organizations
- Mass media

3. Effective programs for adolescents:

- Identify target group and needs
- Involve adolescents

- Work with community and parents
- Use materials designed by and for adolescents
- Make services accessible based on adolescent's preference
- Incorporate evaluation

8.6.3. Ensuring community support

Programs for adolescents often encounter problems gaining community acceptance since adults fear that access to education and services will encourage adolescent sexual activity. Program evaluations have shown this not to be the case. Some programs have found that explaining objectives to parents, religious leaders, and community leaders, and inviting them to discussion sessions with adolescents helps reduce opposition. In Nyeri, the Family Planning Association of Kenya helps parents approach their children to share information about reproductive health issues, and encourages a life-long discussion about reproductive health. In Uganda, the Program for Enhancing

Adolescent Reproductive life involves government representatives, NGOs, community groups, young people, and other in a program to increase awareness about reproductive health issues, encourage advocacy, and provide service.

Establish Youth-oriented clinic services: These are quite common in some developed and developing countries like United States, Western Europe, and Latin America and of course in some parts of Ethiopia. These clinics must provide a wide range of clinical and social services, such as pregnancy and STD prevention counseling and testing.

School-based clinics: Are available in some developed and developing countries. The services provided vary considerably, but at a minimum include basic health monitoring and referral services. In developed countries, some school-based clinics provide condoms and counseling about pregnancy and STD prevention, as well as referral for other contraceptive and reproductive health services. These services often are controversial,

however. In developing countries, school-based services often are limited by restrictive policies, personnel shortages, lack of private areas for counseling, and poor links to resources outside the school. Multi-service youth centers can offer contraceptive services as part of comprehensive programs for youth, including education, recreation, and employment preparation.

Community-based outreach programs: Are especially important to groups such as out-of school youth, "street" youth and girls who have limited freedom to leave their community. These community-based projects use a variety of formats to reach youth where they gather for "work or play". After attending educational sessions, interested members can be made to join a theater group to perform in public areas and schools to provide information to their peers.

Youth groups: such as scouting and sports programs can also be useful in providing reproductive health information as part of programs that focus on the

general well-being of the participants. Programs to improve adolescent reproductive health must understand these risks and consider the many influences on adolescents' lives. Such factors as whether adolescents have initiated sexual activity, are married, are in school, or are working are important. The impact of poverty, gender inequities, legal restrictions, and cultural barriers must also be addressed.

Successful programs should provide necessary counseling and clinical services and aim to help young people develop skills to make healthy life choices. These programs should respect the needs, concerns, and insights of young people by including them in the design and implementation of activities. Successful programs also should work with parents, community groups and religious leaders to secure their acceptance.

Participation: With the need for adolescent health services growing fast, it is important that new and expanded programs build upon successful experience wherever possible; established programs should be

monitored, evaluated, and documented to ensure that their challenges are understood and their successes are replicated. Any health program should focus on decreasing and preventing adolescents problems such as unwanted pregnancy abortion, STIs', early marriage etc... And this can be achieved through life education of adolescents/young people who need knowledge and ready access to appropriate contraception and reproductive health services.

Components of successful adolescent reproductive health programs

Reproductive health programs for adolescents tend to be most successful when they:

- (1) Accurately identify and understand the group to be served;
- (2) involve adolescents in the design of the program;
- (3) work with community leaders and parents;

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- (4) remove policy barriers and change providers' prejudices;
- (5) help adolescents rehearse the interpersonal skills needed to avoid risks;
- (6) Link information and advice to services;
- (7) Offer role models that make safer behavior attractive;
- (8) And invest in long-enough time frames and resources

CHAPTER 9

CHILD HEALTH

Learning objectives

- To know some of the factors that can affect child morbidity and mortality
- To understand childhood diarrhoea and its effect on child health
- To see the problems associated with respiratory infections in children
- To know some of the vaccine preventable diseases
- To understand the concept of expanded programme on immunization
- To understand the concept of growth monitoring in children

9.1 Introduction

Important progress has been made in reducing infant and child mortality globally. Improvements in the survival of children have the main component of the overall increase in average life expectancy in the world over the past century, first in developed countries and over the past 50 years in the developing countries. Infant mortality rate declined from 92 in 1970 – 75 to about 62 in 1990 –95. However, improvements have been slower in sub – Saharan African and in some Asian countries where, during 1990 – 95, more than 1 in every 10 children born alive died before their first birthday.

Poverty, malnutrition, a decline in breastfeeding and inadequacy or lack of sanitation and of health facilities are factors associated with high infant and child mortality. In some countries, civil unrest and wars have also had major negative impacts on child survival. Unwanted births, child neglect and abuse are factors contributing to the rise in child mortality. Young children

whose mothers die at a very young age are at very high risk of dying themselves. Child survival is also closely linked to the timing, spacing and number of births and to the reproductive health of mothers. Early, late, numerous, and closely spaced pregnancies are major contributors to high infant and child mortality and morbidity rates, especially where health care facilities are scarce. First births carry higher risk than average birth risks. First births may occur before a woman has reached full physical and reproductive maturity, leading to increased perinatal risks. Further, first time mothers are often ill prepared to handle their new role.

Even though very young and older maternal ages at birth will continue to be associated with heightened risk of childhood mortality, the relationship will be expected to vary considerably between different countries. Where infant mortality remains high, couples often tend to have more children than they otherwise would to ensure that a desired number survive.

The determinants of child mortality can be divided into three levels as indicated in the following table:

<p>Ecology</p> <ul style="list-style-type: none">Social and Cultural SystemSanitation <p>Economic factors</p> <ul style="list-style-type: none">Political SystemSource of water supplyAdministration of agriculture & other programsLatrine availability <p>Housing characteristics</p> <ul style="list-style-type: none">Household division of labourHousehold decision-makingOccupation, literacy, social position,Other parental factorsFood production by householdDistribution of food within the household	ULTIMATE
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Reproductive Patterns (mother's age at birth, spacing...)

Infant care practices
Exposure to pathogens
Feeding frequency, food composition,
Seasonal variation, weaning
Practices

INTERMEDIATE

Low birth weight, Premature birth, Diarrhea,
Malnutrition, lower respiratory tract infections
and other causes

PROXIMATE

9.2. The objectives of child survival and child health of ICPD are:

1. To promote the health and nutritional status of infants and children and reduce disparities between and within developed and developing

countries as quickly as possible, with particular attention to eliminating the pattern of excess and preventable mortality among girl infants and children;

2. To improve the health and nutritional status of infants and children;
3. To promote breastfeeding as a child survival strategy.

The five main killer diseases of children are ARI, diarrhea, measles, malaria and malnutrition and contribute to more than 70% of the deaths in children under five years of age. Globally, malnutrition underlies 50% of all childhood deaths. African children bear much greater than their share of the burden of infectious diseases. The percent of total deaths due to ARI, diarrhea, malaria and measles for sub-Saharan African children is about 37%, 41%, 98%, and 63% respectively. In general, in developing countries 39 out of 1000 live births die

before reaching one month of age and one in every six babies is born under weight.

This picture shows that malnutrition is the central cause of child mortality, but most of the mortalities are not directly because of malnutrition rather it leads to a greater risk of dying from other common illnesses.

A brief discussion of the epidemiology, prevention and control of these diseases follows. Malnutrition will not be discussed (except related issues such as Growth Monitoring) since it is dealt with in a separate course.

Figure 5: Distribution of 10.5 million deaths among children less than 5 years old in all developing countries, 1999

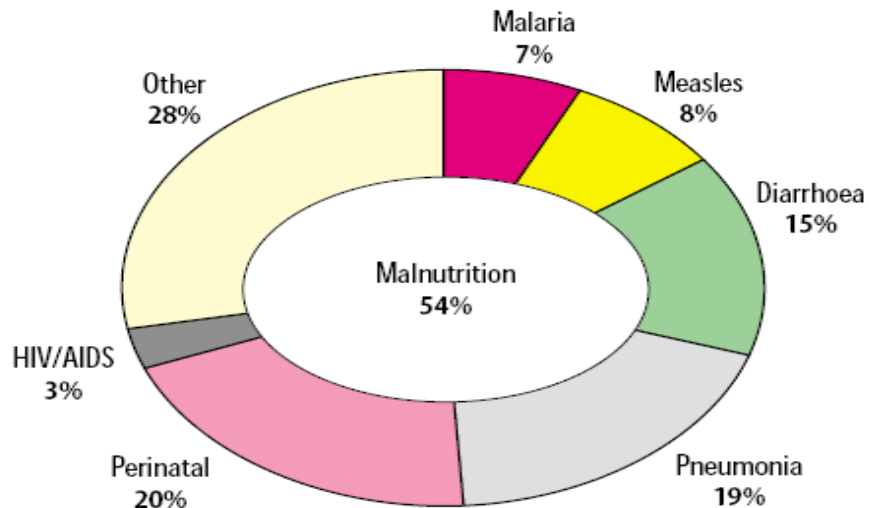
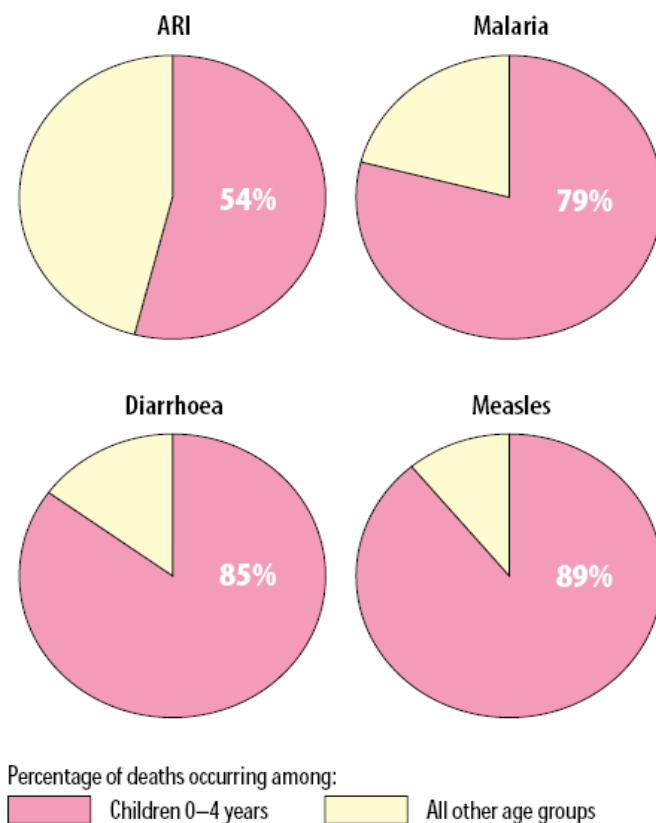


Figure 6: Proportion of Global Burden of Selected Diseases Borne by Children Under 5 Years (Estimated, Year 2000)*



* Adapted from Murray and Lopez, 1996.

9.3. DIARRHOEAL DISEASES

Diarrhoea is commonly defined as three or more loose or watery stools per day. If an episode of diarrhoea lasts for less than 14 days it is known as acute diarrhoea, if it lasts 14 days or more, it is known as persistent diarrhoea. Diarrhoea in children causes dehydration and contributes to malnutrition. The death of a child with acute diarrhoea is usually due to dehydration.

Diarrhoea is the leading cause of illness and death among children in developing countries, where an estimated 1.3 thousand million episodes and 3.2 million deaths occur each year in those under five years of age. Overall, these children experience an average of 3.3 episodes of diarrhoea per year, but in some areas the average exceeds nine episodes per year. The median incidence of diarrhoea is greatest for infants aged 6 - 11 months (5 episodes/child/year). Where episodes are frequent children may spend 15% of their days with diarrhoea. 500 million cases of diarrhoea occur

annually in children under five years old. One fourth to one third of all deaths in children are due to diarrhoea. In developing countries, a third of the paediatric beds are occupied by diarrhoea cases.

The incidence varies with regions and socio-economic conditions, where it is as high as 10 episodes per child/yr among poor children in Latin America. Median global value for mortality due to acute diarrhoea among under five old children ranges from 6 to 19.6/1000 in developing countries.

Over the past 20 years, a number of studies have documented a decline in diarrhoeal mortality over time. E.g. Egypt (1970 - 87) comprehensive national survey showed a fall in infant and child diarrhoeal mortality from 29.1 to 12.3 per 1000 and 4.0 to 2.3 per 1000 respectively. Also data from surveys conducted in 40 Asian and African countries by national CDD programs suggest a decline in mortality over the past decade.

This is speculated to be due to:

- Improved case management
- General improvement in standard of living
- Improved nutrition
- Increase in immunization coverage and the combination of all these factors.

Factors underlying increased risk of diarrhoeal morbidity and mortality are:

- Low socio-economic status
- Poor personal and domestic hygiene
- Low family income
- Living in a crowded room and earthen floor
- Lower maternal education
- Lack of breastfeeding
- Malnutrition - increases severity and duration, also some studies recently (Sudan and Mexico)

have suggested that malnutrition increases the risk of frequent diarrhoeal episodes.

- Low birth weight
- Measles
- Immunodeficiency or immunosuppression – This may be temporary, after certain viral infections (eg measles) or it may be prolonged as in AIDS. When immunosuppression is severe, diarrhoea can be caused by unusual pathogens and may also be prolonged.
- Age – Most diarrhoeal episodes occur during the first 2 years of life. This pattern reflects the combined effects of declining levels of maternally acquired antibodies, the lack of active immunity in the infant, the introduction of food that may be contaminated with faecal bacteria, and direct contact with human or animal faeces when the infant starts to crawl. Most enteric pathogens stimulate at least partial immunity against

repeated infection or illness, which helps declining of disease in order children and adults.

- Seasonality – Distinct seasonal patterns of diarrhoea occur in many geographic areas. In temperate climates, bacterial diarrhoeas, particularly diarrhoea caused by rotavirus occurs throughout the year, increasing in frequency during the drier, cool months, whereas bacterial diarrhoeas peak during the warmer, rainy season. The incidence of persistent diarrhoea follows the same seasonal pattern as that of acute watery diarrhoea.

Asymptomatic Infections

Most enteric infections are asymptomatic, and the proportion that is asymptomatic increases beyond 2 years of age owing to the development of active immunity. During asymptomatic infections, which may last for several days or weeks, stools contain infectious viruses, bacteria, or protozoa cysts. People with asymptomatic infections play an important role in the

spread of many enteric pathogens, especially as they are unaware of their infections, take no precautions and move normally from place to place.

Epidemics

Two enteric pathogens, *Vibrio cholerae* o1 and *Shigella dysenteriae* type 1, cause major epidemics in which morbidity and mortality in all age groups may be high. Since 1961, cholera caused by the eltor biotype of *V.cholerae* 01 has spread to countries in Africa, Asia, and the Eastern Mediterranean, and to some areas in North America and Europe. During the same period, *S.dysenteriae* type 1 has been responsible for large epidemics of severe dysentery in Central America, and more recently in Central Africa and southern Asia.

9.3.1. Transmission of agents that cause diarrhea

The infectious agents that cause diarrhoea are usually spread by the faecal oral route, which includes the ingestion of faecally contaminated water or food, and direct contact with faeces.

A number of behaviours promote the transmission of enteric pathogens and thus, increase the risk of diarrhoea. These include:

- Failing to breastfeed exclusively for the first 4 – 6 months of life.
- Using infant feeding bottles
- Storing cooked food at room temperature
- Using drinking water contaminated with faecal bacteria

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- Failing to wash hands after defecation, after disposing faeces or before handling food
- Failing to dispose of faeces (including infant faeces) hygienically.

Situation in Ethiopia

- Diarrhoeal disease occurrence in 1983 was 4.8 episodes/child/year and a multiple indicator survey in 1995 showed a rate of 3.7 (4.5 in Kenya, 5.0 in Uganda). Mortality due to diarrhoea was 19.2/1000 in 1983, while it reduced to 9.2 /1000 in 1995 (9 - 14/1000 in Kenya for the year 1987 - 1993, 18/1000 in Uganda). A longitudinal community based survey in central rural Ethiopia indicated that acute diarrhoea is the second commonest illness reported (24%) and the highest incidence was among 2 - 6 months old. Studies in the same area showed that diarrhoeal death accounts for about 25 - 30% of all deaths in children below

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five years of age. Earlier reports gave figures as high as 46% for the country.

Morbidity and Mortality due to DD in 7 administrative regions in children < 5 years old, 1984 - 1985 (MOH, 1990)

Region	2 weeks <u>Prevalence</u>	No of <u>episode/yr</u>	mortality rate <u>(per 1000)</u>
Arsi	15.5	4.0	10.0
Addis Ababa	17.4	4.5	4.7
Gondar	23.0	6.2	15.0
Harrarge	18.4	5.0	8.3
Keffa	16.9	4.0	7.7
Shewa	16.7	4.0	17.0
Sidamo	15.6	4.0	6.9

9.3.2. Types of Diarrhea

Three clinical syndromes of diarrhoea have been defined, each reflecting a different pathogenesis and requiring different approaches to treatment.

Three types of diarrhoea:

1. Acute Watery Diarrhoea, representing 80% of cases and 50% of deaths
2. Acute diarrhoea due to dysentery, causes 10% of diarrhoeal cases and 15% of deaths and
3. Persistent diarrhoea, causes 10% of cases and 35% of deaths.

Acute Childhood Diarrhoea

This term refers to diarrhoea that begins acutely and lasts less than 14 days (most episodes last less than 7 days), and involves the passage of frequent loose or watery stools, without visible blood. Vomiting may occur and fever may be present. The most important causes of

acute watery diarrhoea in young children in developing countries are rotavirus, Enterotoxigenic E Coli, Shigella, Campylobacter jejuni, and cryptosporidium. In some areas, Vibrio cholerae o1, Salmonella and enteropathogenic E.coli are also important. In Ethiopia, acute diarrhoea is more common in low lands - partly because of lack of water and partly due to poor hygiene. A child may have 5 - 6 episodes of ACD/yr/child. Malnutrition affects only the duration of diarrhoea and its bad outcomes. About 25 - 30%, the under five mortality is accounted by ACD in African children and it is about 46% in Ethiopia. Case fatality rate per episode of diarrhoea is 1 - 2% and the mortality is approximately 9.2/1000 live births in the Ethiopian situation. Major etiologic agents are Rota virus and E.coli.

Persistent Childhood Diarrhoea

This is diarrhoea that begins acutely, but is of unusually long duration (at least 14 days). The episode may begin either as watery diarrhoea or as dysentery. Marked weight loss is frequent. Diarrhoeal stool volume may

also be great with a risk of dehydration. There is no single microbial cause for persistent diarrhoea; enteroinvasive *E. coli*, *Shigella*, *Cryptosporidium* may play a greater role than other agents. Persistent diarrhoea should not be confused with chronic diarrhoea, which is recurrent or long lasting diarrhoea due to non infectious causes such as sensitivity to gluten or inherited metabolic disorders.

Dysentery

This is diarrhoea with visible blood in the faeces. Important effects of dysentery include anorexia, rapid weight loss, and damage to the intestinal mucosa by the invasive bacteria. A number of other complications may occur. The main cause of acute dysentery is *Shigella*; other causes are *Campylobacter jejuni* and infrequently enteroinvasive *E.Coli* or *Salmonella*. *Entamoeba histolytica* can cause serious dysentery in young adults, but is rarely a cause of dysentery in young children.

9.3.3. Classification of Dehydration

The Integrated Management of Childhood Illnesses classified dehydration into three classes and proposed options for management of the sick child.

Severe dehydration

Those who have **severe dehydration** and who require immediate IV infusion, nasogastric or oral fluid replacement according to the WHO treatment guidelines described in Plan C.

Patients have severe dehydration if they have a fluid deficit equaling or greater than 10 percent of their body weight. A child is severely dehydrated if he/she has any combination of two of the following signs: is lethargic or unconscious, is not able to drink or is drinking poorly, has sunken eyes, or a skin pinch goes back very slowly.

<p>Two of the following signs:</p> <ul style="list-style-type: none">● Lethargic or unconscious● Sunken eyes● Not able to drink or drinking poorly● Skin pinch goes back very slowly	<p>SEVERE DEHYDRATION</p>
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Some dehydration

Those who have **some dehydration** and who require active oral treatment with ORS solution according to WHO treatment guidelines described in Plan B. Children who have any combination of the following two signs are included in this group: restless/ irritable, sunken eyes, drinks eagerly/thirsty, skin pinch goes back slowly. Children with some dehydration have a fluid deficit equaling 5 to 10 percent of their body weight. This classification includes both “mild” and “moderate” dehydration, which are descriptive terms used in most paediatric textbooks.

<p>Two of the following signs:</p> <ul style="list-style-type: none">● Restless, irritable● Sunken eyes● Drinks eagerly, thirsty● Skin pinch goes back slowly	<p>SOME DEHYDRATION</p>
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No dehydration

Patients with diarrhea but no signs of dehydration usually have a fluid deficit, but equal to less than 5% of their body weight. Although these children lack distinct signs of dehydration, they should be given more fluid than usual to prevent dehydration from developing as specified in WHO Treatment Plan A

<p>Not enough signs to classify as some or severe dehydration</p>	<p>NO DEHYDRATION</p>
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Note: Antibiotics should not be used routinely for treatment of diarrhoea. Most diarrhoeal episodes are caused by agents for which antimicrobials are not effective, e.g., viruses, or by bacteria that must first be cultured to determine their sensitivity to antimicrobials. A culture, however, is costly and requires several days to receive the test results. Moreover, most laboratories are unable to detect many of the important bacterial causes of diarrhoea.

Note: Anti-diarrhoeal drugs—including antimotility agents (e.g., loperamide, diphenoxylate, codeine, tincture of opium), adsorbents (e.g., kaolin, attapulgite, smectite), live bacterial cultures (e.g., *Lactobacillus*, *Streptococcus faecium*), and charcoal—**do not** provide practical benefits for children with acute diarrhoea, and some may have dangerous side effects. These drugs should never be given to children less than 5 years old.

9.3.4. Classification of persistent diarrhea

Persistent diarrhoea is an episode of diarrhoea, with or without blood, which begins acutely and lasts at least 14 days. It accounts for up to 15 percent of all episodes of diarrhea, but is associated with 30 to 50 percent of deaths. Persistent diarrhea is usually associated with weight loss and often with serious non-intestinal infections. Many children who develop persistent diarrhoea are malnourished, greatly increasing the risk of death. Persistent diarrhea almost never occurs in infants who are exclusively breast-fed.

All children with diarrhoea for 14 days or more should be classified based on the presence or absence of any dehydration:

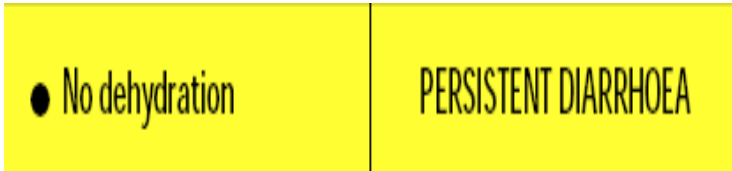
Children with **severe persistent diarrhoea** who also have any degree of dehydration require special treatment and should not be managed at the outpatient health facility. Referral to a hospital is required. As a rule, treatment of dehydration should

be initiated first, unless there is another severe classification.

● Dehydration present	SEVERE PERSISTENT DIARRHOEA
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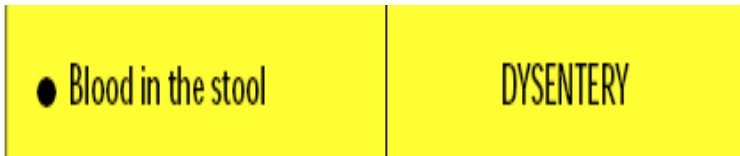
Children with **persistent diarrhoea** and no signs of dehydration can be safely managed in the outpatient clinic, at least initially. Proper feeding is the most important aspect of treatment for most children with persistent diarrhoea. The goals of nutritional therapy are to: (a) temporarily reduce the amount of animal milk (or lactose) in the diet; (b) provide a sufficient intake of energy, protein, vitamins and minerals to facilitate the repair process in the damaged gut mucus and improve nutritional status; (c) avoid giving foods or drinks that may aggravate the diarrhoea; and (d) ensure adequate food intake during convalescence to correct any malnutrition. Routine treatment of persistent diarrhoea with antimicrobials is not effective. Some children, however, have non-intestinal (or intestinal) infections

that require specific antimicrobial therapy. The persistent diarrhoea of such children will not improve until these infections are diagnosed and treated correctly.



Classification of dysentery

The mother or caretaker of a child with diarrhea should be asked if there is blood in the stool. A child is classified as having **dysentery** if the mother or caretaker reports blood in the child’s stool.



It is not necessary to examine the stool or perform laboratory tests to diagnose dysentery. Stool culture, to detect pathogenic bacteria, is rarely possible. Moreover, at least two days are required to obtain the results of a culture. Although “dysentery” is often described as a

syndrome of bloody diarrhoea with fever, abdominal cramps, rectal pain and mucoid stools, these features do not always accompany bloody diarrhoea, nor do they necessarily define its aetiology or determine appropriate treatment. Bloody diarrhoea in young children is usually a sign of invasive enteric infection that carries a substantial risk of serious morbidity and death. About 10 percent of all diarrhea episodes in children under 5 years old are dysenteric, but these cause up to 15 percent of all diarrhoeal deaths. Dysentery is especially severe in infants and in children who are undernourished, who develop clinically- evident dehydration during their illness, or who are not breast-fed. It also has a more harmful effect on nutritional status than acute watery diarrhoea. Dysentery occurs with increased frequency and severity in children who have measles or have had measles in the preceding month, and diarrhoeal episodes that begin with dysentery are more likely to become persistent than those that start without blood in the stool.

All children with dysentery (bloody diarrhoea) should be treated promptly with an antibiotic effective against *Shigella* because:

- (a) Bloody diarrhea in children under 5 is caused much more frequently by *Shigella* than by any other pathogen;
- (b) Shigellosis is more likely than other causes of diarrhoea to result in complications and death if effective antimicrobial therapy is not begun promptly;
- and (c) early treatment of shigellosis with an effective antibiotic substantially reduces the risk of severe morbidity or death.

WHO Treatment Plan A: treatment for diarrhea with no sign of dehydration

Plan A focuses on the three rules of home treatment: give extra fluids, continue feeding, and advise the caretaker when to return to the doctor (if the child

develops blood in the stool, drinks poorly, becomes sicker, or is not better in three days).

Fluids should be given as soon as diarrhea starts; the child should take as much as s/he wants.

Correct home therapy can prevent dehydration in many cases. ORS may be used at home to prevent dehydration. However, other fluids that are commonly available in the home may be less costly, more convenient and almost as effective. Most fluids that a child normally takes can also be used for home therapy especially when given with food.

Recommended home fluid should be: Safe when given in large volumes. Very sweet tea, soft drinks, and sweetened fruit drinks *should be avoided*. These are often hyper-osmolar owing to their high sugar content (less than 300 mOsm/L). They can cause osmotic diarrhoea, worsening dehydration and hyponatremia. Also to be avoided are fluids with

purgative action and stimulants (e.g., coffee, some medicinal teas or infusions).

Easy to prepare: The recipe should be familiar and its preparation should not require much effort or time. The required ingredients and measuring utensils should be readily available and inexpensive. ***Acceptable.*** The fluid should be one that the mother is willing to give freely to a child with diarrhoea and that the child will readily accept.

Effective. Fluids that are safe are also effective. Most effective are fluids that contain carbohydrates and protein and some salt. However, nearly the same result is obtained when fluids are given freely along with weaning foods that contain salt.

WHO Treatment Plan B: treatment for diarrhea with some dehydration

- Give initial treatment with ORS over a period of four hours. The approximate amount of ORS

required (in ml) can be calculated by multiplying the child's weight (in kg) times 75; during these four hours, the mother slowly gives the recommended amount of ORS by spoonfuls or sips.

Note: If the child is breast-fed, breast-feeding should continue.

- After four hours, the child is reassessed and reclassified for dehydration, and feeding should begin; resuming feeding early is important to provide required amounts of potassium and glucose.
- When there are no signs of dehydration, the child is put on Plan A. If there is still some dehydration, Plan B should be repeated. If the child now has severe dehydration, the child should be put on Plan C.

PERSISTENT DIARRHOEA

- Encourage the mother to continue breastfeeding.
- If yoghurt is available, give it in place of any animal milk usually taken by the child; yoghurt contains less lactose and is better tolerated. If animal milk must be given, limit it to 50 ml/kg per day; greater amounts may aggravate the diarrhea.
- If milk is given, mix it with the child's cereal and do not dilute the milk. At least half of the child's energy intake should come from foods other than milk or milk products. Foods that are hyperosmolar (these are usually foods or drinks made very sweet by the addition of sucrose, such as soft drinks or commercial fruit drinks) should be avoided. They can worsen diarrhoea.
- Food needs to be given in frequent, small meals, at least six times a day. All children with

persistent diarrhoea should receive supplementary multivitamins and minerals (copper, iron, magnesium, zinc) each day for two weeks.

Treatment of dysentery

The four key elements of dysentery treatment are:

Antibiotics, Fluids, Feeding, Follow-up

Selection of an antibiotic is based on sensitivity patterns of strains of *Shigella* isolated in the area

(nalidixic acid is the drug of choice in many areas).
Recommended duration of treatment is five days.

If after two days (during follow-up) there is no improvement, the antibiotic should be stopped and a different one used.

9.3.5. Feeding sick child

- Feed frequently every 3 - 4 hrs (6x a day) during the diarrhoea

- Small frequent feedings are best since they are easily digested and preferred by the child
- Fermenting, mashing and grinding make it easier to digest
- Freshly prepared food minimize the chance of contamination
- One extra meal per day after diarrhoea for two weeks helps the child regain the weight loss
- Avoid high fibre or bulky foods such as coarse fruits and vegetables, peels and whole grain cereals (hard to digest) and foods with a lot of sugar (osmotic diarrhoea)

9.4. RESPIRATORY INFECTIONS

Respiratory tract infections can occur in any part of the respiratory tract such as the nose, throat, larynx, trachea, bronchi or lungs. Acute respiratory infections (ARI) can be divided as Upper Respiratory Tract

Infections (URTI) which includes Nasopharyngitis, Otitis media, Pharyngotonsillitis, and Epiglottitis and Lower Respiratory Tract Infections which include Laryngitis, Tracheobronchitis, Bronchitis, Bronchiolitis and Pneumonia.

ARI are one of the most frequent illnesses globally and a leading cause of death in the developing world. Among children under five alone, about four million deaths (33% of the deaths) annually are ascribed to ARI most of which are due to pneumonia. That mortality due to pneumonia is 10 - 15 times higher in developing countries suggests that there is ample room for improvement in addressing this important public health problem. At high levels of mortality; such as XIX century in Europe, due to ARI reduced life expectancy by 7.5 years; more than all other infectious diseases including diarrhoeal diseases. At that time in Europe, ARI was the top cause of death among infants and children outside the neonatal period. ARI mortality has been declining steadily with improving living conditions in developed

countries, a decline that has been enhanced since the 1950s when antibiotics became available. However, recognition of pneumonia and other ARI as an important public health problem in developing countries is recent, the earliest documentation being in early 1960s. Recent international developments indicate that ARI is given better and the deserved attention. The World Summit of Children, held in New York in 1990 forwarded the objective of a reduction of deaths caused by ARI by one third by the year 2000.

Viruses are the predominant etiological agents in ARI, especially Upper Respiratory Tract Infections (URTI). The majority of these are benign and self-limiting. The most common non-bacterial agents of lower respiratory tract infections (LRTI) are respiratory syncytial virus (RSV), adenoviruses, Para influenza and influenza A and B viruses. Some agents are more frequently associated with some clinical syndromes than others e.g. RSV and bronchiolitis. In some cases, however, viral infections are the causes of severe disease or

complicated by bacterial super infection that can end in death (e.g. complications of influenza, measles and some adeno and rhinoviruses). Among the bacteria, *Streptococcus pneumoniae* and *Haemophilus influenzae* are the two commonest organisms. Among neonates, gram negative enteric bacilli most notably E.coli and Streptococcus group B are said to be dominant in the developed world. The few studies done in developing countries do not show Streptococcus group B as an important pathogen in neonates. Etiological diagnosis of pneumonia is very difficult to establish in infants and children since sputum is usually unavailable and bacterial diagnosis can only be established by lung aspiration and blood culture which may have serious complications and may have low sensitivity.

The classification and management of ARI in the industrialized world are founded on epidemiologic, radiologic and microbiologic data in addition to clinical history and physical examination. The syndromes of ARI which are complex clinical conditions of varying

aetiology and severity are most frequently categorized on the basis of anatomical location. Common diagnostic categories for uncomplicated ARI with etiologic and clinical correlates are described in details. ARI includes the minor upper respiratory infections (URIs), such as colds and sore throats, in addition to the more serious (and potentially fatal) acute lower respiratory infection (ALRI) of pneumonia and bronchiolitis.

However, in most developing countries health institutions settings it is difficult to make detailed diagnosis of acute respiratory tract infections. Fortunately, a number of guidelines have been developed for classification and treatment of common acute respiratory infections with easily identifiable symptoms and signs. The Integrated Management of Childhood Illness (IMCI) guidelines suggested assessing and classifying a child with respiratory problems with the following: presence of general danger signs (listed in the guidelines) duration of cough or difficult breathing, fast breathing, chest indrawing and

stridor in a calm child. An infant 1 week up to 2 months old is said to have fast breathing if it has a respiratory rate of 60 or above per minutes. An infant 2 months up to 12 months has fast breathing if the respiratory rate is 50 or above and a child 12 months up to 5 years is said to have fast breathing if the breathing rate is 40 or more. For each class based on the above symptoms and signs, treatment plan and specific treatment options are indicated.

9.4.1. Cough or difficult breathing

A child presenting with cough or difficult breathing should first be assessed for general danger signs.

This child may have pneumonia or another severe respiratory infection. After checking for danger signs, it is essential to ask the child's caretaker about this main symptom.

Child's age	Cut-off rate for fast breathing
2 months up to 12 months	50 breaths per minute or more
12 months up to 5 years	40 breaths per minute or more

Classification of cough or difficult breathing

Severe pneumonia or very severe disease.



This group includes children with any general danger sign, or lower chest indrawing or stridor when calm. Children with **severe pneumonia or very severe disease** most likely will have invasive bacterial organisms and diseases that may be life-threatening. This warrants the use of injectable antibiotics.

<ul style="list-style-type: none">● Any general danger sign or● Chest indrawing or● Stridor in calm child	SEVERE PNEUMONIA OR VERY SEVERE DISEASE
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Pneumonia.

This group includes all children with fast respiratory rate for age. Fast breathing, as defined by WHO, detects about 80 percent of children with pneumonia who need antibiotic treatment. Treatment based on this classification has been shown to reduce mortality.

● Fast breathing	PNEUMONIA
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Cough or cold

Such children may require a safe remedy to relieve cough. A child with cough and cold normally improves in one or two weeks. However, a child with chronic cough (more than 30 days) needs to be further assessed (and, if needed, referred) to exclude tuberculosis, asthma, whooping cough or another problem.

● No signs of pneumonia or very severe disease	NO PNEUMONIA: COUGH OR COLD
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9.4.2. The Ethiopian Situation

Ethiopians are known for normally self treating their common colds and rarely seeking treatment from professional practitioners. Pneumonia and other life threatening acute respiratory infections are often brought to the attention of health workers too late, after home treatment with traditional medicines and modern drugs. Thirteen percent of children under five years of age showed symptoms of ARI at some time in the two weeks in Ethiopia and only 19 percent of all children under five with symptoms of ARI were taken to a health facility or provider according to the EDHS 2005. Diseases of the respiratory tract infection were the major causes (11%) of admission among 3500 in children's hospital in Addis Ababa. Cases with pneumonia as the principal diagnosis constituted 6% of

admissions and accounted for 7% of the deaths. Measles was the principal diagnosis in 3% of the admissions with a case fatality rate of 28%. Among 21,853 ambulatory patients in the same year, ARI was the principal problem in 28%.

A study in the same hospital showed that the mortality rate from ARI in malnourished children was twice as high as among normal children. In a community based study in central rural Ethiopia, ARI accounted for more than a third of the infant and more than a fifth of child deaths and nearly a third of child deaths. Among infants, ARI deaths were more common than diarrhoea deaths and the reverse was true for children (1 –4) years. The paper indicated that early termination of breast feeding, late introduction of supplementary feeding, lack of windows, illiteracy of the parent were associated with higher under five mortality.

9.5. VACCINE PREVENTABLE DISEASES

General considerations

Vaccination is the administration of a vaccine to stimulate a protective immune response that will prevent disease in the vaccinated person if contact with the corresponding infectious agent occurs subsequently. Thus, vaccination, if successful, results in immunization: the vaccinated person has been rendered immune to disease caused by the infectious pathogen. In practice, the terms “vaccination” and “immunization” are often used interchangeably.

Each year more than a third of a million children die from immunizable diseases and diarrhoea. The eight childhood diseases preventable by immunization (neonatal tetanus, measles, poliomyelitis, tuberculosis, pertussis, diphtheria, Hemophilus Influenza type B and hepatitis B viruse) are responsible for a considerable

proportion of the high morbidity, mortality and disability of Ethiopian children.

9.5.1. Poliomyelitis

Poliomyelitis is a disease of the central nervous system caused by three closely related enteroviruses, poliovirus types 1, 2 and 3. The virus is spread predominantly by the faecal–oral route, although rare outbreaks caused by contaminated food or water have occurred. After the virus enters the mouth, the primary site of infection is the intestine, although the virus can also be found in the pharynx. Poliomyelitis is also known as “infantile paralysis” since it most frequently caused paralysis in infants and young children in the pre-vaccine era in industrialized countries. In developing countries, 60–70% of cases currently occur in children under 3 years of age and 90% in children under 5 years of age. The resulting paralysis is permanent, although some recovery of function is possible. There is no cure if disease develops. The incubation period is from 7 - 14 days, but may range from 3 - 35 days.

On entry through the oral route, the virus multiplies in the oropharynx and the lymphoid tissue of the intestinal tract from where it enters the blood stream causing viremia. The prodromal phase corresponds with this early viremia. If the infecting strain of the virus is highly invasive or if the host resistance is inadequate, the virus is then able to invade the CNS. Neurological manifestations of the result of haematogenous spread by the virus of the anterior horn cells of the spinal cord.

Only about 1% of the total infections are symptomatic. There may be non-specific symptoms of infection (fever, malaise, sore throat, headache) in a small percentage of the population. Less than 1% will develop severe illness (typically asymmetric flaccid paralysis of the limbs, with no sensory loss), and the majority of these cases will have had no prodromal symptoms.

Occurrence

Significant progress has been made towards global eradication of poliomyelitis. More than 125 countries were endemic for polio in 1988; by 2006, only 4 countries – Afghanistan, India, Nigeria and Pakistan, where wild poliovirus transmission has never been interrupted – remained endemic. A number of previously polio-free countries have been affected by wild-virus importation that has resulted in subsequent outbreaks, e.g. Namibia – a popular country for tourists – in the summer of 2006. Until all countries have stopped wild poliovirus transmission, all areas remain at high risk of importations and even of the re-establishment of endemic transmission.

Determinants of Patterns of Poliomyelitis

Vaccination Coverage	<u>Level of Hygien</u>	
	<u>Low</u>	<u>High</u>
Low	<p>Polio endemic</p> <p>Infection universal</p> <p>Cases usually less severe than when</p> <p><u>Polio is endemic.</u></p>	<p>Polio endemic</p> <p>most population eventually infected</p> <p>Average age of infection may be in teens or young adulthood</p> <p><u>Case usually relatively serious</u></p>
High	<p>Polio may become epidemic unless high OPV coverage is reached</p>	<p>Polio controlled</p> <p>Infection levels Circulation of wild virus interrupted.</p>

& average age of onset Paralytic polio
extremely rare;

depend on degree of cases are imported or
vaccine

vaccine coverage associated.

May be susceptible population

if unvaccinated pockets.

Incidence

Before the advent of polio vaccines, an estimated 600000 new cases of paralytic polio occurred worldwide every year. Paralytic polio leads to lifelong disability, and the sequelae of past diseases has left between 10 and 20 million youth and adults disabled today. In contrast to its significance as a cause of disability, the contribution of polio to mortality of children under five is relatively modest; an estimate in Senegal suggests a contribution to mortality of < 2-5 per 1000 live births, or about 1% of all deaths of under five children. Based on this fact, we

can see the significant effect of poliomyelitis is its morbidity rather than its mortality.

Vaccine

There are two types of vaccine: inactivated (IPV), which is given by injection and oral (OPV). OPV is composed of the three types of live attenuated polioviruses. Because of the low cost and ease of administration of the vaccine and its superiority in conferring intestinal immunity, OPV has been the vaccine of choice for controlling epidemic poliomyelitis in many countries.

Most industrialized countries use IPV, either as the sole vaccine against poliomyelitis or in schedules combined with OPV. Although IPV suppresses pharyngeal excretion of wild poliovirus, this vaccine has only limited effects in reducing intestinal excretion of poliovirus. For unvaccinated older children and adults, the second dose is given 1–2 months, and the third 6–12 months, after the first dose. There is continued debate over which form of vaccine (OPV or IPV) is most suitable for use in

developing countries. WHO is still recommending the use of OPV.

Success with the eradication of smallpox has prompted discussion of feasibility of the eradication of various other diseases and polio is no exception. There has been a massive attempt to eliminate it from the Americas, and it appears to have paid off, with no case of flaccid paralysis since 1991. Like smallpox, polio is limited to the human host - there is no animal reservoir. Also there are no long term carriers. Effective vaccines are cheap and readily available.

Unlike smallpox, however, 95 -99% of infections are asymptomatic which renders containment much more difficult (as does its ease of transmission). Smallpox eradication used as a strategy, mop up around cases, i.e. vaccination of contacts. In the case of polio this is much more difficult, since the spread is much larger and mop up would have to include very large areas.

Unlike smallpox, persons not vaccinated against polio are not easy to identify (smallpox scar). This is especially important since more than one vaccination is required to be protective. Finally, polio vaccines are much less stable. However, despite these constraints, based on the success in the Americas, the general consensus currently is that polio can be eradicated, but it may take longer than the year 2000.

The strategies adopted for the eradication in the Americas, and to be adopted elsewhere are the following:

1. Routine immunization

This is the foundation of eradication policy. By 1990, 80% of the children born in that year had received a basic course of immunization against polio, diphtheria, pertussis, tetanus, measles and tuberculosis by the age of one year. Eighty three percent had received a basic course of three doses of OPV. However, it has been shown that routine immunization in developing countries

will not result in eradication. Outbreaks have occurred in countries where coverage is higher than 90% due to the accumulation of unimmunized children in localized areas of poor immunization services.

2. National immunization days

Nationwide mass campaigns, known as National Immunization Days, will be needed over several years to eradicate polio in endemic countries. WHO recommends that all children less than 5 years of age receive 2 doses of OPV during NIDs regardless of their previous immunization status. The 2 rounds should be 4 - 8 weeks apart and each round should be completed within one week.

3. Outbreak response immunization

A single case of paralytic polio suggests that there is a low level immunity in a community and the current recommendation is that whenever a case of suspected polio is detected, all children less than 5 years of age

living in the vicinity of a case should receive one dose of OPV regardless of immunization status.

4. Mopping up immunization

This involves house to house immunization in high risk areas:

- Any area which had a case within the past 3 years
- Urban slums
- Areas with low immunization coverage often NIDs do not work in these areas: better coverage is obtained when the vaccine taken to the child. Two doses are given, one month apart, to children less than 5.

Now, how effective have these strategies been ? While the annual incidence of the disease in the years 1986 - 88 was 200000 - 250000, by 1992 it had dropped to an estimated 140000. More significant than that, however, is the distribution of case worldwide. The last case of

polio in the Americas occurred in Peru in 1991. There has since been no new case and the Pan American Health Organization has now declared that polio has been eliminated from the Americas.

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9.5.2. NEONATAL TETANUS

Tetanus is a completely preventable disease caused by contamination of wounds with anaerobic bacillus, *Clostridium tetani*. The organism is ubiquitous in soil and dust and has the ability to form highly resistant spores. It exists harmlessly in the gut of many animals, including man. If the pathogen is introduced into necrosis tissues, it multiplies and produces a powerful neurotoxin. Tetanus is an endemic environmental hazard rather than communicable disease, and consequently does not spread in explosive epidemics.

Neonatal tetanus occurs mainly as a result of umbilical cord contamination with tetanus spores at birth. The disease manifests itself commonly between the third and the twenty eighth day after birth when an apparently healthy baby stops nursing, becomes progressively more rigid, has convulsions and dies within a few days. In the developing world, some 85% of the newborns contracting neonatal tetanus will die. Unhygienic birth practices afford many opportunities for the umbilical cord

to be contaminated with tetanus spores. The organism finds the umbilical cord an ideal tissue in which to multiply and produce powerful toxins. Each case of neonatal tetanus is the result of failure to protect the mother with an anti-tetanus immunization together with lack of hygiene during and after delivery.

Prevalence

In many developing countries, neonatal tetanus still represents about half of all neonatal deaths and about 25% of infant mortality. It is estimated that worldwide, about 775000 newborn children die every year from this disease.

Estimates of neonatal tetanus mortality in Africa have varied from 4 per 1000 live births in Zimbabwe to 12 - 18 per 1000 live births in Malawi, Uganda and Ivory Coast. In many of these countries, neonatal tetanus has been concentrated in certain regions. In Punjab, Pakistan the neonatal mortality rates were twice as high in rural cattle and horse raising areas (43 per 1000) than in urban

slum areas (21 per 1000 live births). In Egypt, the risk of death from neonatal tetanus was 5 times greater for rural births than for a birth in urban areas. The risk of neonatal tetanus for a birth in upper Egypt (regardless of whether in urban or rural area) was 4.7 times greater than for a birth occurring in lower Egypt.

In Ethiopia, neonatal tetanus is a commonly fatal disease for newborns, with nearly two thirds of all tetanus deaths occurring among neonates. A community based survey in rural Gamugofa region reported a mortality rate of 6.7/1000 live births and an estimated incidence rate of 8.4/1000 live births. The study that found the incidence rate in males to be 2.5 times higher than in females. High risk factors included cutting the umbilical cord with unsterile instruments, the traditional practice of applying potentially infectious material (such as cow dung) on the stump, and home delivery attended by untrained traditional birth attendants. A community based study in rural and urban Gondar region reported a higher neonatal mortality rate among babies delivered at

home (4.5/1000 live births) than those delivered in hospitals. The study found only 22.5% of the mothers to have been vaccinated and recommended training of traditional birth attendants and immunization of all expectant mothers with tetanus toxoid as a measure for controlling neonatal tetanus.

Prevention and Control

Neonatal tetanus is a preventable disease which can be eliminated by two complementary strategies: vaccinating women with tetanus toxoid; and ensuring a clean and safe environment for the umbilical cord during and after delivery.

Antitetanus immunization has had remarkable results in some developing countries. After achieving 95% coverage with two doses of tetanus toxoid, the annual number of neonatal tetanus cases admitted to a hospital in Maputo Mozambique fell from 170 - 250 cases during the period 1976 - 79 to zero in 1986. Similar results were achieved in Harare, Zimbabwe and in Sri Lanka by combining two strategies: the

immunization of women with hospital deliveries. Sri Lanka is an example of a country in which immunization program has exerted a clear impact on neonatal tetanus incidence. Since the introduction of the EPI in 1978, neonatal tetanus incidence declined 36 times from 2.16 to 0.06 per 1000 live births.

Immunize all women of child bearing age

Immunization against tetanus is achieved by vaccinating different target groups with vaccines such as DPT, DT, TT and Td (tetanus - diphteria with a reduced component of diphteria antigen) all of which contain tetanus toxoid. TT and Td are suitable for adults, whereas DPT is given to children less than 5 years old, and preferably during infancy. The DT vaccine is used for young children unable to receive DPT, and is mainly administered in schools.

In areas where neonatal tetanus is an endemic disease, antitetnaus immunization is a priority and is indispensable for the elimination of neonatal tetanus, particularly in rural areas where the health care

infrastructure is inadequate. Immunization is also indispensable in many urban areas, as a large proportion of the population has no access to health facility or hospital delivery, for a variety of reasons, besides which health facility or hospital delivery is not always a guarantee against neonatal tetanus.

WHO's recommendation for the antitetanus immunization of women (see table) and infants is five doses of antitetanus vaccine at regular intervals. The level of antibodies present in the mother guarantees protection of the mother and baby, as the antitetanus antibody is easily passed from the mother to the fetus through the placenta. Tetanus toxoid can safely be administered from the first month of pregnancy.

Table 7: Tetanus Toxoid Immunization for Women

Dose	Schedule	Protection	
		Percent	Duration
TT1	first contact	Nil	None
TT2	> 4 weeks after TT1	80	3years
TT3	> 6 months after TT2	95	5 years
TT4	> 1 year after TT3	99	10 years
TT5	> 1 year after TT4	99	30 years

While to be effective, the tetanus toxoid should never be frozen and should be kept below 8°C, it is a relatively durable vaccine. TT costs about \$0.02 per dose in multi dose vials, can withstand temperatures of 37°C for at least 6 weeks, has more than 95% efficacy, when used according to the correct schedule, and is extremely safe.

To achieve a high rate of immunization, all women of childbearing age including pregnant women need to be immunized, taking advantage of any visit they make to a health centre, whether public or private. When mothers bring their children for immunization, antitetanus vaccine should be available and also offered to them. This provides an opportunity of rapidly increasing immunization rate. Any visit to a health facility provides an opportunity to determine their tetanus immunization status and to initiate or complete the recommended five doses immunization schedule.

Ideally, women entering their childbearing years already should have received 5 doses of TT, which can be in the form of properly spaced doses of DPT or DT in

childhood, and TT. The prevailing belief in many countries that 2 doses of TT are sufficient must be changed. In addition, the earlier the protection the greater the reduction of neonatal tetanus as well. This is important since the highest age specific incidence of tetanus after the neonatal period in developing countries is among children.

There is no global blueprint for neonatal tetanus control. Strategies need to be determined locally and may differ from one area to another within the same country. And more than one strategy is often indicated.

Ensuring Clean and Safe Delivery

This is an essential and complementary part of the strategy for eliminating neonatal tetanus. It is achieved by respecting the following rules.

- Clean hands of the birth attendant
- Clean cutting and care of the umbilical cord
- Clean surface where the delivery is performed.

This strategy has been very effective in the industrialized world and has reduced dramatically the incidence of perinatal infections.

However, it is worth noting that many cases of neonatal tetanus reported in the developing world have occurred in infants delivered in public and private health facilities. This gives cause for concern, since there may have been lack of hygiene or improper care of the cord after discharge in a mother not adequately immunized.

The training of delivery staff (health workers and traditional midwives) and their supervision are indispensable if the strategy is to succeed in the long term. Adherence to the rules mentioned above is not a substitute for immunization, but should be introduced as a complement to it. Despite clean delivery and the initial handling of the umbilical cord, certain traditional practices may pose an additional risk of tetanus.

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9.5.3. MEASLES

Disease

Measles is a highly contagious infection; before vaccines became available, this disease had affected most people by the time of adolescence. In 2007, measles still affected large number of children, and the number of global measles deaths was estimated to be

242,000. Common complications include middle-ear infection and pneumonia. Transmission, which is primarily by large respiratory droplets, increases during the late winter and early spring in temperate climates, and after the rainy season in tropical climates.

NATURAL HISTORY

Transmission is by droplet and it is highly infectious. The transmissibility of the measles virus is very high. The attack rate is estimated to be about 75% vs approximately 30% for mumps and about the same for smallpox. This has significance in terms of the epidemiology of the disease.

The natural history of the disease is completely different in industrialized countries compared to the developing world. It tends to affect children at a later age and with much severity in the developed world. The CFR is much less than 1%, whereas in LDCs it is estimated to be 3 - 15%, highly variable depending on a number of risk factors.

The disease usually presents with what appears to be URI with conjunctivitis and nasal discharge, followed by a rash. While it is often limited to this in the developed world, in LDCs sequelae are common. GI problems are amongst the most frequent. Painful mouth often prevents children from eating properly. In his 1973 study in Nigeria, Morley showed that a quarter of the children he studied lost more than 10% of their body weight which took up to 2 months to regain. Diarrhoea is a frequent complication with serious repercussions. In a study in Bangladesh, the CFR for measles was 11.9% if the child has diarrhoea, compared to 4% in those without diarrhoea.

Post measles pneumonia is a major cause of measles associated mortality in LDCs. Of the measles associated mortality in three studies, 44 - 93% was attributable to pneumonia.

In a study in Sri Lanka, 44% mortality was due to pneumonia, 25% due to diarrhoea, 19% to convulsions and 9% to coma.

In addition to mortality, the long term disability due to measles is significant. One of the chief causes of blindness in LDCs is acute vitamin A deficiency secondary to measles. Also chronic malnutrition is a significant problem.

The risk factors for mortality from measles are:

1. Age: variable from country to country. Generally, the younger children are at greatest risk.
2. Gender: more in females.
3. Socio - economic status.
4. Intensity of exposure: a number of studies have shown that measles acquired in the household carries with it a greater risk of death due to intensity of infection. Also the attack rate in the same household of susceptible is approximately 90% vs 75% non household contacts.
5. Nutritional status (Vit A)
6. Vaccination status: This is the strongest correlation (negative) with mortality of any of the risk factors.

EPIDEMIOLOGY

Most infants are protected at birth by passively acquired transplacental maternal antibodies. Breastfeeding affects neither the level nor the persistence of measles antibodies. The mean duration of the protection provided by these antibodies varies considerably, ranging from 3 - 6 months in some populations to 12 months or more in others.

Three factors contribute to the interpopulation differences:

1. Geographic variability among mothers: in certain areas, mothers have more measles antibody to pass on. For example, one study in South Africa showed that women who had 8 times higher levels than those in a population in Taiwan.
2. Genetic or environmentally determined differences in the efficiency of the placenta in transporting IgG.
3. Differences in the efficiency with which children maintain passively acquired immunity.

The gradual disappearance of the maternal antibody brings a gradual increase in the number of susceptible in the population. Without vaccination, once the maternal Ab has disappeared, virtually all children will contract measles; only the age of infection differs among population density. In the absence of immunization, the age distribution of cases depends on the rate of maternal Ab loss and age related changes in the frequency of contact with other persons. Measles tends to infect children at a younger age in LCDs than in developed areas. Before immunization, the median age at which children were infected in Africa were 1.5 - 2.5 yrs in urban areas, and 2.5 - 5 yrs in rural areas. In the US, the figures were 4 - 9 and 6 - 10 respectively. In urban areas of Africa, most children will have been infected by age 2, while in the more isolated areas of rural Africa, that figure is approximately age 5. Incidence, however, varies cyclically. Factors affecting incidence are the size of the susceptible population, and the frequency of contact between infectious individuals and the susceptible.

Widely divergent age patterns of measles transmission is described as follows.

1. High density urban population countries (E.g. Kenishasa, Zaire). In 1993 coverage among 12 - 39 months of age children was 62% whereas, transmission rate among 6 - 8 months was 18%, 9 - 11 months, 19%, one year olds 40%, and 2 year children had 10% occurrence. Seventy seven percent occurred before 3 years (Taylor and others, 1981).
2. Rural population developing countries with low vaccine coverage (E.g. Matlab, showed 23% occurrence in under 2 years, 34% in children aged between 2 - 3, 22% in children 4 - 5 years, and 22% in 6 - 10 years (Koster and others, 1981).
3. Rural population in developing countries with high vaccine coverage in 1990 and as a result, there was a significant change in age at which measles infection occurs and 60% of it was noted in children over 5 years of age.

4. Population in industrialized countries with high vaccine coverage. In America, during the prevaccine era, measles was primarily a disease of children. Childhood immunization coupled with mandatory school immunization has reduced measles incidence by 98% (Markowitz and Ornestein, 1990). Peak ages of measles incidence occurrence now are 1 - 4 and 15 - 19 years 25% of cases each, and below 1 year 10%, the rest range from 5 - 10%. As the incidence of disease increases, those infected either die or become immune. Therefore, the size of the susceptible population decreases. Then, the chance that an infectious person will come into contact with a susceptible decreases. Sporadic case of measles will not then, set off an epidemic because the infected individual will not come into contact with an uninfected individual. The incidence of disease decreases, and the population of susceptible gradually increases with new births, It reaches a threshold at which point there is increased frequency of contact between the two groups and incidence rates increases.

The length of interepidemic interval depends on the rate of accumulation of susceptible (related to the birth rate and migration patterns) and on the population density. In urban areas of Africa before immunization the interepidemic interval was 1 - 2 years, and in rural Africa, 5 -7 years.

The main foci for transmission of measles are health centres, households, and festivals/markets. Immunization programs have significant effects on measles epidemiology. They slow down the rate of entry of new susceptible into the population and therefore decrease the incidence of disease. They leave some children susceptible till an older age and therefore shift the age distribution of disease to the right. They also lengthen the interepidemic interval.

The period of low incidence, following the introduction of widespread immunization, termed the "honeymoon period" is generated during the shift from preimmunization to post immunization age distribution. Rapid achievement of high coverage induces a period of

low incidence, after which the system settles to a higher level of incidence (but lower than preimmunization) with an interepidemic period longer than that preimmunization. The higher coverage achieved, the lower the accumulation of susceptibles, and the longer the interepidemic interval.

Complications (acute or chronic)

Investigation of 2386 cases in Sri Lanka documented complication frequencies as follows. Diarrhoea in 37%, respiratory infections in 30%, ear infection in 7% and convulsions in 2% in 1985. Ten percent of these children lost body weight and they regained it in 4.5 weeks time for those who did not have diarrhoea and 8.1 weeks for those who developed diarrhoea. In Bangladesh, an investigation of 5775 children with measles found a CFR of children with diarrhoea to be 11.9%, while it was 4% for those with no diarrhoea. Fifty percent of diarrhoea lasted for more than 7 days compared to 25% for those without measles. WHO (Fecheam and Koblinsky, 1983) reported that

immunization prevents upto 0.6 - 3.8% of all diarrhoeal episodes and 6 - 26% of all diarrhoeal deaths.

Post measles pneumonia is the main killer in developing countries. Fifty six percent of measles associated deaths in community based study in India and 92.8% of measles associated deaths in hospital in Iloria, Nigeria (Fagbule and Orifumishe 1988). Mortality risk factors are mentioned above.

Immunization programs aim to interrupt measles transmission by including herd immunity; The resistance of a group to attack by measles since a large proportion of the members are immune thereby reducing the chance of contact between an infectious person and a susceptible.

But herd immunity is difficult to achieve with measles because of high transmissibility of measles, low vaccine coverage, and poor vaccine efficacy (80 - 90%). It has been estimated that 95% coverage with a vaccine that is

100% effective would be necessary to induce herd immunity. Coverage in all Africa in 1992 was 53%.

Vaccination schedule

The current recommendation of the WHO is that vaccination should be given as soon after 9 months as possible. But this leaves a window of from about 4 or 5 months to 9 months when the child might become infected. It is during this period that maternal antibodies are falling to levels at which they are not protective, are still able to prevent adequately by the vaccine. Bart suggests that 45% of measles occur in children under 9 months of age. Other estimates are 20 - 30%. In any case, the numbers infected before the recommended age of immunization are significant. A lot of effort has been expended in developing vaccines that would be immunogenic at an earlier age. Two vaccines, Edmonston - Zagreb (EZ) and high titre Schwartz were developed in the 1980s and proved promising. The EZ was more effective, but both vaccines showed improvement over the standard vaccine in causing

seroconversion in children 6 months and younger. Both of these had a much higher concentration of the live attenuated virus than did the standard.

The WHO in 1989 changed its policy such that these vaccines were to be used in infants 6 months of age in areas of high measles transmission. Limited amount of vaccine were available and the use was therefore restricted to these areas. Field test proved that they were effective. However, in 1991 a paper published in the Lancet by Garenne suggested that there was an increased mortality in these high titre vaccines: the RR of death using EZ was 1.8 and for high titre Shwarcz, 1.5. Further studies confirmed these findings and in June 1992, the WHO reversed its policy decision and returned to a policy of vaccination at 9 months with standard vaccine.

There are currently attempts to develop other strategies to address the issue of infection in the 4 - 9 month age group. One proposal is to use the standard vaccine at six month and revaccinate later. However, there is

concern that this will affect immunogenicity of the second dose. Much work remains to be done in this area.

Measles Strategies for the 1990s: At the global level, there is considerable debate as to the appropriate long term measles objective: control, elimination or eradication.

Control: the reduction of measles morbidity and mortality to a level that is no longer a public health **problem:** Elimination the interruption of measles transmission in a geographically defined area, island, nation or continent. Eradication: the interruption of person to person transmission, the elimination of the virus reservoir and the termination of prevention procedures.

The current WHO/UNICEF goals of 90% reduction in morbidity and 95% mortality are consistent with control. Measles elimination has been targeted for the US, Europe and the Caribbean.

Reproductive Health

Eradication has been proposed because of the high cost of control. Much of the advocacy results from the eradication of smallpox and the similarities that exist between the two: both are rashes, both give lifelong immunity, neither has animal reservoir and neither has a chronic carrier state. Dissimilarities however, are notable (as seen below).

	<u>Measles</u>	<u>Smallpox</u>
Infectivity	High (70% attack rate)	Less (33%)
Age of infection	12 - 18 months	4 -5 years
Age vaccination	9 months	Birth
Ease of diagnosis	Hard	Easy
(acute & chronic)		
Vaccine efficacy	80 - 90%	99%
Vaccine stability	Cold chain needed	1 yr ambient T ⁰
Outbreak control	Difficult	Easier

Comparison of Measles and Smallpox with a view of measles eradication.

Theoretical models predict that if more than 98% of susceptible young children can be protected against measles, the disease can be eradicated (assuming a homogeneous population and rare vaccine failures). However, if these assumptions are not correct, then 100% protection is necessary. Therefore, eradication is not feasible given the current vaccine and coverage levels.

Achieving the 1995 Measles Targets

At the September 1991 World Summit for Children, the WHO 1995 target for morbidity and mortality reduction were affirmed at 90% and 95% respectively. This will require increases in both coverage and efficacy. Eleven strategies have been outlined to achieve these targets.

1. Vaccinate in the first year of life. Vaccination of older children in LDCs will be less effective since many will already have become immune or died through exposure to the wild virus.

2. Reduce missed opportunities. Causes (see below):
 - i. False contraindications
 - ii. incorrect screening by health worker
 - iii. vaccine not available
 - iv. clinic too crowded
 - v. cancellation of scheduled session for variety of reasons
 - vi. inconvenient time
 - vii. health worker will not waste vaccine ie will not open vial for 1 child. etc.
3. Increase community participation
4. Registration and follow up of newborns
5. Use accelerated immunization strategies (ie immunization days). But these should be used under specific circumstances.
6. Vaccinate high risk groups: refugees, hospitalised children, urban infants etc.
7. Adopt 2 doses schedules

8. Provide Vitamin A supplementation in Vitamin A deficient areas.
9. Treat severe measles with Vitamin A
10. Treat measles complications effectively
11. Expand infrastructure

9.6. THE EXPANDED PROGRAM OF IMMUNIZATION

The Expanded Program of Immunization was launched in 1974 by the World Health Assembly. Although WHO took the lead in the development of the program, it has since been joined by other UN agencies and multi and bilateral development organizations. Each developing country generally has EPI office housed in the Ministry of Health.

EPI was initiated in Ethiopia in 1980. The program had planned to make immunization services available to 10% of the population in 1980 and to increase immunization access by 10% each year. However, in

1986, only 10% of the country's eligible children were fully vaccinated. After launching of Social Mobilization of intensification of EPI to attain Universal Child Immunization (UCI), the coverage increased to 59% by 1990. Subsequently, as a result of the escalating civil war and public unrest, the EPI coverage for DPT3 dropped from 59% to 21% in 1991, and 13% in 1992, with only 59% of the country's static health facilities in accessible areas rendering EPI services. With the revival of EPI in 1993, DPT3 coverage reached 28% by the end of the year (UNICEF, 1994), coverage report for the year 1995 was 43% (MOH).

In general, childhood immunization programs are expected to face the following challenges.

- Maintaining coverage levels
- Reaching as yet uncovered populations
- Dealing with rising vaccine costs
- Finding resources to deliver newly available vaccines

Vaccine Quality Control

Quality control relates both to the management of the cold chain and the process of sterilization.

Causes of Damage to vaccines:

1. Time (Expiry date)

Vaccines deteriorate with time and this deterioration is accelerated by heat and sunlight which damage all vaccines - especially polio and measles. All vaccines lose potency when exposed to heat, but some are more sensitive than others (see table)

2. Measles and BCG vaccines are very sensitive to light at all times.

3. Freezing damages DPT and TT as well as inactivated polio vaccine and Hepatitis B vaccine.

Therefore, the safest policy is to keep all vaccines at the correct COLD temperature (0 - 8 degrees - but not freezing), and in a dark place.

4. Chemicals, antiseptics, detergents, soap etc, can inactivate vaccines, and therefore should not be used to sterilize.

Here is the order of vaccines in order of their sensitivity

Most sensitive	OPV
	Measles
	Yellow fever
	Hepatitis B
	Inactivated polio vaccine
	DPT
	BCG
Least sensitive	TT

Sensitivity of vaccine to heat

Cold Chain: A system of people and equipment which ensures that the correct quantity of potent vaccines reaches the people who need it.

There are 4 ways of monitoring the cold chain:

1. Regularly monitoring the storage, which should always be kept between 0 and 8 degrees centigrade. A chart should be affixed to the front of the fridge and the morning and afternoon temperature should be recorded.
2. Determining whether or not the vaccine has been frozen - the shake test for DPT and TT vaccines.
3. Using the cold chain monitor / freeze watch indicator.
4. VVM for OPV. If the colour of the central part becomes similar or darker than the surrounding, the vial should be discarded.
5. Potency testing: If cold chain failure occurs, one may consider testing the potency of the vaccines. This is indicated only if large numbers of doses are involved. It is therefore, likely to be of limited value at the health facility level. The following table shows the minimum numbers of doses that justify testing. If there is doubt

about vaccines at a lower number of doses than the above, it is more cost effective to discard them.

Minimum Numbers of Dose of EPI Vaccines that Justify Testing

OPV	25000
Measles	7000
BCG	20000
TT	20000
DPT	20000

Sterilization

Another aspect of quality control relates to the sterilization of vaccination equipment. Every health facility must be able to provide vaccines with sterile needles and syringes. There is no point in providing potent vaccines, if you kill the child with AIDS or hepatitis. This means that every health centre should be able to sterilize its equipment or have adequate stocks of disposable needles and syringes.

1. Equipment needed

Sterilizers, Drums or Racks to hold needles and syringes, A clock, A source of heat, A regular supply of energy. Boiling could be used, but it is not as effective as sterilization. It should only be used until steam sterilizers are available. Steam at 121 - 126 degree centigrade kills everything. Steam sterilizer can be fitted with either drums or racks. Both fit in to the sterilizer and hold the needles and syringes. A rack must stay in the sterilizer to keep needles and syringes sterile, while drum is a sealed unit that may be separated from the sterilizer.

Drum has two advantages: Weighs less than sterilizer and rack and is easier to transport to outreach sessions; need fewer sterilizers, since you can use one sterilizer to sterilize more than one drum.

2. Estimation of needs for sterilization equipment

Each rack or drum holds 42 syringes and 50 needles. There are 3 sizes of sterilizers: 1 - 2 and 3 unit. So,

42, 84, or 126 syringes. Need one back up rack or drum filled with sterilized needles and syringes at each session. Calculations are based on the following assumption:

BCG immunization is 100%

For every BCG immunization given, you also need 3 DPTs, 1 measles and 1 TT immunization. So for example, you know that on your busiest day will not give more than 7 BCG injections. It means that you assume to give 35 injections of the other 3, for a total of 42. Therefore, you need one rack plus one reserve. So, you will need either 2 singles or 1 double or triple rack (drum) sterilizer.

If the health unit does both static and outreach immunization sessions a day you need more sterilization equipment.

3. How is the condition of the equipment?

The safety valve and rubber seal and the clock all need to be checked.

4. Is the right kind of injection equipment used?

Recommendation: Plastic reusable needles and syringes is steam sterilizer is available. The alternate is to use disposable needles and syringes. Reusable needles can generally be used 50 times. Rate of replacement of syringes depends on the hardness of the water used in sterilizers: severely hard 30X, moderately hard 50x, soft 100x.

Estimation of numbers needed: as for vaccines and spare parts, but keep 100% reserve if you have enough space.

Supply

The system can be used for any commodity such as FP.

Estimating requirement for an existing store.

When reordering supplies, we have to keep in mind four things:

1. How much stock used since last order
2. How much reserve stock should be kept for emergencies?
3. How much stock was left over from the previous supply period?
4. How long will it take for new supplies to arrive?

All assume a reasonable inventory and recording system. Unexpected changes in demand may relate to an epidemic, a flood, a sudden influx of people or outside the catchment population area, or due to increase in demand through health education program, reserve stocks take in to account normal variability and emergencies. Generally, use 25% reserve. Useful for power failures, transport problems and epidemics. Stock balances should be done continuously.

Estimating vaccine requirements for the first time:

Need to know;

Total population = # births/yr Coverage: = # < 1 children

Wastage rate = # doses per antigen Reserve = # of doses per vial Times 12 months

Transport

Plan for this could be made based on what is available, working conditions of the means of transport (it is a vehicle) , number of workers engaged in vaccination at a time, number of sites available and the efficiency of each in terms of cost, convenience and timing.

Assessment of EPI coverage

- Health facility reports (requires a good HIS)

Targets (under one) - in Ethiopia it is 3.5% of the total population according the 1984 census. Women in reproductive age group constitute about 20 - 22% of the total. Findings from reports could be compared and counter checked with the number of doses of a vaccine

given to these children over the same time period (during the past 12 months) over the target population.

- **The EPI coverage survey**

Often routine reports are inaccurate and one may have to resort to EPI coverage survey to determine the coverage, and provide additional information. WHO has developed a rapid survey methodology which is valuable not only to determine vaccination coverage, but also reasons underlying for failure to vaccinate children. The main advantages of this methodology are that it can be completed quickly and it is technically easier to carry out than a simple random sample survey in populations that are not censused.

Its principal disadvantage is that it allows one to draw conclusions about the population as a whole; one cannot compare sub - populations. For example, one can not compare rates between the boys and the girls in the sample population using the standard thirty by seven cluster methodology. However, with modification of sample size, this too is possible.

The standard cluster survey methodology involves choosing 30 different clusters of 7 - 10 households. A cluster is a randomly selected group which for the EPI coverage survey contains 7 - 10 children of appropriate age (12 - 23 months). Thus, each unit randomly selected is a group of cluster of persons rather than an individual.

In order to select the clusters, one must first know the total population of the area under consideration, as well as the populations of the various towns, villages or other centres in the area. These population centres are listed with their populations and a cumulative population besides it. A sampling interval is determined by dividing the total population by 30. A random number will be selected between and the determined sampling interval. The community for which the cumulative population equals or exceeds the random number is selected. It will contain the first cluster and so on until all the thirty communities have been chosen. Large communities may contain more than one cluster. Once the communities have been selected, one then chooses the

cluster. This is done by selecting a household. If the community had been censused and list of households available, this will be a relatively easy procedure. One numbers the houses and selects at random one house the first house. If no household number exists, one goes to the centre of the community (churches, mosques, schools, market places etc) and selects a random direction in which to proceed (usually by a spinning a bottle). One then counts the number of houses between the centre and the periphery of the selected quarter and selects one house at random, this becomes the starting house. The second household to be visited is the one closest to the first (ie the household with the front nearest door) and so on until you complete the required cluster number. If any of the households contain more than one child, it is advisable to include them all. The vaccination status of each child is determined usually by card. Once all 30 clusters have been finished one will have 210 or up to 300 children.

So, after this procedure we know where we are in terms of the coverage of vaccination for the target group concerned.

What next? In addition to determining coverage survey allows one to identify reasons for immunization failure. For all those in the target group who are found not to have been completely vaccinated, the mothers are asked to identify the major reason why from the list below. The majority of the reasons have been found to fall into one of these categories.

Table showing the common responses given by caretakers when asked about the reasons for failure to be immunized. They may be divided into three main categories:

1. LACK OF INFORMATION

1. Unaware of need for immunization
2. Unaware of need for return for second or third dose
3. Place and/or time of immunization unknown

4. Fear of side effects
5. Wrong ideas about contraindications

2. LACK OF MOTIVATION

1. Postponed until another time
2. No faith in immunization
3. Rumours

3. OBSTACLES TO IMMUNIZATION

1. Place for immunization too far
2. Time of immunization inconvenient
3. Vaccinator absent
4. Vaccine not available
5. Mother too busy
6. Family problem, including illness of mother
7. Child ill - not brought
8. Long waiting time

Challenges for EPI

Four of the commonest are:

Dropouts

Missed opportunities

Never reached despite having access

Lack of geographic access

1. Drop outs

A dropout is defined as a woman or a child who failed to return for subsequent doses for which she or he is eligible. Dropout rates are among the most important problems countries are facing throughout the world in increasing coverage rates. People start immunization and fail to complete it for different reasons. WHO (1987) states that most vaccination programs show dropout rates between first and third doses of DPT/OPV of 20 - 40%, the main reasons being lack of knowledge and difficulty of access to health facilities.

Reproductive Health

In Ethiopia, Tsegaye (1990) found a dropout rate of 25% for childhood immunization in Ketena 2 of Addis Ababa. Similarly Tolessa (1991) found that 180 (21.2%) children surveyed in health institutions in Arrsi Region in 1991 were defaulters. Worku (1994) found the drop out rate in Wolliso to be about 32%. These studies found rates lower than the national figure for defaulter rate which is between 40 - 45% (Worku 1994).

Drop out rates are calculated as follows:

Over all drop out rate: $\frac{\text{Coverage with BCG} - \text{Coverage with measles}}{\text{Coverage with BCG}}$

Drop out rate for a single antigen (OPV)

$\frac{\text{Coverage with OPV1} - \text{Coverage with OPV3}}{\text{Coverage with OPV1}} \times 100$

There is a problem whenever the drop out rate is greater than 10%. It is essential to determine why the failure occurred. This determination can be made through qualitative research (focus group discussions with

community leaders, care takers and health workers). Another useful method is the 75 Household Survey: a non random survey of 75 households to determine reasons.

Frequent responses to questions concerning the reasons for drop out are:

1. Health workers do not explain the need.
2. Unsure of dates to return
3. Long wait at the centre
4. Centre opens at inconvenient hours
5. Health workers nasty
6. Mother usually busy on other engagement
7. Family left the place for a while
8. Child developed side effects or was sick on the appointed date

2. Missed Opportunities

Missed opportunities occur when women or children who need immunizations are not immunized even if they are at the health facility (for example if they are there to obtain curative services). Current policy is that all people at a health facility for any reason should be screened for immunization status and vaccinated if eligible. The frequent occurrences of missed opportunity for immunization are regarded as one of the major problems in the delivery of immunization services. Several clinic based studies have shown that missed opportunities occur in high percentages of consultations. Missed opportunities occur in two settings: 1. during visits for immunization and other preventive services and 2. during visits for curative services. In both cases, eliminating missed opportunity has the potential to raise overall immunization coverage in a population.

It was found in Mozambique and Guinea Conakry that missed opportunities and inappropriately timed

immunizations subsequently reduced immunization coverage achieved in these countries. In Mozambique 8% and in Guinea Conakry 19% of the eligible children missed the opportunity of being immunized. Missed opportunity studies in Ethiopia are limited. Rates of missed opportunities have been found to range from 35% to 47% (Bekele 1994).

Based on information such as that presented above, UNICEF has concluded that for all vaccines, and in almost all countries, the two outstanding opportunities for increasing immunization coverage in the next few years are to reduce drop out rates and missed opportunity. Both could be exploited at almost no extra cost and both depend on making better use of existing resources rather than major new expenditures. For all immunization programs, bringing the child into contact with the clinic is more than half the battle. Screening all children who present to clinics for whatever purpose and either vaccinating them or referring them for vaccination,

is therefore, a way of quickly increasing vaccination coverage using existing staff and facilities.

Secondly, if all children who receive a first dose of vaccine were to complete the full course, the 80% target would already be reached in most countries.

To determine if there is a problem with missed opportunities, it is important to talk to the community and observe health service activities at the health facility. Also one can conduct an exit survey at health facilities to find out the immunization status of women and children as they leave the health facility. If they are eligible for vaccination, but have not received it, the reasons can be determined.

Common causes for missed opportunities include:

1. Workers do not know the policy
2. Workers screen, but tell patients/people to return later

3. Workers only vaccinate women with TT if they are pregnant
4. Workers will only open a vial if there are enough clients who need it.
5. False contraindications
6. Vaccine not available
7. Only one vaccine is given when more than one is indicated
8. Mothers are not immunized when their children are

3. People never reached

These are people who never use the services provided for reasons other than lack of geographic access. As mentioned above, informal interviews and the 75 household survey may be used to determine the reasons. Possible explanations include:

1. Cost (including fees and transport)
2. People unaware of the services

3. People unaware of the importance of the services
4. Time constraints (women headed households)
5. Cultural or ethnic barriers (beliefs, rumours)

4. Geographic barriers

A person has geographic access if he/she lives within a reasonable distance of the services, or if there is outreach. It should be possible for all countries to provide immunization services to its population either through health facility or through outreach. If any village does not have access to health services or outreach immunization, there is a problem. However, this too is not insoluble. In those countries where distances are large and populations are scattered, immunization campaigns can be used. For example, Brazil achieved very high coverage rates and significant reduction in morbidity and mortality by twice yearly immunization campaigns.

The above four categories of causes of low vaccination coverage have potential solutions. Once the underlying causes are identified, possible solutions can be determined.

1. Social mobilization
2. Drop out or defaulter tracing mechanisms
3. Respond to community's need
4. In-service training for health workers and other motivation mechanisms
5. Supervision and support
6. High level advocacy (use influential people including other sectors)
7. Local immunization and supplementary immunization program
8. Ensure financial and logistic supply
9. Get commitment by the local leaders
10. Monitor coverage periodically and carry out disease surveillance continuously.

9.7. GROWTH MONITORING

Growth Monitoring (GM) has a long history. Baby weighing was carried out as long ago as 1910 in Jamaica, and the Infant Welfare Movement in the UK in the early 1920s used volunteers to weigh babies and to provide advice on child rearing to mothers. The concept of the under five clinic was popularised in the 1960s by David Morley in Nigeria. He developed a growth chart that was easier to use, and made it the cornerstone for the assessment and treatment of under five children.

In the 1970s, many programs adopted a shift of responsibility for GM from the health service into the community, giving as much emphasis to education of the community as to health service delivery. When UNICEF announced GOBI (GM, oral dehydration, breastfeeding, immunization) as its operational strategy in 1982, the use of GM as a basic strategy for child health programs was given an important impetus in developing countries. Most programs suggest that children under two years of age be weighed monthly,

and thereafter, quarterly. Most severe growth faltering occurs in the first year of life and during weaning period.

Triple A Cycle:

GM can be seen as a measurement strategy for household and community levels whose aim is to provide data for **assessment, analysis and action (Triple A)**. An assessment is made through weighing the child; an analysis is made through comparing the child's weight with the weight during the previous weighing and if weight loss or retardation of growth is observed; the care giver is counselled about possible causes and suggestions are made about more relevant actions. Ideally, these actions are feasible and are taken by the care giver at the household. After some time, the child is weighed again - a reassessment is made, followed by new analysis and new actions as necessary.

Rationale for GM

Growth charts can be seen as useful for three purposes:

1. Screening: to assist health workers to diagnose children who are suffering from or in danger of suffering from malnutrition and to select those children who are seriously malnourished and may need treatment and/or referral.
2. Education: to assist health workers to educate mothers about child growth and nutrition.
3. Evaluation of nutrition programs and interventions.

The Triple A process is the basis for the use of GM. But what happens in reality is the process has many steps. The theoretical pattern is as follows:

Assessment: The caregivers and children arrive, are registered, the child is weighed by one worker and the weight is recorded usually by another.

Analysis: One of the workers, usually the most senior is supposed to look at the chart, determine whether there

is a problem, examine the child if indicated, and provide an intervention if required.

Actions: If it is determined that an intervention is indicated, one of the following applies: treatment, counselling, referral or some combination of the above.

In the experience of many countries, GM programs limit themselves to the first A - Assessment. Children are weighed and charted, and the process stops there.

In 1985, the first comprehensive review of the operational experience of GM was published. Since then, a number of other critical appraisals of GM programs have appeared in the literature.

The concerns in terms of the above stated three purposes for GM are as follows:

Screening

Screening tests are designed to discriminate between people who are likely to have a condition and those who are unlikely to have it. Screening is useful only if the clinical outcome for persons picked out by screening is

better than it would have been, had the persons not been screened. The potential benefit of anthropometry as a screening tool lies in its ability to predict a child's risk of future morbidity and mortality so that steps can be taken to prevent these problems.

Is this being done in GM programs? A number of problems have been found:

Lack of sufficient supply of charts frequently hampers successful implementation of GM programs.

Poor recording: GM is relatively simple in concept, but difficult to use; there are frequent inaccuracies. A common source of error occurs when workers fail to leave a blank space for each month the child has not been weighed, giving a falsely optimistic impression of the child's growth. A postal survey of 322 health personnel in over 50 countries (in Gerein, 1988) who had used growth charts for at least 4 years in their programs found significant problems with various aspects of the process:

78 % determining the month of birth

49% plotting the weight

43% interpreting the weight curve

30% weigh correctly.

The difficulties with interpretation are myriad. Much of the program based on the concept of graphical representation of figures and often workers have no capacity to visualize or analyse in this way. Workers have difficulty understanding what it all means and also difficulty with the concept of trend. In a study in Indonesia, 40% who had not gained weight were classified as gaining and 20 who had gained weight as losing.

Establishing the reasons for growth faltering is usually done by questioning the care giver and examining the child. However, Nabarro and Chinnock suggest that the reasons for growth faltering may be too complex for health workers to understand.

Thus, though growth charts may be theoretically a useful diagnostic tool, in practice all the evidence indicates that they often lead to the wrong diagnosis.

More importantly, what might happen in the majority of the cases when remedial action is indicated, often no action is taken. For example, in a study of three programs in Zaire, 30% of children with weight loss or inadequate weight gain received no intervention.

Education

The second purpose for which growth charts are employed is in education, to teach mothers about the relationship between food and growth, and how they can improve the nutrition of their children. However, for growth cards to be an effective educational tool, several factors are necessary. The diagnosis of the child as malnourished should be accurate, health workers need to take time to talk to individual mothers if their child is found to be malnourished or having growth faltering, and mothers must understand what is signified by the growth

chart. Finally, once they have received the nutrition advice, mothers must put it into practice.

Unfortunately, in a number of places, there is evidence that none of these stages are successfully implemented. As discussed above, a large percentage of all children are misdiagnosed. Even if correctly diagnosed, it is very unlikely that the mothers will be given any nutritional advice. A study of MCH clinics found that 71% of the consultations took less than 2 minutes. In this time, the child was weighed, examined, vaccinated and treatment was given. In only 10% of all children seen was nutrition advice given, and the advice was usually non specific e.g.: "eat more greens". Thirdly, there is good evidence that mothers do not understand the meaning of growth charts. Two studies found that only 6% and 34% of the mothers were able to correctly identify a "good" growth chart as indicating good development as compared to a "bad" chart. The 34% figure relates to educated urban mothers.

Finally, there is evidence that nutrition education does not lead to improved nutrition of their children. Studies in Papua New Guinea have shown that while mothers are usually aware of the correct feeding practices as taught by MCH programs, they still tend to follow traditional feeding practices. But if they did follow the messages that they have received, there is evidence to suggest that poverty and maternal malnutrition leading to low birth weight and poor milk supply are more important factors. If this is the case education of mothers on how to feed their children will have little effect.

Evaluation of programs

In theory, GM could be an effective means by which to evaluate community nutrition and PHC programs. In reality, evaluation is rarely carried out, and in addition, the reliability of the data collected through GM is often too poor to be used to reliably evaluate programs.

UNICEF has recently evaluated GM programs worldwide. In addition to the above problems, the evaluation showed:

- Lack of time for mothers to carry out advices, especially during harvest seasons.
- Lack of knowledge in preparing energy dense foods.
- Lack of variety on winning foods.
- Nutrition advice too general and/or simplistic and/or prescriptive.
- Some mothers have problems following advice, due to lack of money, time and food.
- Health workers do not share analysis with mothers and often behave in unpleasant manner.
- No physical exam carried out during GM and no referral made.

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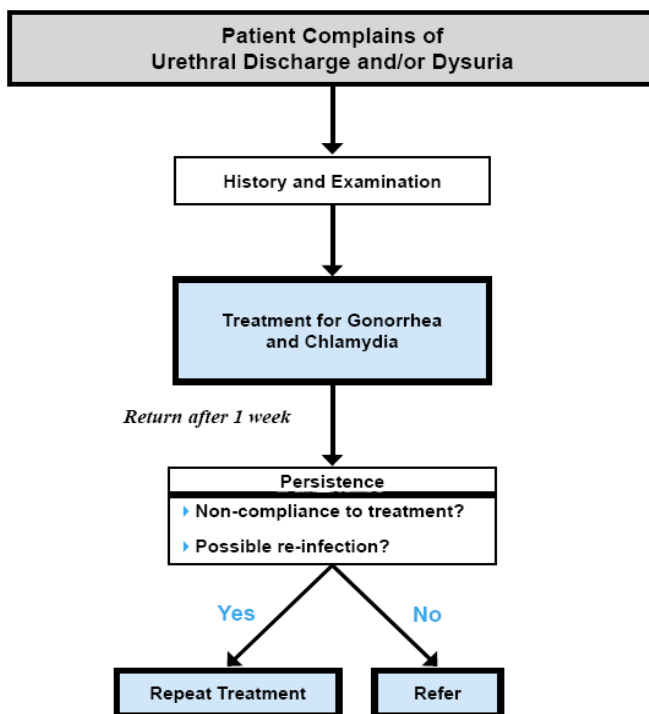
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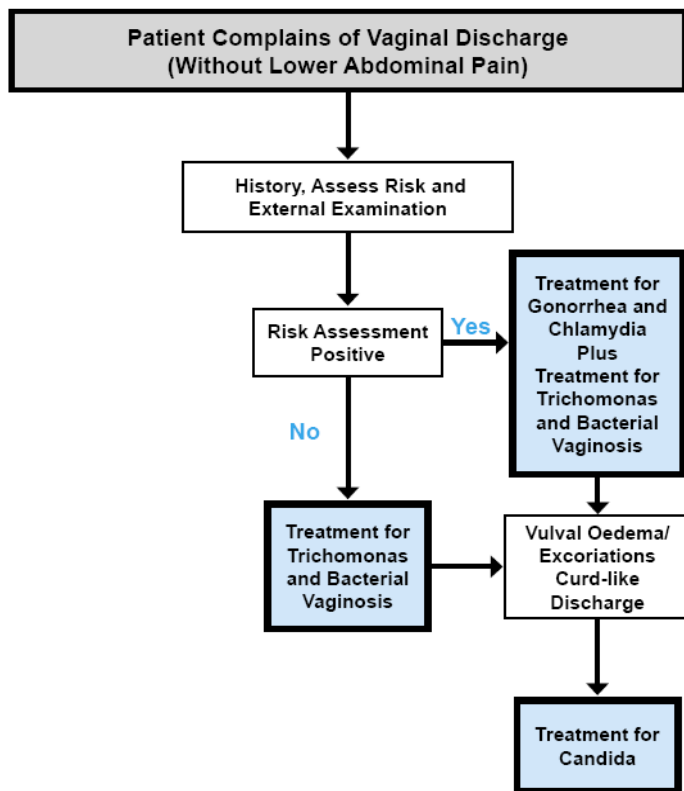
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ANNEX

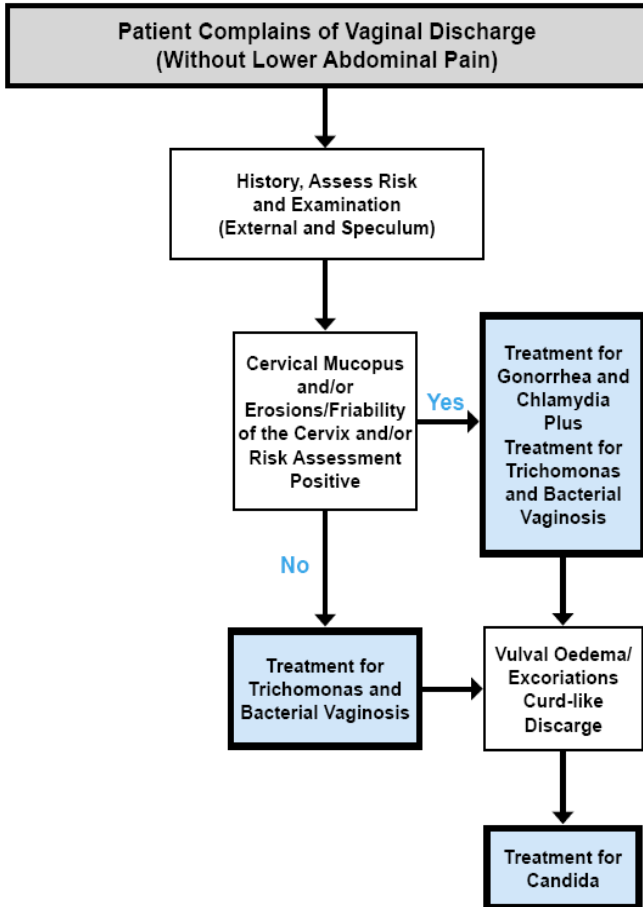
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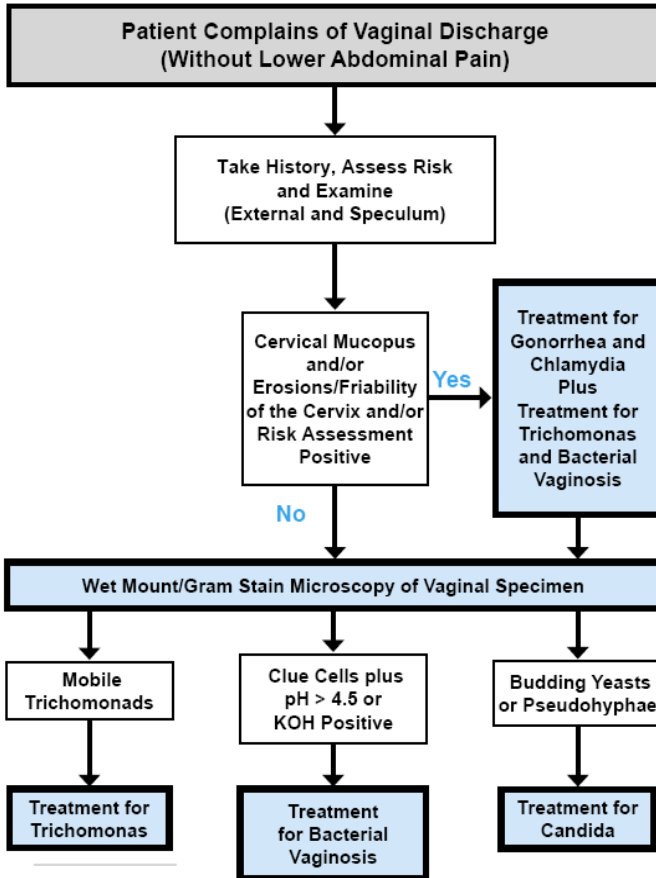
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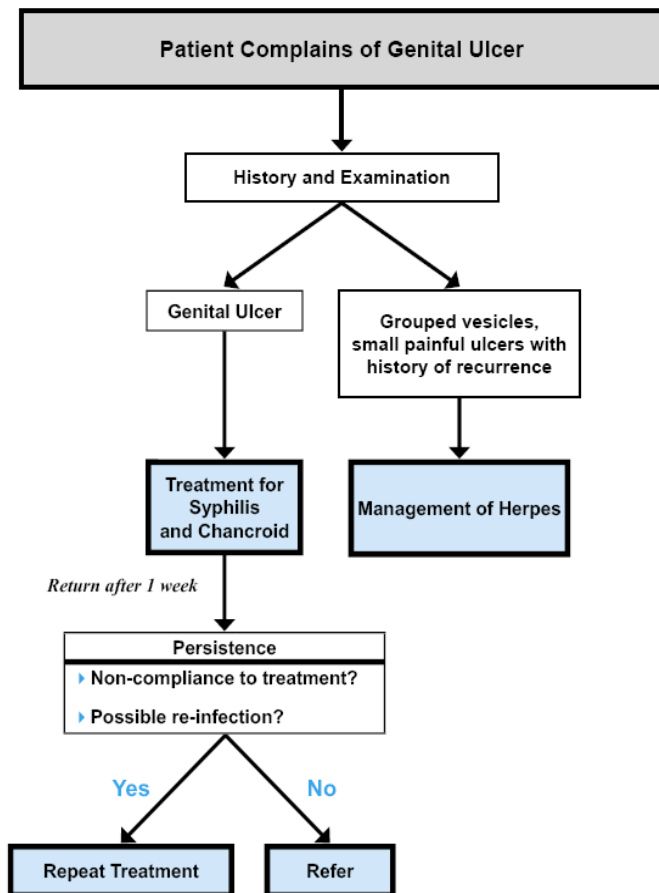
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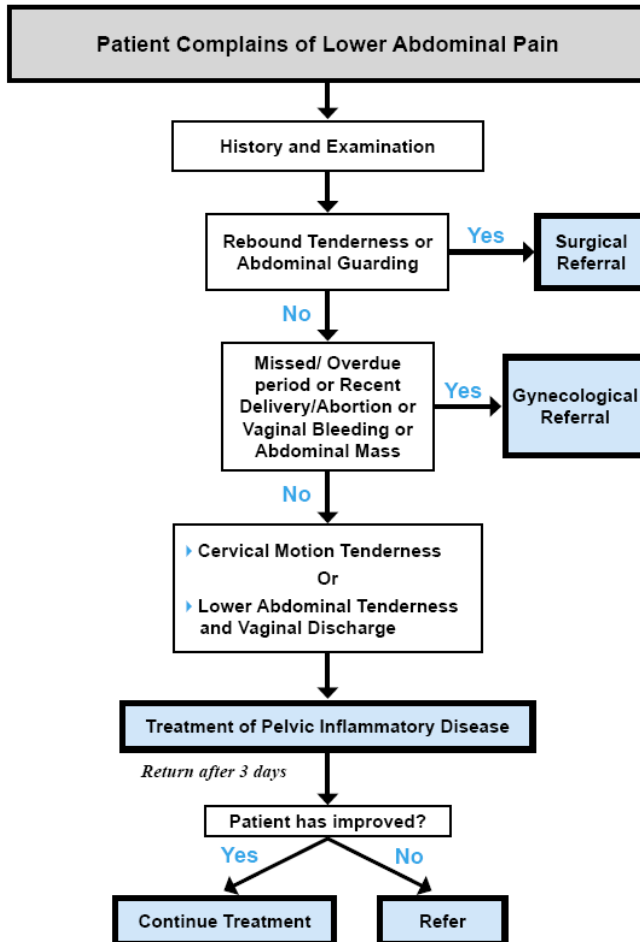
VAGINAL DISCHARGE (With Speculum and Microscope)



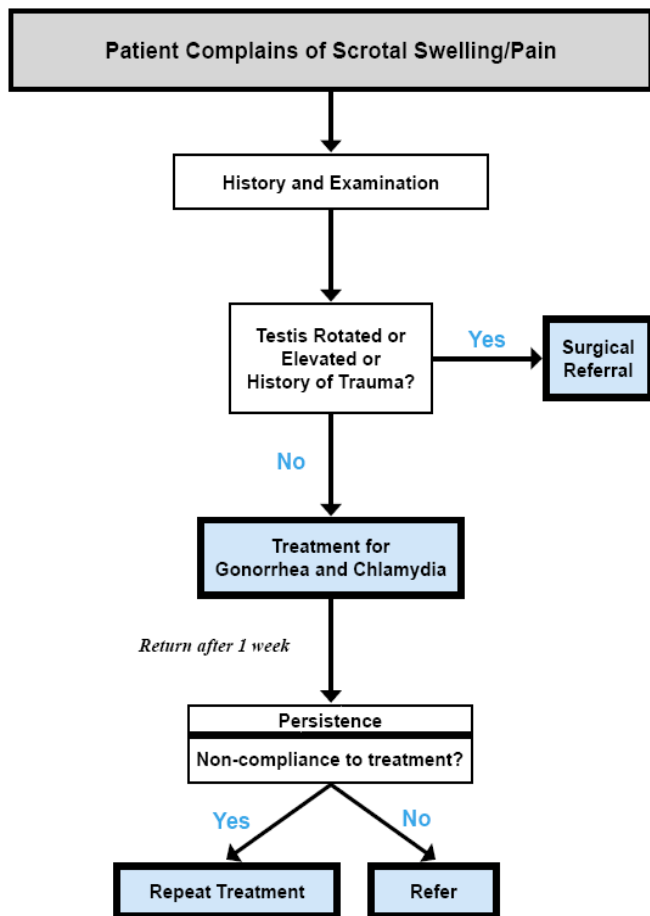
GENITAL ULCER



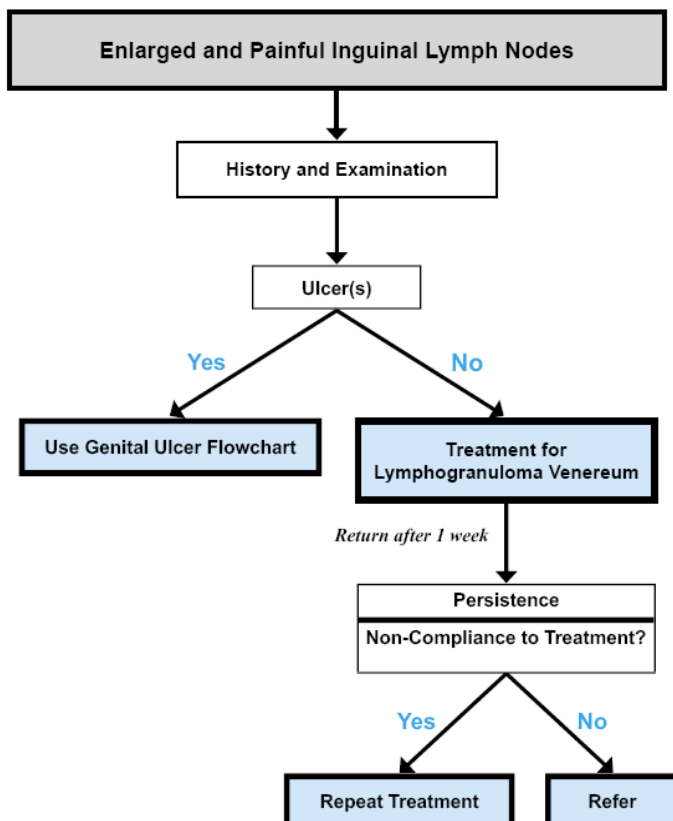
LOWER ABDOMINAL PAIN IN WOMEN



SCROTAL SWELLING AND PAIN



INGUINAL SWELLING (BUBO)



NEONATAL CONJUNCTIVITIS

