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TRAINING MANUAL

Management/Control and Prevention STDs/HIV/AIDS

For Health Care Service Providers

CCRDA

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ACRONYMS

ADC	AIDS Dementia Complex
ANC	Ante Natal Clinic
AIDS	Acquired Immuno Deficiency Syndrome
AFB	Acid Fast Bacilli
ARC	AIDS Related Complex
CBC	Complete Blood (cell) Count
CBR	Crude Birth Rate
CDR	Crude Death Rate
CMV	Cyto Magalo Virus
ERV	Epstein Barr Virus (Hairy Leukoplakia)
ESR	Erythrocyte Sedimentation Rate
FTA-ABS	Fluorescent Treponemal Antibody Absorption Test.
HC	Health Centre
HPV	Human Papilloma Virus
HIV	Human Immunodeficiency Virus.
GC	Gonococcus
GV	Gentian Violet
IEC	Information Education and Communication
IMR	Infant Mortality Rate
KS	Kaposis Sarcoma
LRTI	Lower Respiratory Tract Infection
MDM	Medicin Du Monde
MMR	Maternal Mortality Rate
MOH	Ministry of Health
M.tb	Mycobacterium Turberculosis
NGO	Non Government Organization
OGA	Other Governmental Agency
OI	Opportunistic Infection
ORS	Oral Rehydration Salt
PGL	Persistent Generalized Lymph Adenopathy
PID	Pelvic Inflammatory Disease
PCP	Pneumocytis carinii Pneumonia
PPD	Purified Protein Derivative
PWA	Person with AIDS
PWHIV	Person with HIV
RPR	Rapid plasma Reagin
SCC	Short Course Chemotherapy
STDs	Sexually Transmitted Diseases
TPHA	Treponema Pallidum Hemagglutination Assay
TB	Tuberculosis
Tv	Television
VZV	Varicella Zoster Virus
VDRL	Veneral Disease Research Laboratory
WHO	World Health Organization

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Introduction

Infection with the human immuno deficiency virus (HIV) and AIDS represents a major challenge to health works in Ethiopia. As of the end of June 1998, 61,419 cases had been reported to the Ministry of Health from different Health institutions in the country. It is estimated that 4 million persons are infected with HIV.

Health workers are called upon for many tasks in the case of HIV infection and AIDS. They are expected to diagnose HIV infection and HIV-related illnesses and ensure that HIV is not spread through health - care procedures. The community looks health workers for guidance, for information and education. Health workers must deal with complex psychological, social, legal and ethical issues associated with HIV testing. Health workers are asked to contribute, through personal and community leadership, to forming an enlightened public opinion.

To shoulder these responsibilities, health workers should acquire and continue to update themselves with complex with complex issue in HIV/AIDS as well as STDs.

This manual is designed to be used by most of the categories of health care service providers who are on the front line in the fight against HIV/AIDS/STDs. It does not attempt to review all aspects of the virology, pathophysiology, epidemiology, immunology, natural history of HIV/AIDS/STDs. It is a guiding manual that addresses common and important issues that are related to HIV/AIDS/STDs in our setting. It provides practical overview of the topics most salient to HIV/AIDS/STDs.

Greater care has been taken to ensure the accuracy of the information in this manual. However, since the epidemic is very "dynamic" in nature, material of this nature can only serve as a foundation.

It is hoped that the handbook will help health care service providers to improve their STDs/HIV/AIDS prevention and control efforts.

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CONCLUDING REMARK

The consulting/Expert Team of ABCD in Health wishes to make it clear to all concerned that the remarks made and the recommendations indicated in this final manual and the report submitted to CRDA do not necessarily reflect the views of individuals, local government authorities, offices, institutions or many one else with whom it had discussions other than the consulting firm itself.

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CHAPTER 1

EPIDEMIOLOGY OF /STDs/HIV/AIDS

1.1. INTRODUCTION TO GENERAL EPIDEMIOLOGY

The Purpose and Methods of EPIDEMIOLOGY

1.1.a. Three Important Aspects of Epidemiology:

I. Definition of Epidemiology
II. Uses of epidemiology
III. Uses of epidemiology in Public health

I. DEFINITION OF EPIDEMIOLOGY

A commonly accepted definition of epidemiology

Epidemiology is the study of the distributions and determinants of an infectious process, a disease, or a physiological state in a community. That is to say, whereas the basis of clinical study or research is the observation of individual patients, epidemiology requires observation of communities among whom disease occurs. i.e. community diagnosis *

II. USES OF EPIDEMIOLOGY

1. To study the history of diseases
2. To make community diagnosis
3. To look at risks of individuals as they affect groups or populations
4. To assess, evaluate, and make research of diseases.
5. To complete the clinical picture of diseases.
6. To determine the causes and sources of diseases.

Historically, epidemiology arose out of the study of epidemic diseases such as cholera and scurvy; but its scope has now expanded to include all diseases, irrespective of the frequency of epidemic fluctuation.

III. USES OF EPIDEMIOLOGY IN PUBLIC HEALTH

The role of epidemiology is the identification of specific causes of Morbidity and Mortality in a population so that effective interventions can be selected and implemented to reduce the Incidence of diseases to the lowest possible levels. This usually is done through a system of disease surveillance, investigation and control.

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* ***Community health is*** *the part of medicine which is concerned with the health of the whole population and the prevention of diseases from which it suffers. It does by making a* ***community diagnosis****.*

The level to which a disease can be controlled depends on many factors, the most important of which are:

- The state how the medical and other health sciences are currently in practice,
- The availability and effective utilization of resources i.e, (manpower, material and financial) resources.
- The capacity and capability of persons, especially epidemiologists and their assisting, supporting or collaborating personnel, responsible for promotion of health; disease control and prevention activities; and
- The timeliness and effectiveness with which appropriate actions are promptly taken.

With these factors in mind, the purpose of this part of training manual is to help health care providers acquire an understanding of epidemiological knowledge and some basic skills necessary for the effective control and prevention of STDs/HIV/AIDS.

This part of the manual is designed to introduce oneself to the basic general epidemiologic methods, so that one's learning about the specific epidemiology control and prevention of STDs and HIV/AIDS would clearly be understood and appropriately be utilized for all possible public health activities.

This introduction to basic Epidemiology contains the information as related to appreciation and acceptance of the purposes for which epidemiological investigations are to be carried out.

They are carried out under the following main headings of purposful Epidemiological follow-ups.

1. To provide the necessary data for planning and evaluation of STDs,/HIV/AIDS care.
2. To identify determinants of STDs/HIV/AIDS so as to enable the appreciation of prevention and control programmes.
3. To make limited evaluation on methods used to control STDs/HIV/AIDS.
4. To be able to describe the natural history of STDs/HIV/AIDS.
5. To make health workers understand and appreciate, in their day to day health care practices, the classification of general statistical follow ups of other diseases.

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b. **Survey of Users of Health Services**

Table 2.: Top 10 Diseases For Outpatient Morbidity 1987 E.C (1994/95 G.C)

No	Diagonsis	No. of Cases	%
1.	Malaria, all types	159325	6.03
2.	Helminthiasis	153767	5.92
3.	Acute upper Respiratory infection	132214	5.10
4.	Dysentery	113485	4.37
5.	Tuberculosis, all types	96114	3.70
6.	Accidents caused by fire machinery	87738	3.38
7.	Gastrits and duodenites	77383	2.98
8.	Acute Bronchitis	73387	2.83
9	Bronchopneumonia	70100	2.70
10.	All other diseases of Genito- urinary system	58163	2.20

c. **KAP Survey**

This survey is concerned with people's **KNOWLEDGE, ATTITUDES AND PRACTICES to SEXUALLY TRANSMITTED DISEASES AND RELATED PRACTICES.**

e.g. What proportion of men or women in the popultion know about methods of prevention of STDs?

What are their attitudes to the use of condoms, both in the prevention of STDs and in child spacing (Family planning programmes).

What percentage of husband and wife use child- spacing methods?

1.1.b.2. Counting Diseases

In the process of counting diseases, observations are carried out through the means of surveys of health, population data, and activities.

In order to fulfill the purposes of surveys, one needs to have a complete data or information.

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The aim of the survey and the types of population to be surveyed must be exactly stated before starting a survey. It is then that a decision could be made to do a populaton or a sample survey.

In a population survey, each member of the population should be counted or examined while in a sample survey only a part, or a sample, from the population should be counted or examined.

1.1.b.3. Population and Samples

A basic requirement in the design of any epidemiological study is a clear definition of its purpose. Consideration of this purpose will usually suggest an approximate definition of the population to be studied, in terms of location and restriction to a particular age-group, sex or occupation.

The study of population in relation to its age, sex, and distribution is called "demography", and this knowledge is required in order to organize and plan effective medical/ health care services (e.g. see table 3).

There are two main methods by which populations are measured. One method is a "census" , which is a count of everyone alive at one time. The second is called "civil registration," which is the recording of all births and deaths soon after they occur.

The use of the word population in epidemiology does not correspond with that of its demographic meaning of an entire group of people living within certain geographical boundaries. A population in an epidemiological study may comprise groups of people defined in many different ways, for example factory workers in Addis Ababa, new born babies exposed to ophthamia neonatorum during delivery, or pilgrims traveling to Kulubi Gabriel.

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Table 3. NATIONAL DEMOGRAPHIC DATA

Indicators	Value	Year
Population		
- Total	57,272,564	1997G.C
Male	28,814,868	
Female	28,457,696	
- Rural	49,033,939	
Male	24,829,935	
Female	24,204,004	
- Urban	8,238,625	
Male	3,982,234	
Female	4,256,391	
Age Structure	% of the total population	1997G.C
- Under 1 Year	3.37%	
- Under 2 Years	6.54%	
- Under 3 Years	9.75%	
- Under 5 Years	16.03%	
- Under 15 Years	44.71%	
-Adolescent age group	33.72%	
Women aged 15-49	23.26%	1997G.C
Pregnant Women	4.05%	
Deliverd Women	4.05%	
Population Density	50.4 People K/m	1997G.C
Sex Ratio (M.F)		1997G.C
Total	1:1.04	
Urban	1:1.001	
Rural		
Average Persons per Houshold	4.5	1997G.C
Total Area in million sq Kms.	1.112	1997G.C
Age Dependency Ratio	93.5%	1995G.c

Source : Demogaphic Analysis and poulation projection , PHRD, 1996
Health Sector , Synthesis and Summary PHRD,1996

1.1.b.4. Measuring Diseases by Rates

In epidemiology, various terms are used to describe the frequency with which diseases occur. The purpose of these terms is to allow comparison of disease frequencies in different populations.

The simplest method of expressing disease frequency is a statement of the number of cases seen.

In order to make comparisons between the occurrence of a disease in different localities, the size of the population must also be recorded. Therefore statements of disease frequency should be accompanied by a statement of the number of people in a related population. In this way disease frequency is expressed in terms of various rates.

RATES ARE USEFUL FOR MAKING COMPARISONS

Rates may express Morbidity, which is the frequency of illnesses, or Mortality, the frequency of deaths

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Rates in common use are as follows

Incidence Rates/Incidence

Incidence may be defined as the frequency of occurrence of some event related to a disease, such as onset of symptoms related to the size of the population and a specified time.

INCIDENCE MEASURES NEW CASES DURING A CERTAIN PERIOD OF TIME

Examples of Incidence Rates are:

a) The incidence of cerebroa-spinal meningitis in Addis Ababa in 1987 was 3.2 per 100000 population. In this example the "event related to the disease" is its diagnosis.

b) In a gyneobstetrics ward at a hospital in Nazareth area, the incidence of hospital admission for attempted criminal abortion between 1997 and 1998 was 64 per 100000 population per year. This incidence rate has been derived from the number of events i.e admission for attempted abortion, and not from the number of persons. A woman will contribute to more than one event if she is admitted with abortion more than once during the year. In this usage the incidence rate may be referred to as an admission rate.

c) The incidence of reported deaths from measles in Hararge in 1972 was 24.5 per 100000 population. In this example the "event related to the disease" is death, and this rate is therefore a death rate.

Incidence rates are the usual method whereby disease frequency in different populations is compared.

$$\text{The incidence rate} = \frac{\text{number of new cases detected in a defined period or interval of time}}{\text{total population at risk}} \times 100 \text{ (or } 1000\text{)}$$

Prevalence Rates/ Prevalence Survey

By general usage, prevalence rates have come to be synonymous with what we otherwise call Point Prevalence rates. They define the proportion of people affected by a disease at one particular time. Thus in 1965 the prevalence of acute trachoma lesions among children in Ethiopia, was 25 per cent.

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Thus:

PREVALENCE MEASURES ALL CASES AT ONE POINT IN TIME

The prevalence rate = $\frac{\text{number of cases found at a point in time}}{\text{total population}} \times 100$

The difference between incidence and prevalence can be summarized:

incidence shows the number of new cases over an interval of time. It is usually used to record intense, short lived diseases.

Prevalance shows the total number of cases at one point in time. It is usually used to record protracted or chronic diseases.

Table 4. National Vital Indicators:- As expressed in terms of various rates.

Indicator	Value	Year in G.C.
Crude Birth Rate (CBR)	40.5 per 1000	1995-2000
Crude Death Rate (CDR)	14.8 per 1000	1995-2000
National Rate of Increase	2.6%	1995-2000
Total Fertility Rate	6.1 children per W.	1995-2000
Child Woman Ratio	689 per 1000 W	1995
Infant Mortality Rate (IMR)	105 per 1000	1995-2000
Maternal MR (MMR)	560-850/100,000	1995-2000
Under 5 mortality Rate	172 per 1000	1985-2000
Life Expectancy at Birth Male Female	50.9 years 49.7 52.4	1995-2000

Birth and Death Rrates

a. The crude birth rate is usually calculated by relating total live births in a year to the total population.

b. The crude death rate is usually calculated by relating total deaths in a year to the total population.

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Special Mortality Rates

There are a number of special mortality rates in general use. They are derived from the basic formula for calculation of incidence rates i.e. number of deaths/unit of population/unit of time.

Included among special mortality rates are the following:

a. The infant mortality rate is the number of infants (children under 1 year old) who died during a year, related to the number of live births during the same year. This expression infant deaths/live births is multiplied by 1000 so that the infant mortality rate is recorded as the number of infant deaths per thousand live births.

b. The neonatal mortality rate is similar to the infant mortality rate being the number of children dying in the neonatal period (up to 28 days after birth) during one year per 1000 live births occurring in the same year.

c. The maternal mortality rate is the number of maternal deaths ascribed to puerperal causes per 1000 total births.

Special Rates

Usually rates are calculated by expressing the numbers of cases (the numerator) as a fraction of either the total related population or that section of the population which is at risk of the disease (the denominator). Gonorrhea incidence rates are expressed in relation to the population aged 15 years or more because the disease is unusual in children.

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1.1.b.5. Presenting Health Information

HEALTH STATISTICS

Analysis of vital statistics, especially that of births and deaths, can provide information on the health of a community. Additional information is derived from notifications of specific diseases. These routinely collected data can be analyzed with regard to the common causes of sickness and death, their distribution by person, place and time. Such simple epidemiological analysis provides valuable information on the common causes of sickness and death in the population. It provides simple answers to the three basic epidemological questions:

the transmission of HIV. Finally, one could understand why STDs control is so difficult, and how the diseases can be controlled.
This specific knowledge about the introduction to basic Epidemiology would have as its main objective to:

- Identify how STDs are transmitted, and the consequences and complications that can arise if they are untreated.
- List the biological and social factors that influence transmission.
- Appreciate the extent of STDs, together with factor that may mask the true burden.
- Understand how STDs are linked with the spread of HIV.
- Explain why the control of STDs is so difficult.
- Outline an approach to the control of STDs.

STDs DISTRIBUTION AND FREQUENCY STUDIES

Recent Surveys Have Shown that STDs rank as the leading causes of outpatient Morbidity accounting for 18.6% of total attendace in the 15-44 year age group in 13 towns in 1993.

In July 1990 Distribution and Frequency of some STDs was studied among 282 randomly selected Female Sex Workers (FSW) in Addis Ababa. An alarming high PREVALNCE of STDs was found in the study population.

- **GONORRHOEA** was detected in 78 subjects (30.1%)
- **TRICHOMONIASIS** in 62 (23.9%)
- **VAGINAL CANNDIDIASIS** in 51 (19.7%)
- Out of 203 sera studied 76 (37.4%) were positive for TPHA.

In 1991 cervical and vaginal discharge samples were examined for STDs causative agents.

The results of the tests indicated that 117 (41.5%) of the examined females had a single infection, while the others 18.1% had experienced mixed infections.

Neisseria gonorrhoeae	28.1 %
Trichomonias vaginalis	20.6%
Candida albicans	14.7 %
Gardnerella vaginalis	9.9 %

Out of 72 subjects tested with a TPHA for syphilis 37.3% were found to be positive.

A similar study done among 812 STDs patient in 1993 revealed a higher MAGNITUDE OF STDs among the study group.

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1.2.2. STDs - THE PROBLEM

In many developing countries throughout the world, STDs rank among the top five conditions for which adults seek health care. Information on these diseases are important for two reasons: because of their high prevalence and that of their potential for causing serious complications.

The advent of the human immunodeficiency virus (HIV), another sexually transmissible infection, has increased the importance of information on STD still further.

This first section of the review will be helpful in answering the following four of questions.

I. How are STDs transmitted?
II. What are the consequences and complications of STDs?
III. Biological and social risk factors that influence transmission of STDs.
IV. Social and economic factors that may influence high risk behaviour.

I. How are STDs Transmitted?

This is, perhaps, the only simple question to answer. There are three modes of transmission:

- sexual intercourse - the chief mode;
- infection in neonates and infants may occur through intrauterine transmission during birth;
- HIV-infection of infants, through breast-feeding, occurs in a small, but significant, number of infected mothers.

II. What are the Consequences and Complications?

- infants infected at birth with eye infections like pneumonia;
- chronic abdominal pain or infertility in women and infertility in man;
- after the initial infection with STDs such as syphilis and AIDS kill infants and adults alike,
- recent evidence reveals that common STDs contribute to the spread of **AIDS**. Upon exposure to HIV (the virus causing AIDS) a person is more likely to become infected with HIV if already infected with any of the sexually transmitted diseases.

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- there may be social consequences as well. For example if a husband realizes that his wife has an STD, the result could be beatings or divorce. Husbands may also abandon infertile wives.

III. What are Biological and Social Risk Factors that Influence Transmission of STDs?

WHAT IS RISK FACTOR

RISK FACTOR is an aspect of personal behaviour or lifestyle, an environmental exposure, or an inborn or inherited characteristic, which on the basis of epidemiologic evidence, is known to be associated with health-related condition(s) considered important to prevent.

In order to consider the biological and social risk factors, we must first establish what behaviours are likely to increase the risk of getting an STD? We know that the main means of transmission is penetrative sexual intercourse.

So high-risk behaviour include:

- having more than one sexual partner;
- changing sex partners often;
- having sex with casual partners, prostitutes or their clients;
- sexual practices such as anal sex.

The most important risk is having many sexual partners.
What social factors affect this risk?

Some of them are health related to

- failure to follow 'safe sex' measures, such as using condoms;
- delay in getting STD treatment;
- failure to bring in sexual partners for treatment;
- not taking the full prescribed treatment for STDs.

The most importnant reasons :

why people fail to use condoms?

- Lack of knowledge of safe sex.
- the power of the sexual urge that leads people to ignore safe sex messages even when they know them and,
- for many people, inavailability and cost.

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Why People Fail to Get Early Treatment?

There can be many reasons why people fail to get early treatment.
To name just three:

- sometimes STDs can be symptom- free, especially for women;
- appropriate health facilities may not be available; or
- the stigma so often attached to STDs will lead people to hide what they feel is shameful.

If stigma is an issue in unwillingness to seek treatment, then it must also affect both a patient's readiness to inform partners and the partner's readiness to accept treatment.

IV. What Social and Economic Factors may Influence High-risk

Here are some examples of epidemiological variables and attributes

Occupation Prostitutes and their clients run the highest risk of becoming infected. STDs also occur commonly among long distance truck drivers, uniformed service persons and migrant labourers.

War Political instability and insecurity influences sexual behaviour and increases the rates of STDs.

Circumcision The foreskin in uncircumcised males may increase the risk of AIDS- although circumcision is not protection against AIDS.

Gender STDs are primarily transmitted to women through vaginal intercourse. The efficacy of transmission is increased for women who have poor general health and suffer from genital lesions, inflammation secretions and scarification.

Age Genital immaturity facilitates transmission during sexual intercourse. Young women are specially at risk, in cultures where they marry or become sexually active during their early teenage years.

In addition, young people tend to practise risky sexual behaviour which puts them at risk of STDs.

In this section the epidemiology of STDs can be explored

- who it affects, by age, sex and occupation;
- the extent of STDs through different populations.

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In discussing these issues, the difficulties in obtaining accurate statistics will also be explored.

Who is Affected?

STDs, including HIV infection, are widespread throughout the world. It is known that they affect sexually active persons of either sex, and that children may become infected as a result of vertical transmission (or as a result of sexual abuse). The chief mode of transmission is unprotected sexual intercourse between men and women. So STDs occur equally in males and females.

However, statistics rarely show an equal distribution between men and women nor do they show an equal distribution between different age groups.

Distribution of STDs by Age

Age is one of the most important variables analysed in epidemiological surveys; and yet it is one of the difficult information to obtain with accuracy in our country (Ethiopia), where there is often no birth registration and where a considerable proportion of the population is illiterate.

Most children below 14 years, of age are free from infection other than from congenital syphilis, ophthalmia neonatorum and HIV infection.

Between the ages of 14 and 19 years, cases occur more commonly among females. This reflects the fact that the start of sexual activity is earlier for girls than for boys.

The rate of sexual activity at risk tends to be highest in the 15-30 age group, reducing in later ages.

Distribution by Sex

With age, the sex distribution of a disease may be influenced by the three factors:

1. Population structure,
2. Levels of ascertainment, and
3. Diagnostic criteria.

1. Population structure

The sex ratio at birth is almost equal (103 males:100 females in Africa). In some rural southern and eastern Ethiopia it has been found that seasonal migration can cause some cyclic changes in the sex ratio.

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2. **Level of ascertainment**

The obtainment of medical facilities, and consequently the level of ascertainment of disease, may differ for the two sexes. In many communities the women's duties around the house and in the field make it more difficult for them than men to spare time and seek medical treatment.

3. **Diagnostic criteria**

Some diseases, such as gonorrhea, are more difficult to diagnose in one sex than in the other, i.e. in females than in males. This will influence the recorded incidence in the two sexes.

As between men and women, most studies show that after the age of 19, cases occur more or less equally in both sexes. However, there is usually a slight male preponderance. Why? There are several possible reasons, some perhaps more obvious than others:

- older men may continue to be more sexually active than women of the same age;
- a large number of men might be infected after practising risky sex with a small number of sex workers;
- services in general may be more accessible to men than women , for example, where men migrate to urban areas for employment;
- sexually transmitted infections often produce no symptoms or only mild symptoms in women, so fewer women come forward for treatment and appear in statistics;
- as have been discussed before, cultural constraints such as fear for shame might also prevent a proportion of women from attending treatment.

Distribution by Occupation

It has already been mentioned earlier about high-risk behaviours; these are based on actual distribution by occupation. STDs occur more commonly in sex workers and their clients, the partners or persons with STDs, long distance truck drivers, uniformed service persons, migrant labourers, and younger age groups.

The Extent of STDs

The true extent of STDs in the general population remains unknown for several reasons, some of which have already been covered before:

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- Both men and women may suffer from asymptomatic STDs, but women suffer more than men. For example:
  - 70% of women and 30% of men infected with chlamydia may be asymptomatic.
  - 30% of women and 5% of men infected with gonorrhea may also be asymptomatic.
- Clinics offering treatment for STDs may not be accessible to many of the population.
- Many people with STDs do not seek care, and in developing countries people are not routinely screened for STDs when they seek other health care.
- Because of the stigma attached to STDs, many/STD cases seek care from health care providers who do not report cases (such as traditional healers and, sometimes, pharmacists and drug venders).
- Some governments are reluctant to admit a high prevalence of STDs, although the AIDS epidemic is beginning to change this attitude.

In many developing countries, the best available indicators of STDs level are surveys taken by antenatal, family planning, or gynecological clinics. They show a high incidence of STDs among the women attending the clinics.

1.2.3. THE BURDEN OF STDs

So far a number of different aspects of STDs in the developing world has been discussed. It is time now to review and summarize this information to identify the true burden of STDs, as stated under the following head lines:

- STDs are very common
- STDs spread rapidly
- STDs cause serious symptoms and illness
- STDs affect pregnancy and childbirth.
- STDs are linked to the spread of AIDS
- STDs adversely affect social life.

STDs are very common

In most countries, STDs are under-reported. There are many more sufferers than are recorded. The number of cases of STDs is on the rise worldwide. STDs which cause death have a greater impact because they kill people at the time they are most productive to society.

World wide in 1993, the World Health Organization estimated over 333 million cases of STDs. The number is highly increasing, now at a terrifying rate.

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STDs Cause Serious Symptoms and Illness

Acute diseases ranging from conjunctivitis in newborns to painful genital sores in adults are caused by STDs. Many STDs also cause serious chronic illnesses. Examples include the mental and nerve damage from syphilis, pelvic inflammatory disease (PID), urethral strictures and ectopic pregnancy.

Both acute and chronic STDs infections cause complications, some of them very serious. Syphilis can result in stillbirth, neonatal death, and adult death in its advanced stages. AIDS leads to death and presently has no cure. PID can result in infertility.

Chalamydia is not as common as gonorrhea (GC) but causes serious disease. In women without symptoms, chlamydia is about three times more common than GC. Chlamydia was relatively unknown 10 years ago. Even now, because of the difficulty of laboratory confirmation, it is rarely diagnosed. Thus a 'hidden' epidemic of chlamydia results in PID, ectopic pregnancies and infertility in women as well as blindness in babies. Service providers who graduated several years ago may not even have heard about chlamydia during their training. Now it is recognized as an important cause of STDs.

Morbidity, the amount of ill health caused by a disease, depends on the disease and the number of people who suffer from it. This may depend on the sex of the patient. In few diseases, men seem to suffer more than women. For example, men with gonorrhea suffer severe pain while women often are infected without symptoms. For most other STDs, such as trichomoniasis, women suffer more.

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STDs Affect Pregnancy and Childbirth

STDs place heavy burden especially on women and children as a result of their effect on child bearing. HIV and syphilis infect the baby before it is born, GC infects the baby as it passes through the birth canal. Chlamydia and GC can make women infertile and result in ectopic pregnancy.

The Effect on Society

The social and economic burden of STDs is enormous. When untreated, they place a heavy financial burden on families, affect communities and create unnecessary work load on health services by making them devote much of their time to STDs. STDs also reduce the productivity of men and women in what should be the prime objectives of their lives. If the epidemic goes untreated, the loss to national income will be significant.

The full impact of HIV and AIDS in populations where HIV rates are already very high should therefore be clearly understood.

1.2.4 THE DIFFICULTY OF CONTROLLING STDs

The goal of STDs control is to reduce the rate of spread of STDs infection and to prevent more cases of STDs. But control is difficult for a number of reasons.

A number of biological and social factors make control of STDs difficult. This has already been discussed in different contexts.

Sex is Embarrassing to Discuss

Because sex is embarrassing to discsuss, people may be shy to ask for information they need, slow to come for treatment and reluctant to tell their partners. Shame is often associated with contracting STDs. Talking about sex can make most people uncomfortable and may be a taboo. This is a major reason why STDs are often under reported - and so is often not recognized as a primary health care problem.

It's difficult to change sexual behaviour

Any behavioural change is difficult. Knowledge does not always lead to a change in behaviour. The difficulty in controlling STDs lies in the fact that sex is a primary and deeply rooted drive. Sexual behaviour is vital to whom one is and how one feels about oneself. Sex is one of the basic instincts of a person. It ensures one's survival as species. It is shaped by culture and influenced by religion. Sexual behaviour, because it is very personal and deeply rooted, is thus even more difficult to change.

The close association of sexual behaviour with the use of drugs, including alcohol, complicates control.

Many STD Carriers Have no Symptoms

Most STDs have asymptomatic carriers, i.e. people who can spread the disease without even knowing that they have it. This also complicates treatment programmes.

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Treatment is not always Simple - or Effective

Other aspects which make control difficult are the resistance of some bacteria, such as those causing gonorrhea, to antibiotics. Resistance to drugs requires changes in the drug of choice and use of increasingly expensive drugs to achieve control. For GC for example, there used to be a simple, effective treatment; this is increasingly a problem because of the organism's resistance to penicillin. For viral STDs such as HIV and herpes there is no effective treatment. The possibility of a vaccine for STDs such as HIV does not seem very likely at this time as the virus is continually changing.

In order to reduce the rate of spread of STDs infection, we need to have cost effective strategies. These must include:

- early diagnosis and treatment of STDs in order to reduce both its transmission to others and to minimize their sequel;
- educating patients and the general public on the dangers of high-risk sexual behaviour and persuading them to use condoms and limit sexual partners;
- tracing sexual partners of people with STD in order to treat them;
- targeting vulnerable groups, such as sex workers.

However, due to actue shortage of antibiotics, self medication with insufficient doses, drug resistance of some causative agents and the strong stigma attached to STDs, it is believed that STDs in Ethiopia have remained unabated especially in rural areas, calling for an appropriate intervention measures to curb the spread of STDs.

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1.3. THE AIDS EPIDEMIC

AIDS, is another epidemic we must take into account. Its spread is very alarming and is by the same high-risk behaviour as the other STDs. It has no cure and is fatal. Two questions need to be asked about AIDS: first, what is the extent of this epidemic and, secondly, are there any links between the transmission of STDs and HIV?

Given that all figures are expected to be conservative for reasons already discussed, these statistics confirm that AIDS is particularly significant in sub-Saharan Africa and South and South-East Asia, and a serious epidemic throughout the world.

STDs and AIDS do not spread as easily as diseases like measles and cholera. However, there is a strong link between having other STDs such as gonorrhoea

and genital ulcers and becoming HIV-positive. In people who have sexual intercourse with many partners, STDs and HIV spread quickly. In countries where sex work is one of the few economic activities open to poor women, more women are put at risk. Spread is even more rapid in such a setting.

In the antenatal population the rate of HIV-infection has been much lower. But the number of mothers who are HIV-positive has been increasing rapidly. Since STDs are also common in all ages of sexually active communities we can expect similar rates in the sexually-active youth.

STDs are Linked to Spread of AIDS

STDs information are important because of evidence that some of them, such as genital ulcers, may increase the spread of HIV. Also HIV infection may facilitate the spread of other STDs. The exact link between STDs and AIDS has not yet been fully worked out. However, treating people with STDs provides a valuable opportunity for health service providers to reach those at particularly high risk of acquiring AIDS.

1.3.1 HOW ARE HIV TRANSMITTED?

HIV can be transmitted from one person to another in a number of ways.

Mechanisms Of Transmission In Ethiopia:

* Sexual Contact
* Perinatal Transmission
* Blood Transfusion
* Unsafe Injection

According to the reports of AIDS case submitted to the Ministry of Health, 87 percent of new HIV infections are due to the practice of multiple partner sexual contact. Very few child cases of AIDS are reported, due to the difficulty of diagnosing AIDS in such young children. If the reported cases are adjusted for this under-reporting, we find that about 25 percent of new infections are due to perinatal transmission. A small number of new infections are due to contaminated blood transfusions and to unsafe injections. The practice of multiple partner sexual contact accounts for the largest amount, about three-quarters, of all new HIV infections.

1.3.2. HIV INFECTION AMONG STDs PATIENTS

The presence of a sexually transmitted disease (STD) can also increase the risk of acquiring an HIV infection. The presence of an STD in either partner make it much more likely that the virus will be transmitted in each sexual contact.

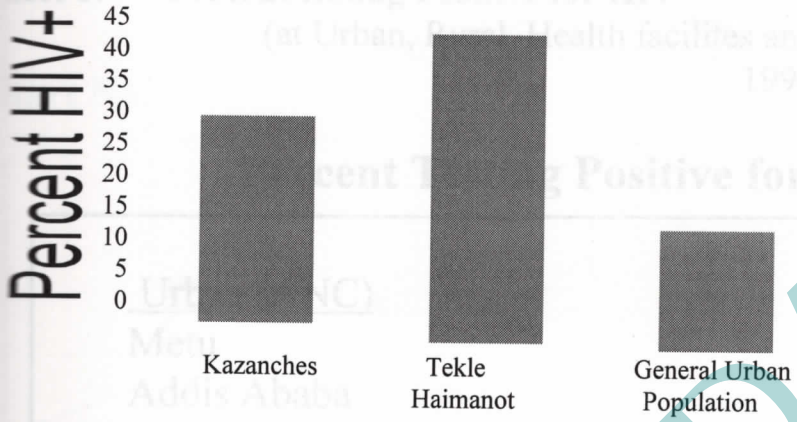
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Studies carried out in 1992 among patients of STD clinics in Kazanches and Tekle Haimanot found that 30-40 percent of them were also infected with HIV. This is three times higher than the prevalence of infection among the general urban population. STDs are most prevalent among those who have sexual contact with multiple partners.

HIV Infection Among STDs Patients

Chart No. 1

1992



STDs can be avoided by:

* Remaining faithful to one partner;
* Using condoms properly and consistently; and
* abstaining from sexual activity.

Prompt treatment for STDs can shorten the duration of symptoms and reduce the risk of acquiring HIV or passing the STDs to another partner.

1.3.3. SENTINEL SURVEILLANCE ON HIV, IN ETHIOPIA

The purpose of the serveillance was to estimate the extent of HIV infection. The sentinel surveillance system opertated in selected sites around the country. Surveys of HIV infection were conducted among a variety of population groups.

Population groups under surveys of HIV infection were

* Blood Donors.
* Pregnant women
* STDs (sexually transmitted disesases) patients.
* Commercial sex workers
* Truck drivers

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The surveys among pregnant women are the most representative of the genral urban population. In late 1992 surveys were conducted in four major urban areas: Addis Ababa, Baherdar, Dire Dawa and Metu. The results show that, in the urban areas, 11-13 percent of pregnant women were infected with HIV. In early 1993 surveys were conducted among the genral sexually active population in six rural sites: Seya Debir (North Shoa), Shola Gebeya (North Shoa), Enda Mariam kanaro (Tigray), Ayuba (Arsi), Raytu (Bale) and Beneste (South Omo). The results show 0-7 percent in all regions of the country and is particularly high in urban areas.

Table 5. Percent testing Positive for HIV
(at Urban, Rural, Health facilites and other working sites)
1992-93 and 1997

Percent Testing Positive for HIV

	1992-93
Urban (ANC)	
Metu	10.7%
Addis Ababa	11.2.%
Dire Dawa	12.3%
Bahir Dar	13.0%
Rural (General population)	
Seya Debir (North Shoa)	1.3%
Shola Gebeya (North Shoa)	6.6%
Enda Mariam Kenaro (Tigray)	0.0%
Ayuba (Arsi)	0.2%
Raytu (Bale)	1.0%
Beneste (South Omo)	2.0%
	1997
Addis ababa (ENARP -ANC)	
Kazanches HC	16.7%
Tekle Haimanot	18.5%
Gulele HC	20.0%
Kef.23 HC	14.1%
Gambella Hospital ANC	12.7%
Hadji Umra pilgrims	11.2%
Akaki Factory Workers	12.7%

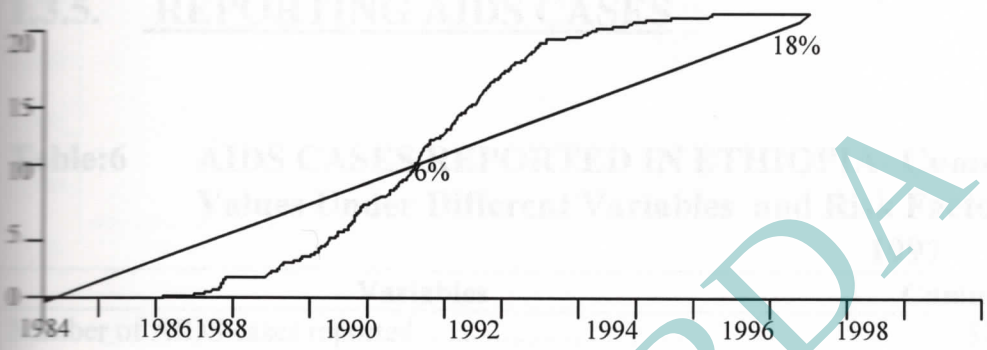
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Results for each of the surveillance sites are shown in the table above. While these results cover only selected sites in Ethiopia, taken as a whole, they provide an approximate picture of the extent of HIV infection in the country.

In the last few years, additional surveys among pregnant women have been conducted in several sites in Addis Ababa. These surveys show that HIV prevalence among pregnant women in Addis Ababa has increased from almost six percent in 1989 to over 18 percent today. The situation is probably similar in other urban centers.

HIV Prevalnece Among Pregnant Women in Addis Ababa (1984-1987)

Chart No. 2



1.3.4 ADULT HIV PREVALENCE

One commonly used measure of the extent of HIV in a population is adult prevalence, i.e. the percentage of adults (aged 15 and older) who are infected with HIV. Although HIV prevalence was very low in Ethiopia during the early 1980s, it has been increasing rapidly in the past few years. It was estimated that by 1993, adult HIV prevalence had increased to 3.2 (2.9-3.5.) percent (MOH, 1996). By 1997, it was estimated that adult prevalence would be increased to 7.4 (6-9) percent (MOH, 1998). This means that there are about 2.4 million HIV infected adults alive today.

In urban areas prevalence is estimated to be much higher, about 21 (19-23) percent in 1997. In rural areas, adult HIV prevalence is estimated to have reached 4.5 (3-6) percent in 1997.

From the estimate of adult infections, it is possible to calculate the number of children under the age of five who are infected with HIV. Most of these children received the virus from their mothers during gestation, at the time of birth or shortly thereafter through breastfeeding. In 1997, it was estimated that there were about 15,000 HIV infected children under the age of five.

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Therefore, the total number of adults and children infected with HIV in 1997 is estimated to be about 2.5 million.

Adult HIV Prevalence

1984	1989	1993	1997
0.0%	1.0%	3.2%	7.4%

Number infected with HIV in 1997 : 2.5 (2.0-3.0) million people
2.4 million adults
150,000 children

Prevalence of adult HIV infection: 7.4% (6-9) national
21% (19-23) urban
4.5% (3-6) rural

1.3.5. REPORTING AIDS CASES

Table:6 AIDS CASES REPORTED IN ETHIOPIA- Cummulative Values Under Different Variables and Risk Factors 1997

Variables	Cummulative Value
Number of AIDS cases reported	57,000
Number of Reported hospitals	57
Average age of patients	31 years
Male	33 years
Female	28 years
Sexually active age group (15-49 yrs)	93.2%
Proportion of married People	40.3%
Proportion of Elder (age>60 yrs)	0.7%
Proportion of paediatrics cases (age<15 yrs)	1.6%
Male to female ratio of total cases	1.6:1
reported cases by A.A. hospitals	58.1%
AIDS cases by Risk Factors	
History of Multi-Partner Sexual Contact (MPSC)	87.3%
History of Blood Transfusion	0.64%
Maternal HIV or Breast Feeding	1.44%
History of Illegal Injection	0.86%
IV Drug Abuse	0.03%
Unspecified	9.7%

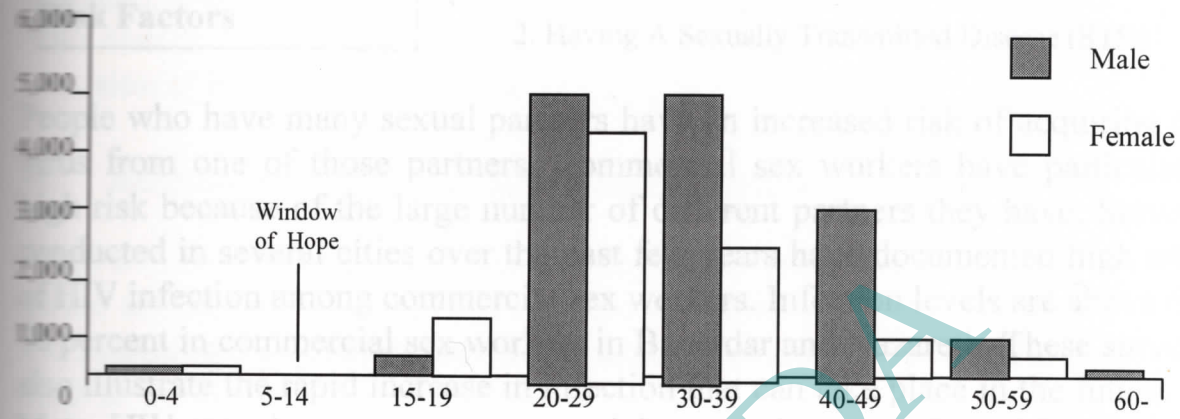
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1.3.6. AGE & SEX DISTRIBUTION OF REPORTED AIDS CASES

The Epidemiology and AIDS Department compiles reports of AIDS cases from hospitals around the country. The distribution of these cases by age and sex of the patient is shown in the bar chart below. Each vertical bar shows the number of reported AIDS cases in a particular age group. Males are shown in the bar on the left and females on the right.

Age and Sex Distribution of Reported AIDS Cases (1986-1996)

Chart No. 4

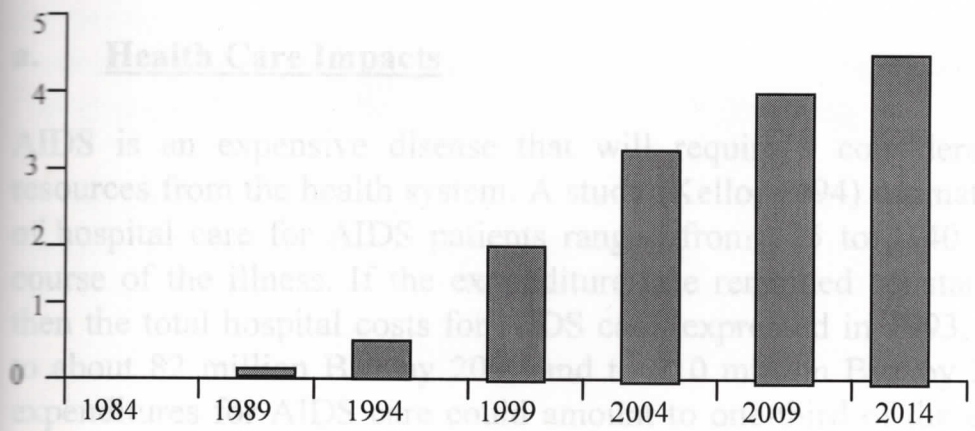


1.3.7. NUMBER OF FUTURE HIV INFECTIONS AND AIDS CASES

If HIV prevalence does increase to 9 percent by the year 2006, then the number of infected people in the population would increase to 3.2 million by 2000 and to 4.7 million by 2014. Although this projection assumes that HIV prevalence stays at 9 percent after 2006, this does not mean that the epidemic will not be a problem. Constant prevalence simply means that the number of new infections every year is equal to the number of people dying of AIDS each year. In this projection, by 2010 about 370,000 people would become infected with HIV every year.

Estimated and projected number of People Infected with HIV

Chart No.5



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If there are 2.5 million people alive with HIV infection today, then there must be about 130,000 new AIDS cases every year. By the year 2000, this would increase to 260,000 new AIDS cases each year.

The cumulative number of AIDS deaths would increase from about 350,000 in 1998 to 740,000 by 2000 and to six million by 2014.

1.3.8. RISK FACTORS FOR HIV TRANSMISSION

Two Most Important Risk Factors	:	1. Sexual Contact With Many Different Partners. 2. Having A Sexually Transmitted Disease (STD)

People who have many sexual partners have an increased risk of acquiring the virus from one of those partners. Commercial sex workers have particularly high risk because of the large number of different partners they have. Surveys conducted in several cities over the past few years have documented high rates of HIV infection among commercial sex workers. Infection levels are above 65-70 percent in commercial sex workers in Baherdar and Nazareth. These surveys also illustrate the rapid increase in infection that can take place in the future. In Metu, HIV prevalence among commercial sex workers rose from 5.3 percent in 1988 to 36.8 percent in 1990. In the other cities, prevalence doubled or tripled in two to three years.

Men who visit commercial sex workers have a high risk of acquiring the virus. If a married man becomes infected through contact with a commercial sex worker, he may carry the virus home to his wife. Thus, even women who are faithful to their partners can be at risk of acquiring HIV if their husbands are not faithful.

1.3.9 SOCIO-ECONOMIC IMPACT HIV/AIDS PROBLEMS

The AIDS pandemic (world wide epidemic) has an impact on all aspects of socio-economic developmet.

a. Health Care Impacts

AIDS is an expensive disease that will require a considerable amount of resources from the health system. A study (Kello, 1994) estimated that the cost of hospital care for AIDS patients ranged from 425 to 3140 Birr during the course of the illness. If the expenditure rate remained constant at 1800 Birr, then the total hospital costs for AIDS care, expressed in 1993, would increase to about 82 million Birr by 2000 and to 210 million Birr by 2014. By 2014, expenditures for AIDS care could amount to one-third of the entire budget of

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the Ministry of Health. Clearly, this would place a tremendous burden on the public health care system; providing adequate care for AIDS patients and still try to meet all the other health needs of the population.

The demand on health services caused by AIDS can also be illustrated by looking at hospital beds. Not all people with AIDS seek hospital care. But, for those that do, the average length of stay is considerably longer than for most other diseases, perhaps as long as 40 days. Today, as much as 1/5 of all hospital beds in the country are occupied by AIDS patients. As the epidemic grows, so will the hospital bed requirements. By the year 2000, about half of all hospital beds would be required for AIDS patients, if no new beds become available. This would leave an insufficient number of beds for patients for all other causes. Therefore, AIDS must be controlled or it will seriously affect the provision of health services to all.

b. Effect On Economic and Social Development

AIDS will increase the death rate at all ages. However, the impact will be most severe among young people and children under the age of five. Without AIDS, and assuming a gradual decline in the death rates from other causes, the annual number of deaths among young people (ages 15 to 49) would increase slowly (because of the growing population) from about 185,000 today to 230,000 by 2014. However, AIDS will dramatically increase that number, to 525,000 per year by 2014, more than double the projection with no AIDS. This rapid increase in the deaths of the young would have serious consequences on economic and social development.

1.4 STRATEGIC APPROACHES IN THE MANAGEMENT OF STDS IN ETHIOPIA

1.4.1. EARLY EFFECTIVE THERAPY

PATIENT COMPLIANCE i.e. PROPER TREATMENT OF CASES

To achieve the goal of early treatment, all patients with STDs need to be treated quickly and effectively at their first visit to a health facility. This will lead to the patient being both non-infectious and symptom-free, decreasing the risk of further transmission. In practical terms this means that STD management services should be made available at all health facilities.

To make this effective, all such facilites need adequate supplies of the necessary drugs. Equally, they need training in the diagonsis and treatment of STDs, as well as all the other factors in the prevention of the diseases.

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1.4.2. EDUCATION

The Complete And Appropriate I.E.C. (Information, Education And Communication) Strategy.

Education is essential to presuade more people to adopt low-risk sexual behavior so that they can remain free of infection and also of the transmition of STDs further. It must explain:

- the dangers of high- risk behaviour (including the risk of HIV);
- the range of low-risk alternative,including non-penetrative sex and the use of condoms;
- treatments that require the full time and the right dosage. Patients with STD often stop taking their medication when the symptoms just decrease or partially go away. They need to understand the importance of continuation of drug taking fully and of returing to the clinic if their symptoms do not improve.

1.4.3. COUNSELLING

Which is preventive in nature , and aiming at change of BEHAVIOUR.

Behavioural change rarely happens as a result of pure information, as many mass-media campaigns have shown. Also, to even begin to discuss difficult matters honestly and openly, health care service providers must win their patients' trust and confidence. They must be able to listen, question and counsel each patient according to its needs.

1.4.4. PROVISION OF CONDOMS

Condom Promotion - making Condom — **Acceptable**, **Accessible**, **Affordable**

This can prevent the spread of STD and HIV if used properly. Clients who continue with risky sex behavior need to know how to use condoms properly. Health care service providers should be prepared to discuss and demonstrate the use of condoms to clients. They also need to feel comforatble in talking about condoms and in demonstrating their uses.

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1.4.5 TRACING SEXUAL PARTNERS/ PARTNER NOTIFICATION

PROVISION OF GOOD AND EFFECTIVE CONTACT TRACING IS AN IMPORTANT INTERVENTION IN THE CONTROL OF STDs.

Health care service providers also need to establish a good relationship with thier clients inorder to be able to trace their sexual partners. Clients need to understand the imoprtance of advising their partners about the risk and encouraging them to seek treatment. Known partners should be treated for the STD even if they have no symptoms themselves.

Health service providers can increase the number of partners who come for treatment by giving clients appointments note for their partners offering to discuss the risk with them and their partners.

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CHAPTER 2

IMMUNOPATHOLOGY OF HIV

2.1 BASIC FACTS

Immune System

- Defends human body against infectious agents (invaders)
- Function is dependent on leukocytes or white blood cells

Infectious diseases

- These are diseases caused by micro organisms (pathogens)
- There are four broad categories of microorganisms
  - virus
  - bacteria
  - fungi
  - parasite
- Microorganisms can be intracellular eg. virus, M.tb or extra cellular eg, most bacteria.

Adaptive Immune System

- Occurs during the lifetime of an individual as an adaptive response to infection.
- lymphocytes are responsible for adaptive immune system
- There are two major types of lymphocytes

2.1.1. B Lymphocytes

- B lymphocytes secrete antibodies when activated by infectious agents.
- Antibodies are substances that bind to the pathogen.
- Antibodies are found in the fluid component of blood or plasma.
- Body fluids were once known as humors, so immunity mediated by antibody is known as humoral immunity.
- Antibodies can bind to and neutralize a bacteria toxin, preventing it from interacting with body cells and damaging them.
- Antibodies can also neutralize complete virus particles and bacterial cells by binding to them and inactivating them.
- Antibodies found in plasma of an individual directly reflect the infection to which he or she has been exposed; eg. if a person has antibodies against HIV in his blood it means that the person is infected with HIV.

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2.1.2. T – Lymphocytes

- T lymphocytes (T cells) are needed to control intra cellular pathogens (micro organisms).
- All viruses, some bacteria e.g M.tb and some parasites are intracellular organisms which replicate inside the human cells.
- Destruction of these (micro organisms) invaders is the function of T lymphocytes as it is difficult for antibodies to reach intracellular organisms.
- T cells are also needed to help B cells to produce antibodies.

Immunity mediated by T lymphocytes is known as cell mediated immunity.

- There are two main types of T Cells.
  - CD8 T cells and CD 4 T cell
  - CD8 T cells are lymphocytes which kill cells infected with viruses
  - CD4 T cells are cells which activate macrophage to kill intracellular organisms which replicate in them e.g Mycobacterium tuberculosis lives in macrophage
  - CD4 T cells also help B cells to produce antibodies
- HIV infects CD4 T cells & Kills them.

2.2 IMMUNODEFICIENCY DISEASE

- We need our immune system to free our bodies of infections.
- In some people, one or more component of the immune system fail or does not work. This is called immunodeficiency disease.
- Immunodeficiency disease may be inherited i.e caused by the abnormality of gene (DNA) or it can be acquired e.g. due to virus infection.
- In most of severe immunodeficiency diseases, adaptive immunity is completely lost and death occurs in infancy from severe infections.
- Recently a devastating form of immunodeficiency has appeared known as AIDS which is caused by a virus.
- This disease destroys the CD4 T lymphocytes that play a central part in most immune responses making our body vulnerable to infections normally controlled by these cells. Such infections are the major cause of death from AIDS.

What is AIDS

- AIDS is a disease that is spreading fast.
- It is a disease in which the body lacks the capacity to defend itself against disease producing agents.

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- It is mainly a sexually transmitted disease.
- AIDS stands for
  A Acquired (some thing you get during a lifetime)
  I Immuno (defense against disease)
  D Deficiency (lack of)
  S Syndrome (groups of signs and symptoms)
- The first cases of AIDS patients were reported in 1981.
- AIDS is caused by a virus called the Human Immuno Deficiency Virus (HIV)
- HIV combines the characteristics of a persistent infectious agent with the ability to progressively slow down the body defence against it. This combination makes infection with HIV lethal (deadly) to the patient
- The emergence of HIV is an indication of how, in the future, the world may be bothered by other infectious agents.
- AIDS is a challenge to researchers and health care workers throughout the world.

Infection with Viruses

- Many Viruses cause acute but limited infection inducing lasting protective immunity, e.g. Measles Virus.
- Some viruses cause a latent infection that is not eliminated but is controlled adequately by the body immune system, e.g. Herpes simplex virus
- Infection with human immunodeficiecncy virus (HIV) does not lead to a body defense that can eliminate or adequately control the infection

2.2.1 The Human Immunodeficiency Virus (HIV)

- HIV belongs to a group of retroviruses called the lentiviruses.
- The name lentivirus comes from the Latin lentus, meaning slow. This name was given to this group of viruses because of the gradual or slow course of the disease they cause.
- The lentiviruses are associated with a long illness and clinical symptoms

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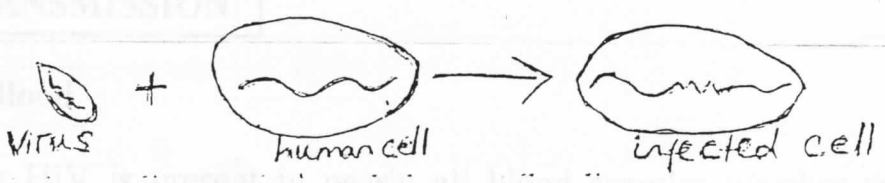
- There are other lentiviruses causing diseases in animals, e.g Simian immunodeficiency virus (SIV) in primates, Feline immunodeficency virus (FIV) in cats.
- The two major types of HIV viruses are the HIV-1 and HIV-2, which have many similarities but enough differences to classify them as different types.
- AIDS is mostly caused world wide by HIV-1, HIV-2 which is endemic in west Africa and is now spreading.

History

- In 1983 Barre- Sinoussi, Pasteur Institute recovered a virus from a lymph node of a man with persistent lymph node enlargement. He gave the first indication that AIDS could be caused by a retrovirus.
- From 1983 to 1984 different researchers (Montagnier, Gallo, Levy & co-workers) identified this retrovirus and gave it different names.
- In 1986, the international committee on taxonomy of viruses gave the AIDS virus the name Human Immunodeficiency Virus (HIV)

2.2.2 Infection with HIV

- HIV is a virus with the ability to integrate its genetic material within the infected cell DNA and spread from cell to cell
- When HIV virus enters the human body the viral genetic material enters the human cells, and integrates itself within the human cell DNA.

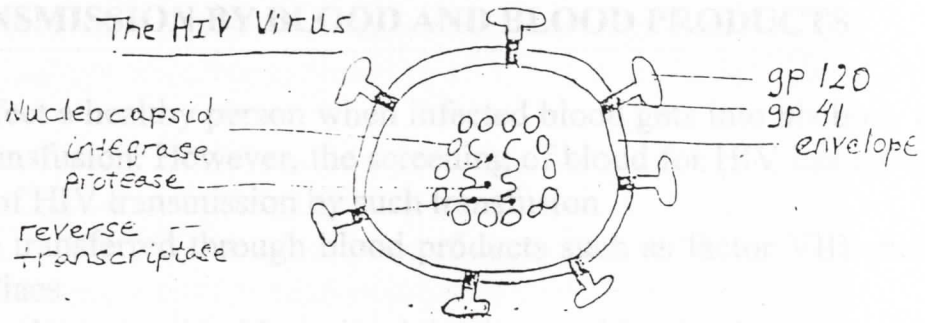


- HIV virus replicates whenever the human cell replicates.
- The new virus particles escape from the cell to infect other cells.

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- Replication of HIV virus depends mainly upon activation of the infected human cell. Therefore, any infection leading to lymphocyte activation leads to rapid viral replication aggravating the HIV infection.

- HIV mainly infects $CD4^{+}T$ lymphocytes and kills them. The number and function of these immune cells decreases progressively as time goes on resulting in inability of the body to defend itself from other infections.



some structural proteins of the virus has been omitted for simplicity gp120- > glycoprotein that bind to CD4 on the human cells.

- The proteins on the virus envelop (covering) help the virus to enter the human cell.

- Viral proteins which enter the cell with the viral DNA help the virus to multiply in the cell.

- Therefore development of drugs to treat HIV infection concentrate on inactivating or blocking these viral proteins.

2.3. HIV TRANSMISSION

2.3.1 HIV in Blood

- Infectious HIV is present in nearly all blood samples whether the HIV infected individual is asymptomatic or has AIDS.
- Both free infectious virus and infected cells are present in the blood.
- Concentration of HIV in blood depend on the stage or period of infection
  - Early period------> number of virus in blood is high
  - asymptomatic period ------> Decreased number of virus in blood.
  - symptomatic period------> again high number of virus.

- Risk of HIV transmission would be highest during the early period of infection and during the symptomatic period.

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- Even if a latently infected cell is transferred into a healthy person, it could serve as a source of HIV transmission following its activation in the new host.
- Virus load in blood in asymptomatic individuals is about 100 free virus/ml of blood and 500 infected cells/ml
- Virus load in blood during the symptomatic infection especially in AIDS is high. Both the number of infectious viruses and infected cells are much higher, e.g. 1000 free virus/ml of blood.

2.3.2 HIV TRANSMISSION BY BLOOD AND BLOOD PRODUCTS

- HIV can infect a healthy person when infected blood gets into his body e.g. by blood transfusion. However, the screening of blood for HIV has reduced the chance of HIV transmission by such transfusion
- HIV can be transferred through blood products such as factor VIII and IX in hemophiliacs
- HIV can also be transmitted by using injection or skin piercing instruments contaminated with the virus.

2.3.3 HIV in Genital Fluids

- HIV is principally a sexually transmitted virus
- The presence of HIV both as free infectious virus and in virus infected cells have been detected in seminal and vaginal fluids.
- Semen usually has greater than 1,000,000 white cells per ejaculate. Therefore HIV infected cells would seem to be a greater source of HIV transmission during sexual contact.
- The largest amount of virus in genital fluids might be present at the time when the number of virus in blood is high i.e. during the acute phase of infection and during the symptomatic period.

2.3.4. Sexual Transmission of HIV

- HIV is a sexually transmitted disease which is transmitted both by heterosexual and homosexual activities.
- When a person with HIV has other STDs, (even non-ulcerative venereal disease e.g. gonorrhea) large number of inflammatory cells will come to the site of inflammation to defend the body. This will result in:

  - More HIV infected cells in genital fluids
  - Increased virus replication since the lymphocytes are activated by infection
  - Increased risk of HIV transmission to healthy contacts.

CERDA

- If a person with HIV infection has an ulcerative type of venereal disease, there will be abrasion in the vaginal or anal canal which will give an entry point for HIV, thereby increasing the risk of HIV transmission.

2.3.5. Maternal Child Transmission of HIV

- It occurs in about 30% of children born to HIV positive mothers. Transmission could occur either before birth or during or after delivery.
- Infection could occur before delivery as HIV has been detected in placenta and fetuses.
- About half of infant infections occur during birth, through contact with amniotic fluid, genital secretions, or blood of the mother.
- After birth, HIV infection could result from ingestion of breast milk, especially from mothers with high number of virus in their blood.
- Methods to reduce the transfer of HIV in the perinatal period are
  - cleansing vaginal canal
  - rapidly removing amniotic fluid, genital secretions and maternal blood from the newborns.

2.3.6 HIV in Other Body Fluids

- Body fluids, other than blood and genital fluids, are not likely sources of HIV transmission.
- Saliva, urine, sweat, feces and tears have been shown to contain no or only low levels of infectious HIV. These secretions, e.g. Saliva has been shown to contain substances which have direct antiviral properties.
- These fluids do not appear to be important sources of virus transmission. This is supported by lack of HIV transmission in household contacts or schools with infected children, where exposure to body fluids occur.

2.4 Effects of HIV on Body Tissues and Organs

- HIV infection, either directly or indirectly, can affect different tissues in the body.

2.4.1 Lymph nodes

- Lymphoid tissue is a major reservoir of HIV
- The highest viral load in the body is in the lymph node where most lymphocytes are found

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- Lymphocytes continually circulate from the blood stream through the lymphoid tissue.
- In the presence of an infection, lymphocytes are arrested in the lymphoid tissues where they proliferate and become capable of defending the body against the infection. Therefore, during infections lymph nodes increase in size and this is called lymphadenopathy.
- During the early period of HIV infection, lymph nodes enlarge in size, due to the presence of increased number of lymphocytes in them. This reflects the high level of antibodies and CD8 T cells in the blood.
- As HIV infection progresses, lymph nodes lose their normal structure and decrease in size (atrophy) due to depletion of lymphocytes as they are killed by the virus.

2.4.2 HIV in Brain

- Lentiviruses are associated with the development of brain disorders. Similar conditions are observed with HIV infection.
- HIV has been detected in brain tissue. Both infected brain cells and infected lymphocytes and macrophages were seen in patients with brain disorders.
- Once HIV has infected the brain, it could produce a high level of toxic viral proteins, or induce infected cells to produce products that can be toxic to brain cells causing brain cell damage.
- In some patients, nervous system disorders may be the only manifestations of HIV infection.
- Clinical disorders range from acute encephalopathies to AIDS dementia.

2.4.3 HIV in Gastro Intestinal System

- HIV has been detected in intestinal mucosal cells and lymphocytes and macrophages in intestinal mucosa are frequently infected with HIV.
- The gastro intestinal problem associated with HIV infection in some places is called " Slims disease" because of the substantial weight loss resulting from the infection.
- The chronic malabsorption and diarrhoea occurring in symptomatic patients have generally been attributed to the opportunistic infections in the bowel as a result of immune deficiency.
- In some patients with intestinal disorders, HIV is the only pathogen found in the bowel.
- How HIV causes disease in the bowel is not yet clear, but the extensive diarrhoea and malabsorption observed in AIDS suggest a direct effect of virus on intestinal cells or effect of a toxin product of virus or infected cells.
- Malnutrition in HIV infection can result from anorexia (loss of appetite) or nutrient malabsorption secondary to intestinal damage.

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2.5 HIV Infection and Development of Cancer

- It is believed that tumor cells express substances recognizable by the immune system. If there is immune deficiency, the immune system is not capable to respond and eliminate the tumor cells and therefore malignant disease develops.
- Many types of malignant diseases are seen with the immune deficiency caused by HIV infection.
- Example of malignant tumors which are seen more in HIV infected individuals are:

  - Kaposi's Sarcoma
  - B-cell Lymphoma
  - Anal carcinoma

- Cancer developing in HIV infected individuals are found to be more aggressive than those in non HIV infected people. Thus, the immune system appears to be important also in controlling the progression of cancer.

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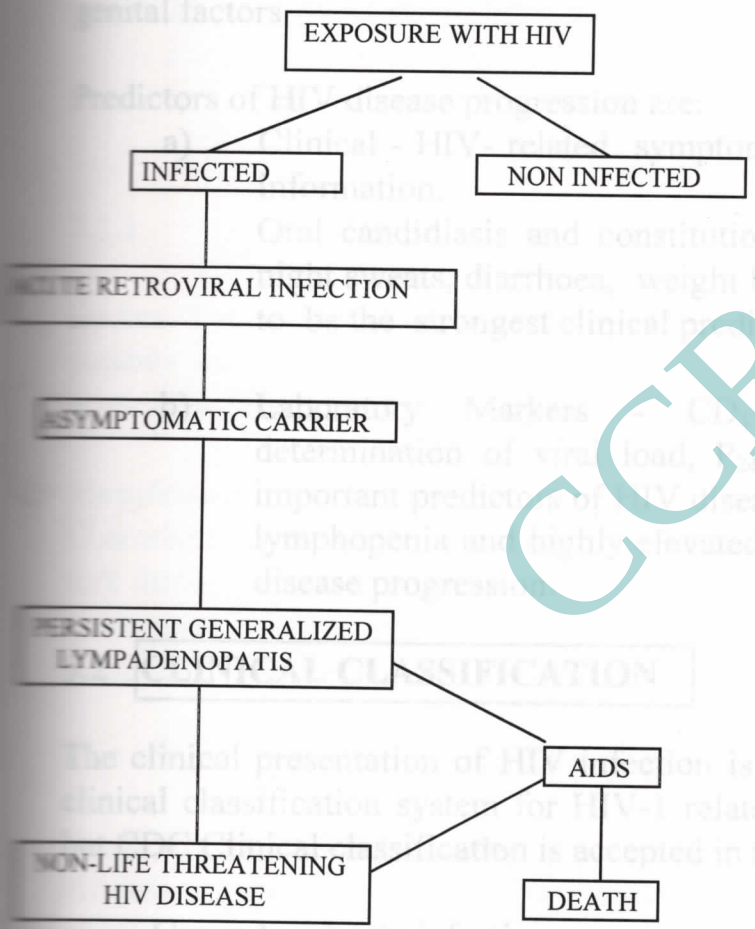
CHAPTER 3

CLINICAL ASPECT OF HIV/AIDS.

3.1. NATURAL HISTORY OF HIV INFECTION

The natural history of HIV infection refers to the interval between infection with HIV and the onset of clinical symptoms to death.

The natural history of HIV infection may be influenced by the type strain HIV-1 or HIV-2. HIV-2 infection has significantly longer disease free time to AIDS than HIV-1 infection.



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Soon after becoming infected with HIV-1, 50-70 % of the patients have an acute self limiting illness, indistinguishable from many other viral illness. After healthy carrier state which may last as long as 10 years but less in developing countries, most infected people develop long-term clinical illness due to HIV-1 or to opportunistic agents. Many patients in Africa and other developing countries die before reaching classic "full blown" AIDS.

- Progression from HIV infection to HIV related disease and AIDS:

Almost all HIV-infected people will ultimately develop HIV related diseases and AIDS. Some HIV-infected individuals progress more quickly than others to HIV related diseases and AIDS. The rate of progression depends on virus and host characteristics. Host characteristics which may cause faster progression include age, nutrition, STDs and other concurrent infection, psychosocial and genital factors.

Predictors of HIV disease progression are:

a) Clinical - HIV- related symptom provide important prognostic information.
Oral candidiasis and constitutional symptoms. (idiopathic fever, night sweats, diarrhoea, weight loss) have been repeatedly found to be the strongest clinical predictors of progression to AIDS.

b) Laboratory Markers - CD_4 count, recently discovered; determination of viral load, P_{24} antigen and other markers are important predictors of HIV disease progression. Low hematocrit, lymphopenia and highly elevated ESR also can be lab-markers of disease progression.

3.2 CLINICAL CLASSIFICATION

The clinical presentation of HIV infection is diverse and complex. Different clinical classification system for HIV-1 related illnesses have been proposed, but CDC Clinical classification is accepted in many countries.

Group I. Acute infection
Group II. Asymptomatic infection
Group III. Persistent generalized lymphadenopathy
Group IV. Other diseases

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Subgroup A. Constitutional disease
Subgroup B. Neurologic disease
Subgroup C. Secondary infectious diseases
Category C-1. Specified secondary infectious diseases listed in the CDC surveillance definition for AIDS.
Category C-2. other specified secondary infectious diseases.
Subgroup D. Secondary cancers
Subgroup E. Other conditions.

For simple understanding of the clinical course, the following classification can be used in our setup:

1. Acute (primary) HIV infection
2. Asymptomatic HIV infection
3. Early symptomatic disease
4. Late symptomatic disease

3.2.1 Acute HIV Infection

Occurs 1-4 weeks(sometimes 6 weeks) after infection, and 50-70% of the patients may develop symptoms. The clinical manifestations associated with acute HIV infection is poorly documented in Africa.

Manifestation:
Characterized by the sudden onset of fever, sweat, mylagia, athralgia, headache, sore throat described as "glandular fever like" or infectious mononucleosis like syndrome. Some patients may develop neurologic disorder like aseptic meningitis and others diarrhoea and hepatospleenmegaly.

The clinical presentation lasts from 1-4 weeks with an average of 2 weeks.

Diagnosis- It is difficult to diagnose acute HIV infection in our set up. Most patients are sero - negative (HIV test negative) at the time of acute illness, but usually sero - convert within 6-12 weeks following an established transmission event.

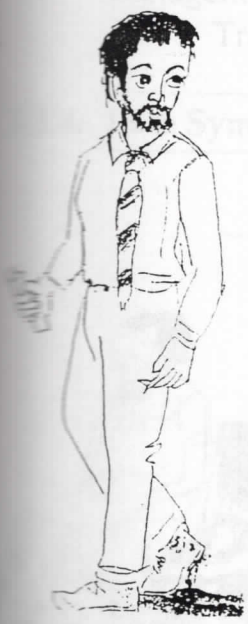
The period after infection and when no antibody is demonstrated is called "Window Period".

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Management - Mostly supportive treatment
- Anti-retroviral therapy

In the vast majority of patients, acute HIV infection with or without the acute syndrome, is followed by a prolonged period of clinical latency.

3.2.2. The Asymptomatic Stage - Clinical latency:



The period in which the virus is latent may last for up to 10 years after the accusation of infection. The patient will remain well and symptomatic. Infected individual experiences a good health but the person is able to spread the virus at this stage.

Laboratory abnormality noted during this stage includes anemia, neutropenia thrombolytopenia and raised transamenase. Hematology i.e complete Blood cell count (CBC) and Blood Chemistry study should be carried out.

Serological evaluation for syphilis is also recommended because of increased incidence of coinfection. Commonly used tests are Veneral Disease Research Laboratory (VDRL) and Reactive Plasmine Reagin (RPR).

3.2.3. Early Symptomatic HIV Disease



At this period, non-life threatening infections or intermittent symptoms occur. Early symptomatic HIV disease includes patients who have symptoms suggestive of impaired cellular immunity.

Such condition may include:

- Constitutional symptoms (fatigue, fever, night sweats, anorexia)
- Persistent generalized lymph adenopathy (PGL)

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- Mucocutaneous conditions
  Skin: Herpes Zoster (shingles)
  Molluscum contageosum, Herpes Simplex infection.

Mucosal - (fungal, viral, malignancy, others like gingvitis aphthous ulcer).

Laboratory- check up for anemia, thrombocytopenia.

Management: supportive.

Treatment of opportunistic infection(OI).

3.2.4. Late Symptomatic HIV Disease



Disease associated with late stage HIV infection affects almost every organ system in the body and presents various clinical manifestations. Late HIV symptomatic or "AIDS" manifests severe symptoms and life threatening infections or cancers, including persistent or progressive constitutional symptom, opportunistic infection, malignancy and dementia.

Laboratory - different abnormality may occur - Hematology (noted low hemoglobin, elevated ESR, lymphopenia and thrombocytopenia) and bodily fluid. (Infections and malignancies)
Serology test for opportunistic infection(OI).

Management - treatment of OI and cancers

- antiretroviral agent(if available)
- supportive
- prophylaxis.

3.3 CLINICAL MANIFESTATION OF COMMON OPPORTUNISTIC INFECTIONS AND THEIR MANAGEMENT:

3.3.1 General Condition

1. Weight loss: may be caused by :

a) Inter current infections
b) Malignancies
c) HIV infection itself.

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d) Other conditions: Calorie needs and feeding problems due to mouth ulcer, candida and esophagitisis.

Accelerated weight loss is a sign of disease progression. Weight loss accounts about 87.50% among AIDS patients reported to MOH, in 1995.

2. Fever and Night Sweats:

2.1 **Fever** - Next to weight loss, fever is the second common symptom in African patients with HIV infection. Causes of fever are:

a) Opportunistic infection
b) HIV
c) Malignancy
d) Unrelated to the underlying HIV like malaria.

2.2 **Night Sweats** - Though it is non-specific, the patient will have night sweating in the form recurrent and drenching in nature. Night sweats in association with fever most of the time will possess opportunistic infection such as tuberculosis.

3. Fatigue(Malaise)

Most patients experience fatigue in the late stage of illness. It is worse in the evening and after strenuous activities.

Progressive or debilitating fatigue indicates the presence of opportunistic infection.

3.3.2. Oral Manifestations Associated with HIV Infection

Most of the oral diseases occurring with HIV infection can also be encountered in persons who are not infected. In the HIV positive patients, oral lesions are widely spread, manifest typical clinical features and persist longer than in seronegative individuals.

Oral manifestations common in persons with HIV infection include:

- Opportunistic infection - Fungal, bacterial, and viral.
- Malignancy - Kaposi's Sarcoma
- Oral ulcer

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Candidiasis (Thrush)

Pathogen : Candida albicans is the most common fungus infecting in HIV/AIDS patients and accounts for the vast majority of all cases of oropharyngeal candidiasis.

Site of infection - Mucous membrane of the mouth, esophagus and vagina.

Sign and symptoms - Clinically there are three forms in the oral cavity:



a) Pseudo membranous - white elevated plaques of curdled appearance distributed through the oral cavity (gingiva, buccal mucosa, tongue and palatum and easy to diagnosis).
b) Erythematous candidiasis occurs as red patches which appear most commonly on the palate and dorsal surface of the tongue.
c) Angular cheilitis may appear as cracking and shows redness or ulceration at the corner of the mouth.

Treatment for oral thrush:

Avoid taking sweets and milk which may aggravate the illness.
Local application of gentian violet(G.V) 1% of aqueous solution at 8 - 12 hours interval.
Nystatin(Mycostatin) -1-2 tablets, at 8-12 hours interval or 5ml of suspension every 8 hours - swish in the mouth and swallow.
Ketocnazol(Nizoral) 200mg - Once daily
Others Miconazole (Daktarin) oral gel
Fluconazole
Amphotercin B lozenge.

Bacterial infection of oral cavity:

Periodontal disease: Progressive inflammation or mediated distraction of the periodontal tissue causes bacterial infection due to organisms found in dental plaque. HIV associated disease of the tissues supporting the teeth ranges from marginal inflammation (gingivitis) to a severe form of acute necrotizing ulcerative gingivitis.

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Treatment - Relieve pain

- Eliminate causative agent - cleaning and debridement.
  Mouth washing using antiseptic solution.
  Metronidazol

Viral infection

1. Herpes Simplex Virus
   - Present as Herpes labialis or as intra oral lesions.

   Herpes labialis can be of prolonged duration.

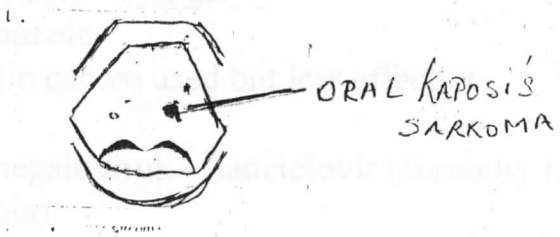
   Intera oral lesion - Begins as small vesicles which often rupture and coalesce to form an area of ulceration which usually occurs on hard palate and gingiva.

   Treatment - Acyclovir - expensive drug not available widely in Ethiopia.
   Apply G.V.
2. Herpes Zoster - orofacial herpes zoster involving the trigeminal nerve pathway.
3. Hairy Leukoplakia - Epstein Barr Virus (EBV) causes a thickening of epithelial cells of the tongue.
   Usually asymptomatic, and associated with oral candidiasis.
4. Others:- Human Papilloma Virus (HPV) and Cytomaegalo virus(CMV).

Malignancy

Commonly encountered malignancy in the oral cavity is Kaposi'ssarcoma- Clinically, the lesion may appear as red or purplish macules papulas or nodules. Do not blanch on pressure.

Common location: Palate, tongue and gingiva .



Others rarely noted malignancy are AIDS associate lymphoma and squamous cell carcinoma.

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Other oral illnesses:

- Salivary gland disease - Salivary gland enlargement and xerostomia(dryness of the mouth due to failure of salivary gland)
- Oral ulcers - no specific causative agent identified
  - appear on buccal mucosa, soft palate, orophavsynx and ventral tongue.
  - Usually respond to topical steroid.

3.3.3. Gastrointestinal Manifestation of HIV

Esophageal disease

Aetiology - The most common esophageal diseases are :

- Candida albbicans (fungal)
- Cytomagalovirus (Viral)
- Kaposi'sSarcoma(Malignancy)
- Aphtohous or idiopathic ulcer

Symptom and sign :

Most patients complain of odynophagia (pain during act of swallowing) or dysphagia (difficulty in swallowing).

Physical examination will be positive for oropharangeal candidiasis, but not always. If the complaints resolve as a result of antifungal therapy, then no further testing is required. If symptoms do not resolve after adequate therapy, further evaluation and referral for endoscopic examination is necessary.

Treatment:

Esophageal candidiasis

Ketoconazole - 200mg twice daily(2-3 weeks)
Miconazole - oral gel
Fluconazole
Nystatin can be used but less effective.

Cytomegalovirus - Ganciclovir (currently not available in Ethiopia)
Kaposi's Sarcoma - Cytoxic drugs
Idiopathic Ulcers - Symptomatic therapy with antacids and bland diet can help.

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Gastrointestinal

All the pathogens in the esophagus are also found in the stomach. Candida is not usually significant problem but may be acid sensitive.

Acid in the stomach is reduced as a result of the effect of infection and drugs. The clinical importance of this low acidity is that it may lower the "acid barrier" to infection.

Treatment of peptic ulcer disease or gastritis may be different because of the problem of low acid (hypochlorhydria). The choice of treatment is antiacids. Magnesium containing antacid should be avoided in case of diarrhoea.

Diarrhoea

Diarrhoea usually occurs at some stage in most people with advanced HIV disease. Diarrhoea is a symptom of malabsorption and leads to wasting. Diarrhoea with profound weight loss is called "Slim disease". Diarrhoea can be very distressing and may seriously disturb the patient's daily life. Persistent diarrhoea lasting more than a month is one of the major complaints of AIDS patients.

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Aetiology - Most common cause of diarrhoea

Bacterial - Salmonella species
- Helicobacter pylori
- Shigella
- Mycobaterium

Protozoa - Giardiasis
- Amoebiasis
- Isospora belli
- Cryptosporidum
- Microsporidium

Parasites - Strongyloides

Viral - Cytomegalovirus
- Adenovirus

Antiretroviral therapy - reduces diarrhoea.

For definite diagnosis beside the direct microscopic examination, special stool test and stool culture can be performed for specific treatment. These tests and culture are available only in referral hospitals.

Anti diarrhoea agent (Constipating agent)

Loperamide (Imodium) - 4mg stat then 2mg after each stool. Max. 16 mg/24 hours.
Diphenoxylate (Lomtil) 2.5-5mg 6-8 hourly.
Codein phosphate 10mg 6-8 hourly.

N.B. Constipating agents should not be used in patients with bloody diarrhoea because of the risk of inducing toxic megacolon.

Diet:

Avoid high roughage food, green leaf and milk.
Patient should take lots of fluids and kept well hydrated.
Eat high energy, soft food - potato, rice, maize meal.
Take vitamin and mineral supplements.

Other conditions that affect the gastrointestinal tract is malignancy. The gastrointestinal tract is one of the commonest internal organs affected by Kaposi's Sarcoma and lymphoma.

Hepatobiliary disease:

Hepatitis, in patient with HIV may cause fever, abdominal pain, hepatomegaly, and abnormal liver. Liver function tests, in particular raised alkaline phosphatase activity is useful in order to determine the progress of the disease.

Aetiology:

Opportunistic infection : Mycobacterium(TB)
Cytomegalovirus
Hepatitis B Virus

Neoplasia - Kaposi's Sarcoma
- Lymphoma

Drug induced - anti TB - INH, Rifampicin, sulfa - drug, anti fungal and antiretroviral - DDI.

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Biliary tract and gall bladders, are common sites for infection in HIV infected patients. Common causes of biliary tract infection are cryptosporidiosis and cytomegalovirus(CMV).

The peritoneum in AIDS

Peritoneal disease in patients with HIV/AIDS is usually due to extension of gastrointestinal disease.

Peritonitis : Inflammation of the peritoneum can be acute or chronic.

- Acute peritonitis is due to bowel perforation caused by tuberculosis, cytomegalovirus and malignancy.

Symptoms and signs : Abdominal pain, fever, hypotension, abdominal guarding, rebound abdominal tenderness and distention.

X - Ray - Erect film demonstrate pneumo peritoneum.

Management - Correction of hypotension
- Laparatomy
- Broad spectrum antibiotic.

Chronic Peritonitis - develop spontaneously with out bowel perforation. Common causes include mycobacterium tuberculosis, fungal infection, toxoplasma gondii, CMV and HIV.

Presents abdominal pain and distension.

Needle aspiration and further fluid analysis can give a clue for diagnosis.

Management- generally treat medically with antibiotics.

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3.3.4. Respiratory Conditions in HIV Infection

The respiratory tract is commonly affected in HIV/ADIS patients, accounting for almost half of all initial presentation.

Pulmonary manifestations include both opportunistic and non-opportunistic infections as well as non-infective disorder.

The most frequent serious pulmonary complication in people with HIV infection in Africa is probably M. tuberculosis infection. Pneumocystitis carinii pneumonia (PCP) seems to occur less frequently in patients with AIDS in Africa compared to those in Europe or the United States.

Common Causes:

Acute onset of symptoms (1-5 days)

- Bacterial infection - pneumococcal, Haemophilus influenzae staphylococcus.
- A typical pneumonia (Mycoplasma)

N.B. TB can also start acutely in severely immune deficient patients

- Chronic onset of symptoms(2-4 weeks or more)
  . Mycobacterium tuberculosis
  . Pnuemocystis carinii pneumonia
  . Viral pneumonia (CMV)
  . Fungal pneumonia (Cryptococcus…)
  . Toxoplasma pneumonia.

Other conditions which may cause respiratory symptoms and signs include Kaposi's sarcoma and lymphoma.

Symptoms and signs: Cough, dyspnea, fever, night sweats, weight loss and tachpnea are suggestive of respiratory infection.

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Diagnosis: History(acute or chronic onset) and physical examination findings.

Sputum examination - gram stain, acid fast bacteria, special test for pneumocystis and fungal.

Chest X - Ray - Patients with immune deficiency may develop typical or unusual X - Ray changes.

Bronchoscopy for PCP.

Fluid aspiration from the pleural cavity can be useful in diagnosing pleural disease.

Therapy:

Depends on the cause of the respiratory symptoms.

Acute onset symptom

Bacterial - Antibiotic (Penicillin, amoxycillin, ampicillin, erythromycin, Co - trimexazol …)
Admit or refer patients with sever infection to hospitals for intravenous therapy.

Chronic onset of symptom

- Anti tuberculosis
- Co - trimoxazol for PCP.
- Anti fungal
- Cyto toxic drug for malignancy.

Tuberculosis

Tuberculosis is the most common cause of chronic pulmonary infection in developing countries. HIV increases a person's susceptibility to infection with M. tuberculosis. About one third of HIV infected people world wide are co - infected with M. Tuberculosis. 70% of co - infected people live in Sub -Saharan Africa. In some Sub -Saharan African countries 20 - 60% of patients with TB have shown to be HIV positive.

Life time risk of developing TB in HIV patient is about 50% as compared to 5-10% risk of TB in HIV negative people.

Three mechanisms appear relevant for the development of HIV associated tuberculosis.

1. Reactivation - In developing countries where high annual rates of infection with TB occurs and where the majority of adults are infected, this is likely to be the commonest mechanism of disease development in HIV positive persons.

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2. Progression from recent infection - Person **with** HIV infection **who** are exposed to TB are at risk of infection and rapid progression to disease.
3. Re infection - Possible relapses after anti TB treatment.

Causative agent - Mycobacterium tuberculosis.

Site of infection: Pulmonary TB(PTB) is the commonest form of TB. Extra pulmonary TB(EPTB) also frequently occurs with HIV infection. The commonest forms are lymphadenopathy, pleural effusion, pericardial disease, miliary disease and meningitis.

Symptoms: Classic symptoms: cough >2 weeks, weight loss, fever, night sweats and fatigue.

Extra pulmonary - enlarged lymph nodes, shortness of breath(effusion), headache

meningeal sign for meningitis.

Diagnosis - The presentation of PTB in HIV/AIDS patient depends on the degree of immuno suppression.

Early stage of HIV infection:

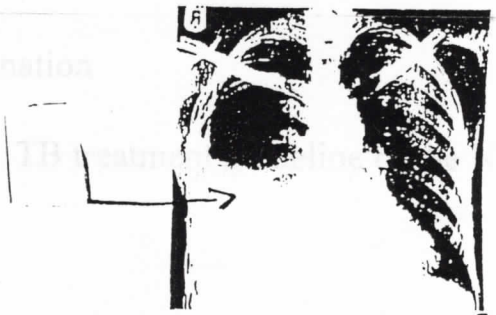
Clinical feature of TB often resembles post-primary TB, often sputum for AFB is positive and X - Ray appearance with cavities and upper lung involvement.

Late Stage of HIV infection - Multibaciliary clinical feature of TB resembles primary TB, sputum for AFB is negative and X - Ray finding reveal infiltrates with no cavities often localized in the lower lung field.

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PULMONARY TB



TB PLEURAL EFFUSION

Beside sputum and X - Ray findings, fluid (pleural, peritoneal, pericardial and other sites) analysis can be helpful in the diagnosis of TB.

Treatment:

All health care workers in order to treat TB patients should follow the management guideline prepared by the National TB/Leprosy Control Program of the MOH (NTL CP). The NTLCP implemented a new programme incorporating directly observed treatment short course (DOTS), and currently covered 40% of the country.

DOTS - Watching TB patient swallow each dose of anti TB drugs, everyday for the first two months, and monitor the progress of the patient until cured.

Smear positives and seriously ill smear negatives and extra pulmonary TB should be treated with short course chemotherapy or Directly Observed Treatment short cource (DOTS).

DOTS /SCC consist of 4 drugs - Isonialzid (H)
Rifampicin (R)
Pyrazinamide(Z)
Streptomycin (S)/Ethambutol(E)

In case of smear negative PTB and EPTB: STM + INH + EMB (SHE) .

N.B. Thiacetazone (in combination with INH - TB 450) should not be used in persons known to be or suspected of being infected with HIV, because of increased risk of severe and sometimes fatal skin reaction.

Prophylaxis - INH prophlaxis following PPD positive in many countries is found to prevent morbidity so far, but not, practiced in this country.

Drug resistance: During the past few years outbreaks of multidrug resistant tuberculosis have been reported from U. S. A. and other countries.
Some reasons for the development of drug resistance are:

1. Defaulting
2. Inadequate anti TB drug combination

Note - For detailed information on Anti TB treatment guideline of the NTLCP please refer Annex c-4

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Pneumocytis Carinii Pneumonia (PCP)

PCP is the most common AIDS defining diagnosis and a major cause of death in patients with AIDS in developed countries but less common in Africa. PCP can be difficult to diagnose in our country due to lack of facilities like bronchoscopy.

Pathogen - Pneumocystis carinii was previously classified as a protozoan but recent studies indicate that it is a fungus.
Site of infection - usually the lungs.
Symptoms - fever, dry cough. chest tightness and difficulty of breathing.
Diagnosis: History and examination.
Microscopic examination of induced sputum bronchoalveolar lavage.
Treatment:
Co- Trimoxazole (trimethoprim - sulpahmethoxazole)
100mg/kg in 3-4 divided doses.
Give 2 tablets in 3 or 4 divided doses.
Other drugs - Pentamidine
Clindamycin in combination with primaquine.

Adjunctive corticosteroid can help in severe form and improve the clinical outcome.

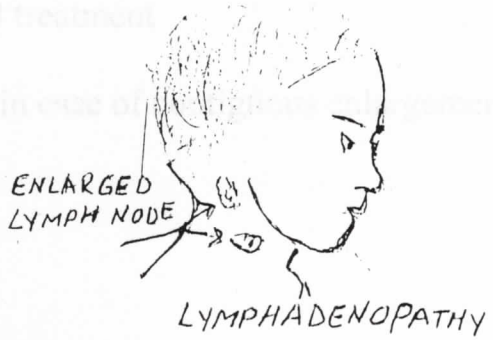
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3.3.5. Lymphadenopathy Associated with HIV Infection

More than 50% of HIV infected patient develop polylymphadenopathy. This may occur within months of acquisition, and lymph nodes may persist unchanged for several years.

Causes of lymph node enlargement in patient with symptomatic HIV infection.

1. HIV infection itself.
2. Infections such as
   Bacterial
   . Tuberculosis
   . Syphilis
   Fungal
   . Histoplasmosis



Viral

. Cytomegalovirus

Malignancies

. Kaposi's Sarcoma

. Lymphoma

Dermatological Conditions

. Seborrhocic dermatitis

. Chronic pyderma

Diagnosis: A careful physical examination should identify any local or contiguous infection that might explain the enlargement of the lymph node.

Lymphadenopathy associated with HIV infection is non tender. Very large lymph nodes in HIV infected African patient are most likely to be of TB origin. Fine needle aspiration (FNA) and biopsy of lymph node can help to reach definite diagnosis.

Persistent Generalized Lymphadenopathy (PGL)

PGL is common in HIV - infected patients and is often caused due to HIV alone. It may slowly regress and even disappear when the patient develops AIDS.

PGL is defined as:

1. Enlarged lymph nodes more than 1 cm in diameter.
2. It is found in two or more sites(not including the inguinal region).
3. Persist for at least three months
4. No local or contiguous infection that might explain the enlarged nodes.

The histology of lymph nodes from patients with PGL is characterized by follicular hyperplasia of the germinal centers in response to HIV infection. A loss in lymphadenopathy or a decrease in lymph node size may be a poor prognostic marker and indicative of disease progression.

Treatment:

PGL - No specific treatment

TB lymphadenopathy - Anti TB treatment

Malignancy - Cytotoxic drug

Treatment of primary infection in case of contiguous enlargement of lymph node.

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3.3.6 Neurological Aspects of HIV Infection

The neurological complications of HIV-1 infection are both common and diverse. They include a variety of central nervous system(CNS) and peripheral nervous system(PNS) disorders related to several types of underlying pathogenic process, with particular complication developing at different stages in the evolving course of systemic HIV infection. Neurological manifestations associated with HIV infection are frequent in Africa. About 30% of AIDS patients suffer from prolonged episodes of headache.

Headache in a patient with symptomatic HIV infection, often persist severely and rapidly increasing or not responding to common drugs used for pain relief. It may be accompanied by fever.

Causes:

1. Infections:
   - Tuberculosis meningitis
   - Cryptococcal meningitis
   - Neuro syphilis
   - Chronic HIV meningitis
   - Toxoplasma meningoencephalitis
   - Viral meningoencephalitis
   - HIV - Aseptic meningitis
2. Malignancy
   - Primary CNS lymphoma.
3. Auto immune
   - Guillian - Barre Syndrome.
4. Drug side effect
   - DDI, DDC, AZT.

<u>Symptoms and signs</u>

- Headache and fever.
- Evidence of meningeal irritation or raised intracranial pressure(neck stiffness and slow pulse).
- Seizures
- Focal neurological deficits including paresis, cranial nerve palsies, movement disorders, ataxia and aphasia.
- Change in mental state: Confusion, personality change, cognitive impairment and dementia.

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Diagnosis:

- Careful history taking and physical examination.
- Perform lumbar puncture and examine the cerebrospinal fluid (CSF).
- For further evaluation refer to the next high level of health institution.

In Ethiopia, diagnosis of neurological complication of HIV/AIDS is difficult because of lack of diagnostic facilities. Most of the treatment is also based on history and physical examination with possible CSF analysis.

Cryptococcal Meningitis

6 -12% of African AIDS patient manifest cryptococcal meningitis.

Causative agent - Fungal- Cryptococcus neoformans found in soil contaminated with bird excrement. Route inhalation of the cells.

Symptom and Signs:

- 75% of patients feel fever, malaise, and headache.
- 25 % neck stiffness.
- Alter mentation and personality change.

Diagnosis

CSF - microscopic examination using Indian ink, wet preparations of CSF mixed with drop of India ink, the capsule of C. neoformans can be seen as a clear halo around the yeast cells.

- Culture.

Treatment:

. Amphotercin B .0.3 - 0.45 mg/kg/day 14 days.
. Flucytosine 150 mg x 4/d
. Fluconazol 400mg daily 3 - 10 weeks.

These drugs are given in combinations. The drugs are expensive and not available in this country.

Toxoplasmosis

Infection in human is rampant throughout the world. Seropervalence rate, according to the study conducted in 1993 in Ethiopia, showed 74% seropositivity. Autopsy studies performed in Africa, as well as studies involving African AIDS patients treated in Europe, suggest that toxoplasmosis of the brain is frequent complication of AIDS in Africa.

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Pathogen:

Toxoplasma gondii - protozoan
Infection occurs via the oral route through ingestion of raw or uncooked meat or contact with cat excrement.

Raw meat eating is common in Ethiopia and the risk of acquiring the infection is considerably high.

Site of infection: Most commonly the brain(Cerebral Toxoplasmosis), although other organs can be infected(lung, eye …).

Symptoms:

Most frequent symptoms include:

- Headache, confusion and fever.
- Seizure.
- Focal neurologic deficit.

Diagnosis: Presumptive diagnosis using CT - Scan and MRI.

. Serology test indicate only exposure .
. Histopathological study.

In developing countries, the diagnosis of cerebral toxoplasmosis is difficult because of lack of diagnostic facilities.

Treatment:

Combination of pyrimethamine and sufadizene
pyrimethamine 100mg (4 tab of 25 mg) loading dose
followed by 50 - 75 mg daily.
Sulfadezine 500mg x 4/day for 4 weeks.
Maintenance therapy life long.

In patients who are treated empirically, a clear clinical response should be evident within 14 days. Add folic acid 15mg x 3/day.

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Other drugs

- Clindamycin - 2gm/daily (150mg capsule is available in Ethiopia) in 4 divided dose.

  Some improvement reported with co - trimoxazole.

  40 - 50 mg/kg IV or PO Qid.

  Fansidar through i.m route has been reported that it showed some clinical response.

  Adjuvant therapy - steroides.

Prophylaxis

- Co - trimoxazole
- Petamidine
- Dapsone

AIDS Dementia Complex (ADC)

AIDS dementia complex is among the most common HIV-1 associated neurologic diseases.

It is characterized by decreased concentration, loss of interest in activities, and slowness of motor movement.

Treatment:

Antiretroviral drugs (AZT) has been demonstrated to improve ADC.

- Peripheral Neuropathy noted in patient with AIDS, the cause can be HIV, other viruses, vasculitis and drugs like AZT.

3.3.7. HIV Associated Skin Diseases:

Cutaneous abnormalities are particularly frequent in people with HIV infection.

Etiology:

1. Viral infection
   - . Herpes Zoster
   - . Herpes Simplex
   - . Molluscum Contageosum
   - . Condylomata Accumenatum
2. Bacterial Infection
   - . Frumculosis

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. Pyoderma
. Pyomyositis

3. Fungal Infection
   . Candidiasis
   . Dermatophytosis
4. Malignancy
   . Kaposi's Sarcoma
5. Other dermatosis
   . Drug eruption
   . Chronic prurigo
   . Scabies
   . Seborrheic dermatosis

Herpes Zoster

A history of Herpes Zoster infection is reported in 10 -15% of AIDS patients in Africa.

Pathogen - Varicella - Zoster virus (VZV)

Site of infection: VZV, the chicken pox virus resides in the roots adjacent to the spine. These lesions typically affect the face and trunk.

Symptoms - Painful, blistery rash that follows the path of sensory nerve. [Diagnosis can be made with physical examination]

Treatment:

Local care

- Keep lesion clean with soap and water
- Topical antiseptic agent
- Paint the lesion with 1% GV - 8 hourly.
- Antibiotic may be needed if the lesions
- Become infected.

Specific treatment:

Acyclovir (Zovirax) 200mg x 5 times daily.

Post herpetic neuralgia can be treated with carbamazepine tablets.

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Molluscum Contageosum

Diagnosis - usually not difficult frequent site being the face.

Treatment: Prick each lesion with a needle (cleaned).

Bacterial infection: Can be treated with antibiotic(Penicillin, Ampicillin, Cloxacillin, TTC and Erythromycin).

Fungal infection:
Dermatophytes commonly noted in AIDS patients in localized or disseminated form.

Treatment - Griseofulvin 250mg x 2/day PO for 2-3 weeks.
Ketoconazol 200mg daily for 2-3 weeks.

Drug Hypersensitivity Reactions

Cutaneous hypersensitivity reactions occur with an increased frequency in individuals with HIV infection. Common drugs which are associated with hypersensitivity are antibiotics such as co- trimoxazol and thiacetazone. Thiacetazone can lead to Stevens - Johnson syndrome.

Treatment:

- Immediately discontinue the drug.
- Treat with steroids and antihistamine.

Other dermatological manifestations.

Dry and atrophic skin is frequently observed in advanced stages of HIV illness. The hair becomes dry, thin and loses its colour and curly architectures.

3.3.8 Malignancies Associated With HIV Disease

Commonly observed malignancies associated with HIV/AIDS are Kaposi's Sarcoma and lymphoma.

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Kaposi's Sarcoma (K-S)

K-S is the most commonly diagnosed malignancy in HIV + people. The first AIDS related K-S was reported from Zaire and Rwanda in 1984.

The aetiology of K-S is unknown but recent studies suggest that Herpes Virus may be involved.

Site of lesion : Skin, mouth, palate, eye.
Internally - lung and gastrointestinal tract.
Appearance of the lesion: Purplish/dark nodular or macular lesion can be observed on the skin and oral mucosa. Usually painless.



Therapy- Simple lesion may not require any treatment

- Cryotherapy
- Cytotoxic drug

Lymphoma - Lymphoma has also been reported among AIDS patient in Africa. 7 patients with lymphoma were reported from Tikur Anbessa Hospital in 1988 .Lymphomas are malignancies characterized by abnormal growth of lymphocytes, a type of white blood cell vital to proper immune function.

Site of disease - Central nervous system; (most common)
Other sites- bone marrow, gastrointestinal tract, liver, meningitis.

Symptoms - Mass lesion at any site

Diagnosis - Biopsy or examination of bone marrow.

Treatment - Cytotoxic drugs.

3.3.9. Eye Lesions Associated with HIV Infection

Retinal abnormalities are frequently observed in AIDS patients in Africa.

Aetiology:
Infections

- Herpes Zoster - affect the cornea

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- Cytomegalovirus(CMV)- affects retina
- Toxoplasma gondi

Malignancy Kaposi's Sarcoma

3.3.10 Hematological Disorders

Anemia generally develops in advanced stages of HIV infection. The cause may be ineffective hematopoiesis and peripheral distraction of the RBC due to autoimmune reaction.

70 -80% of HIV patients become anemic with progression of the HIV infection.

Presentation - Usually normochromic and normocytic although both anisocytosis (inequality in size) and poikilocytosis occur.

Treatment- Treatment of the primary cause
- Blood transfusion in case of severe anemia.
- Supplement therapy with Iron and folic acid.

Thrombocytopenia

A severe type of autoimmmune thrombocytopenia has also been described; it may occur in all stages of HIV infection.

Symptoms and signs - Bleeding from nasal, gastrointestinal tract; physical findings include ecchymosis and cutaneous or oral petcchiae., low platelet count.

Therapy- Steroides - with prednisolone

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3.3.11 Cardiac Manifestations

Pericarditis is often associated with HIV infection in Africa. TB is a common cause of pericardial effusion.

Congestive cardiomyopathy may occur during HIV infection. The cause is not yet known. Toxoplasma may cause myocarditis and Kaposi's Sarcoma may involve the heart.

3.3.12 Arthritis (joint inflammation associated with HIV/AIDS)

Arthritis is also a complication of HIV infection in Africa.

Causes:

- TB
- Cryptococial
- HIV - Reiter syndrome

3.3.13 HIV Infection In Women

HIV infection and AIDS appear to run similar course in women as in men. However, women are vulnerable to specific gynecological conditions such as:

- Recurrent vaginal candida infection(thrush)
- Genital Herpes
- Pelvic inflammatory disease(PID). The course is recurrent and severe.
- Cervical cancer.

The effect of pregnancy on the progression of HIV infection: Preliminary data suggest pregnancy in HIV- infected women has little effect on disease progression. Pregnancy, itself, alters cellular immunity; so, this and other viral diseases can be more serious in pregnancy.

Treatment - for candidial and bacterial infection of female genitalia anti fungal and antibiotic can be administered locally or orally.

3.3.14 HIV Infection In Children

Most of the children who are infected with HIV -1 acquire the infection from their mothers. HIV antibody testing does not give a true picture of a child's HIV status before the age of 15-18 months.

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It is well established that the period of progression from HIV -1 infection to AIDS is shorter in children than in adults. It is estimated that the median incubation period for perinatally acquired HIV is 4.8 years. 20% of infected new borns developed AIDS in the first year of their lives.

The first cases of pediatric AIDS were discovered in the U. S.A. in 1982-83.



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Clinical presentations

Infections in HIV positive children are usually caused by the same pathogens as in HIV - negative children, but tend to be more frequent with repeated infections more common. Children with HIV also have a greater risk of pulmonary TB. Unlike other children, infants and children with HIV infection may have:

- Common illness that are more severe, more frequent.
- Recurrent serious systemic bacterial infection.
- Opportunistic infections.

Common HIV disease in children

- Recurrent infection - Bacterial/viral - Pneumonia, meningitis, cellulitis.
- Oral thrush
- Herpes Zoster
- Chronic otitis media.
- Chronic parotitis - The presence of swollen glands, just in front of the ear.

- Recurrent and persistent fever.
- Neurologic problems - development delays.
- Failure to thrive - causes recurrent infection and HIV itself.
- Diarrhoea
- Lymphoid interstitial pneumonitis. The child usually is asymptomatic in early stages but may later have cough with or without difficulty of breathing and sign of hypoxaemia such as finger clubbing.

Diagnosis - Chest X - Ray.

Treatment:

It is very important to recognize and treat any infection as early as possible.

Oral thrush:

- Gentian violet 1% paint locally.
- Nystatin susp. 1-2 m/s. PO 4/day
- Ketoconzole 3-6 mg/kg daily

Diarrhoea :

- Oral re-hydration in mild dehydration, i.v fluid for severe dehydration.
- Specific antibiotic treatment
- Nutritional supplement.

Pneumonia

- Broad spectrum antibiotic.

Bacterial infection - antibiotic.

Feeding - Children who are sick often lose their appetite. They need to be encouraged to eat small meals more frequently than usual with foods they like.

Nutrition- Children with HIV should have a good diet to help them resist and fight infection.

- Energy rich foods - Maize, rice, bread, sugar and animal fat.
- Body building foods - Chicken, fish, eggs and diary products, meat, nuts and beans.
- Vitamin rich foods - dark green leafy vegetables, carrots, orange and yellow fruits.

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Immunization of Infants and Children:

Follow standard immunization schedules for children with HIV. Do not give BCG vaccine or yellow fever vaccines to HIV - positive children who are symptomatic.

3.4 DIAGNOSIS OF HIV INFECTION AND AIDS

3.4.1. Clinical

Initially a diagnosis of HIV/AIDS is based on the demonstration of an opportunistic disease or malignancy. However, in many developing countries diagnostic and laboratory facilities may be insufficient to carry out all the procedure to diagnose such opportunistic infections and malignancies. For surveillance purposes, clinical case definition of AIDS (see annex C_1) developed at WHO workshop on AIDS, held in Bangui, Central Africa Republic in 1985 is used. Still in Ethiopia we use Bangui the case definition(2 major + 1 minor sign) in addition with serology test. In 1993 the Ministry of Health of Ethiopia drafted new AIDS case definition. (See annex C_2)

In African countries, including Ethiopia, the diagnosis of AIDS can usually be made on clinical grounds alone. Early infection with limited or no sign of illness require laboratory confirmation. Clinical staging system of CDC require sophisticated diagnostic facilities. WHO developed simple clinical staging system for developing countries. This helps for purposes of prognosis and decisions of anti retroviral therapy.

3.4.2. Laboratory Diagnosis

Tests have been developed in order to detect both HIV antigen and HIV antibody.

- Antigen tests have limited application.
- Testing for Antibody to HIV-1 and HIV-2 is the most reliable way of detecting HIV infection.

  Sample for the test - Serum- widely used; recently saliva test has been introduced but it is at the experimental stage.

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Available tests in Ethiopia

- Immune dot test (Rapid test) - HIV CHECK widely used Immune dot test require no special equipment.
- Enzyme - linked immunosorbent assay (ELISA) - Reactive result considered as positive serum for HIV antibody. Specimen must be shown to be repeatedly reactive(double test) before the tests are considered positive in the initial test.

List of other tests are: Western blot, indirect immuno fluorescence assay (IFA), Polymearse Chain Reaction(PCR) and etc. Viral culture is usually conducted for purposes of research.

The number of CD_4 (T_4 helper) cells in a cubic millimeter of blood, is a surrogate marker of immunodeficiency. The CD_4 T cell population is specifically reduced and functionally impaired in HIV infection. Determination of CD_4 count will provide us information on the stage of illness and when to initiate anti retroviral infection. This test is not available for routine work in Ethiopia.

The other tests that should be done in our setup for HIV positive persons are CBC count, ESR, VDRL, LFT.

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3.5. MANAGEMENT OF HIV INFECTION

3.5.1. General

The medical care of HIV/AIDS patients is difficult and complex, necessitating close collaboration between the patient relatives and friends, the host institutions as well as medical personnel and social workers. The role and responsibility of nursing personnel is critical. The role of the family in the management of HIV/AIDS patient is also important as the patient should be cared at home whenever possible. Community based care should be strengthened to provide continuous care for PLWA at home and HCW are expected to involve themselves directly and educate family members on basic nursing skills and prevention of HIV transmission.

The Aims of Management of HIV/AIDS are :

- To reduce suffering from HIV or opportunistic infection.
- To treat and prevent opportunistic infection.
- Prophylxis of opportunistic infection.
- Counseling with the aim of providing
  a) Psychosocial support (emotional support)
  b) Prevention of HIV transmission.

A standard treatment guideline is an essential part for better care of HIV/AIDS patient. In Ethiopia a standard treatment guideline is being developed.

3.5.2. Nutritional Management

Weight loss, multiple nutrient deficiencies, and malnutrition are common among persons infected with AIDS (PLWA). As HIV disease progresses, there is a decrease in lean body tissue, and increase of both intracellular and extra cellular water. Malabsorption, diarrhoea, oral esophageal complications, nausea/vomiting, and fever can compromise nutritional status. Malnutrition, itself has been shown to cause significantly reduced immune response, and shortened survival.

Nutritional intervention can improve immune disfunction that is caused by malnutrition, improve quality of life, restore lean tissue and prolong survival.

Oral food intake is the first choice of providing good nutrition.

Foods to avoid:

- Refined foods - Parts of the food removed when they are processed. Removes protein and vitamin(Ex. Rice, Maize…)
- Canned foods - canning involves heating food at high temperatures. Heating causes the food to lose many of its nutrients.
- Food that contain preservatives, artificial flavors and artificial colorants.

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Some nutritionists recommend, whole(unrefined) and natural (unprocessed) foods.

Nutrients required for HIV/AIDS patients:

- Protein - Meat, chicken, liver, fish, cheese, egg, beans, lentils. Minced meat is easy to digest(HIV/AIDS patient suffers from indigestion).
- Carbohydrates - Grains, maize, wheat, millet, sorghum, potato, etc.
- Fats
- Vitamins - Recent studies showed that some vitamins and minerals play crucial role in normal immune function. Vitamin A,C, folic acid, Zinc and selenium are few of those taking part in the normal function of the immune system.

Recommendation of food during symptoms of illness.

Diarrhoea:

- Advise the patient to eat soft, mashed liquids that are easy to chew and swallow.
- Eat small meals, 5 or more times per day.
- Drink a lot to prevent dehydration.
- Eat starchy food.
- Avoid milk, acidic fruits and green leafy vegetables.

Oral Thrush:

- Eat soft mashed food - potato, banana.
- Drink sour water.
- Avoid sweets(sugar, honey, soft drinks)

Sore mouth:

- Avoid spicy and chilly foods.
- Avoid foods - oranges, lemon and bottled soft drinks.
- Food that need a lot of chewing.
- Very hot and very cold food.

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Garlic - is rich in health giving nutrients. It strengthens the immune system and is found to help fight infection caused by viruses, bacteria and fungi. Eat garlic every day to prevent and fight the infections that come with HIV/AIDS. Garlic can be taken raw and cooked. It is recommend to eat five large cloves(single part of the garlic)or eight small cloves.

3.5.3. Anti Retroviral Therapy and Vaccine

Significant advances have been made in the area of antiretroviral therapy of patients with HIV infection in the past few years.

Recent studies showed that good therapeutic effect have been achieved with combination of different antiretroviral drugs. Single drug therapy (Monotherapy) is less effective.

Reverse transcriptase inhibitor

- Zidovudine(AZT)
- Didanosine(DDI)
- Zalcitubine(DDC)
- Lamivudine (3TC)

Protease inhibitors

- Saquinavir
- Ritonavir
- Indinavir
- Nelfinavir

Common combination drugs

AZT + DDI
AZT + DDC
AZT + 3TC
AZT + 3TC + Ritonavir/Indinavir

These drugs are very expensive and require CD4 count or viral load determination for the purpose of initiating or continuation of therapy.

A study to determine the efficiency of AZT in reducing vertical transmission demonstrated the usefulness of AZT in pregnancy and during delivery.

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CHAPTER 4

SEXUALLY TRANSMITTED DISEASES

4.1. BASIC FACTS

4.1.1. DEFINITION AND AETIOLOGY

4.1.1.a. DEFINITION

Sexually Transmitted Diseases are a group of communicable diseases that are transferred predominantly by sexual contact.

4.1.1.b CLASSIFICATION

Over 20 pathogens have been found to be spread by sexual contact.These include:

A. Bacterial agents

- Neisseria gonorrhoeae
- Chlamydia trachomatis
- Treponema Pallidum
- Haemophilus ducreyi
- Mycoplasma hominis
- Ureaplasma urealyticum
- Calymatobacterium granulomatis
- Shigella spp.
- Cambylobacter spp.
- Group B Streptococcus
- Bacterial Vaginosis - associated organisms

B. Viral agents

- Herpes virus Type I & II
- Hepatitis B virus.
- Human Papilloma virus
- Molluscum contagiosum virus
- Human immunodeficiency virus (HIV)

C. Protozoal agents

- Entamoeba histolytica
- Giardia lamblia

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- Trichomonas vaginalis

D. Fungal Agents

- Candida albicans

E. Ectoparasites

- Phthirus pubis
- Sarcoptes scabiei

These agents cause serious complications, some of which result in chronic ill-health, disability and death.

Sexually Transmitted diseases are the commonest group of notifiable infectious diseases in the world.

According to a review of available data on STDs magnitude, Sexually Transmitted Diseases are rampant in Ethiopia, but due to lack of diagnostic facilities, trained manpower and inadequate reporting, the prelvalence of STDs is often under estimated.

Gonorrhea ranks first among STDs accounting to 60% of out-patients coming for treatment for STDs at different levels of health care facilities. STDs are commonly seen in males due to the asymptomatic nature of these diseases and low access of health care facilities for women.

Studies regarding STDs were conducted mainly in Addis Ababa. However, the data collected may be only reliable for the population studied. They could not represent the country as a whole. Improvement in STD case management at a primary health care using the syndromic management could lead to a better attendance of patients and coverage of all STD pathogens at one visit which in turn will help in breaking the chain of transmission.

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4.1.1.c. STD agents and the major diseases they cause.

Most common STDs include:

- Gonorrhea
- Chlamydia
- Syphilis
- Chancroid
- herpes genitalis
- Lymphogranuloma venereum.
- Trichomoniasis
- Candidiasis (vulvo-vaginal)

Disease and Pathogen	Symptoms/Signs	Complications
HERPES GENITALS • Herpes Simplex virus 1 &2	I) First episode: Women: Painful blisterlike lesions in and around the vagina and anus or on the thighs. Pain may be more severe than in men. May cause painful urination or vaginal discharge, urinary retention, constipation, malaise, fever, headache often no symptom. Men: Painful penile lesions may cause urethral discharge.May have no symptoms. II. Recurrent episodes men & Women: •50% recurrence • symptoms less common • Pain numbness or tingling in buttocks, legs or hips.	Mother to New born: If mother has first episode: • 25-50% of infants are infected. • may suffer from encephalitis If mother has recurrent episode: • 3-5% of infants are infected at birth.
LYMPHOGRANULOMA VENEREUM - Chlamydia trachomatis (Serovars L1-L3)	Women: lower abdominal pain or low backache, femoral and inguinal bubos in 20% -30%. May have no symptoms Men: Herpetic like vesicle or a small depigmented scar, femoral and inguinal buboes.	Women: 2/3 of bubos shrink and form fibrous masses. 1/3 rupture and form scars, fistula, chronic Inflammations of lymph nodes, cervicitis, proctitis Lymphostasis, hypertrophic ulceration of the external genitalia. Men: lymphatic obstruction causing oedema of the penis and scrotum, rectal and urethral strictures and fistulae.
TRICHOMONIASIS - Trichomonas Vaginalis	Women: Green yellow abundant frozyal discharge with foul smell, itching, pain on micturitition and on sexual intercourse.May have no symptoms. Men: Urethral discharge, pain on urination or itching. Prostatitis possible. Usually without symptoms.	Women: without treatment symptoms may persist for years and worsen in menses or after menses.

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4.1.2. PUBLIC HEALTH IMPORTANCE OF STDs

STDs are highly prevalent, cause considerable morbidity, increase the risk of HIV infection and are costly to the individual and the society.
STDs are responsible for serious complications in women, men and neonates.

Pelvic inflammatory diseases (PID) in women lead to:

- Ectopic pregnancy in women
- Infertility in women & men.
- Urethral Stricture in men.
- Ophthalmia Neonatorum in newborns

STDs interact with HIV infection in various ways:

- HIV and other STDs share the same major transmission route.
- The same risk behaviours predispose to infections with HIV and other STDs.
- Having an STD increases the risk of acquiring HIV infection.
- Being HIV infected can complicate presentation and treatment of other STDs.
- STD intervention can significantly decrease HIV incidence in a community as demonstrated in a large study in Mwanza, Tanzania, where efficient STD control reduced HIV prevalence by 42%.

STDs have an adverse socioeconomic impact. These include:

- High cost for health services especially for drugs
- Loss of economic productivity
- Relationship/marriage problems
- STD associated stigma and discrimination of infected people

STDs affect the success of the following health programes.

- Maternal Child Health Programme especially antenatal care
- Family planning Programme
- Child survival Programme
- AIDS control Programme

The control of STDs is therefore a public health priority and therefore should be given due consideration.

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4.2. CLINICAL PRESENTATION

4.2.1. HISTORY TAKING

The main purpose of history taking is to obtain information on the patient's symptoms. As history taking with STDs patients involves private discussion of sensitive issues, a conducive environment is an important precondtion.

A private and quiet room where patients can be interviewed is a basic requirement. People directly involved in the history taking should only be present.

The room must be furnished with at least two chairs on which the clinician and the patient can sit during the interview.

In order to help the patient feel at ease:

- Greet the patient in a friendly manner
- Show that you are interested and make sure that your body gives the same friendly relaxed message as your words.
- Speak a language which patients can understand.
- Assure the patient that her/his consultation is confidential.

The following should be observed:

- Questions should be phrased politely.
- Medical terms should be avoided, simple ordinary language should be used.
- Questions should be specific and clear so that the patient knows exactly which information is needed.
- Questions should be asked one at a time.
- Questions should be free of any moral tone.
- Avoid " leading" questions and let people answer according to their own style.

Information to be obtained from history taking should include the following:

4.2.1.1 PERSONAL CHARACTERSTICS (SOCIO-DEMOGRAPHIC)

- Name
- Age
- Address

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- Occupation
- Educational status
- Marital status (to be asked at last)

4.2.1.2 **PRESENT ILLNESS**

- Present complaints
  (When they started, and whether they changed overtime)
- Allow the patient to give the story without interruption
  (Probe for more questions in areas where you feel inadequate information is obtained)
- Review of systems.
  e.g involvement of other body systems.

4.2.1.3 **PAST MEDICAL HISTORY**

- Previous STD episodes
- Any current or long term medication
- Drug allergy.

4.2.1.4 **SEXUAL HISTORY**

- Last sexual intercourse: when it took place, where and what preventive measures were taken, whether partners had any symptoms.
  - Use of contraceptive methods.
  - In women: number of children, age of last born child and menstrual history.

4.2.2 **PHYSICAL EXAMINATION**

Enables the health care worker to confirm the symptoms the patient has described and to check for clinical signs of STDs. Reveals other problems the patient had not complained.

Facilities requred for a good clinical examination

- Examination couch
- Screen/Curtain
- A good light source.

OBSERVE:

- Explain the importance of the examination and its procedure.
- Treat patients with respect and courtesy
- Be calm, friendly and smart

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- Patients should be offered the opportunity to have a chaperon in attendance.

SUMMARY OF STEPS FOR A CLINICAL EXAMINATION OF FEMALE AND MALE PATIENTS

FEMALE PATIENT:

- Examine for enlarged nodes (anterior and posterior areas of the neck, the submental, epitrochlear and suboccipital areas)
- Inspect for any rashes, swellings and ulcers at the chest, back, thighs, abdomen, buttocks, groins, genitals with patient sitting on the chair.
- Palpate the axillae for enlarged lymph nodes
- Gently palpate the abdomen for tenderness and for the presence of any pelvic masses taking care not to hurt the patient.
- Examine the pubic hair for nits/ lice.
- Palpate the inguinal areas noting any tenderness and/ or swelling of lymph nodes.
- With the knees of the patient bent and separated, inspect the vulva, perineum and anus for abnormal discharge, ulcers, swellings or any other abnormalities.
- For all enlarged lymph nodes, note location, number, consistency and whether tender or not.

MALE PATIENT:

- Ask the patient to remove his cloth and inspect for any rash and examine for enlarged lymph nodes, the axillae, anterior neck, and posterior area of the neck, submental, epitochlear and sub-occipital areas.
- Inspect for any rashes, swellings and ulcers at the thighs, buttocks, groins and genitalia.
- Palpate the inguinal region for the presence of lymph nodes or buboes.
- Examine the pubic hair for nits/ lice.
- Palpate the scrotum feeling for the testis, epididymis and the spermatic cord noting any enlargement or tenderness.
- Examine the penis for rashes or sores, then ask the patient to retract the fore skin (in the uncircumcised).
- Inspect the glans penis, coronal sulcus, frenum for any visible abnormalities.

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- Inspect the perineum and anus for abnormal discharge, ulcers, swellings or any other abnormalities.
- For all enlarged lymph nodes, note location, number, consistency and whether tender or not.

4.3. INTRODUCTION TO THE SYNDROMIC STD CASE MANAGEMENT

The syndromic managment of STDs is based on the diagnosis of defined combinations of symptoms and easily recognisable clinical signs (syndromes). Each syndrome can be caused by a number of different pathogens. For each syndrome a well defined standard treatment is recommended by the technical Committee in the Ministry of Health which has been proven to be effective against the majority of endemic pathogens that can cause the syndromes. For each syndrome, flow charts (algorithm) which describe diagnosis, treatment and other essentials of case management in the form of a decision tree have been developed.

ADVANTAGES OF A SYNDROMIC APPORACH IN STDs CASE MANAGEMENT

- Saves time for patients
- No laboratory expenses
- Provides adequate treatment, even for mixed infections.
- Easy to teach and simple to apply.
- Cost-effective.

The drawbacks in using the syndromic approach include:

- Over treatment of patients
- Requires special attention to microbial drug sensitivity.
- Does not identify asymptomatic STDs.

4.3.1 URETHRAL DISCHARGE

DEFINITION: Presence of exudate in the anterior urethra, often accompained by dysuria or urethral discomfort.

IMPORTANCE: Urethral discharge is the most common presenting complaint of men with STDs.

AETIOLOGY Neisseria gonorrhoeae

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Chlamydia trachomatis
Ureaplasma urealyticum.
Trichomonas vaginalis
Non- infectious traumatic condtion

Subjective Complaints — Thick yellowish discharge and burning sensation/ pain on urination.

PHYSICAL EXAMINATION

- Inspect the genitalia
- Determine type of discharge
- Milk the urethra (this can be done by the patient if no visible dischrge)

LABORATORY INVESTIGATION

(where available) Methylene blue stain
Gram stain
Culture and sensitivity (if no response to the recomended regimen).

TREATMENT — Follow treatment protocol chart

4.3.2. VAGINAL DISCHARGE

DEFINTION — A change in colour, odor and/ or an increase in the amount of secretion attributable to vaginal or cervical infection which might be accompanied by pruritus (itching), genital swelling dysurisa or ,lower abdominal pain or back pain.

AETIOLOGY

- Neisseria gonorroeae
- Chlamydia trachomatis
- Trichomonas vaginalis
- Candida albicans
- Gardnerella vaginalis
- Anaerobic bacteria
- Herpes simplex
- Chemicals, foreign body (in children)
- Physiological

IMPORTANCE — Vaginal discharge is the most common complaint among sexually active women presenting with STDs.

CCRDA

SUBJECTIVE COMPLAINTS

- Soiling of underwear
- Excessive secretion
- Change in colour and odor
- Itching
- Dysuria
- Redness of the vulva
- Lower abdominal pain

PHYSICAL EXAMINATION

- Determine character and origin of the discharge

LABORATORY INVESTIGATION **(where available)**

- Wet mount
- Gram stain
- Culture and sensitivity

TREATMENT

- Follow vaginal discharge treatment protocol

4.3.3 GENITAL ULCER

DEFINITION

- Loss of continuity of skin producing one or more ulcerative lesions in the genitalia which may be painful or painless. Frequently accompanied by inguinal swelling.

4. AETIOLOGY

- Treponema pallidum
- Haemophilus ducreyi
- Calymatabacterium granulomatis
- Chlamydia trachomatis (serovars L1-L3)
- Herpes genitalis. (Type II)

IMPORTANCE

- The second most common complaint of STD patients.

SUBJECTIVE COMPLAINTS

- Sore of the genitalia
- Pain on urination (female)

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PHYSICAL EXAMINATION	• Painless, Indurated lesion • Painful, easily-bleeding lesions • Presence of vesicular lesions with superficial erosions.
LABORATORY INVESTIGATION	**(WHERE AVAILABLE)** • RPR/VDRL • DARK FIELD MICROSCOPY • TPHA/FTA-ABS
TREATMENT:	Follow genital ulcer protcol.

4.3.4. INGUINAL BUBO

DEFINITION	• An enlargement of Lymphglands in the groin.
IMPORTANCE	• As a sole manifestation not common
AETIOLOGY	• Chlamydia trachomatis • Calymatobacterium granulomatis • H. ducreyi • Infections of the lower extremity.
SUBJECTIVE COMPLAINTS	Pain & swelling in the groin.
PHYSICAL EXAMINATION	• Determine size, consistency number, whether painful or painless.
TREATMENT	• Follow inguinal bubo treatment protocol.

4.3.5. LOWER ABDOMINAL PAIN

DEFINITION	• Pain in women associated with vaginal discharge and irregular menstruation.
IMPORTANCE	• Responsible for infertility, chronic pain and death.

CCRDA

AETIOLOGY

- Neisseria gonorrhoeae
- Chlamydia trachomotis
- Mycoplasma hominis
- Facultative and strictly anaerobic bacteria.

SUBJECTIVE COMPLAINTS

- Mild to severe abdominal pain (worse before menses, associated with fever and/or vaginal discharge and irregular menstruation)

PHYSICAL EXAMINATION

- Suprapubic tenderness
- Vaginal discharge
- Fever (38°c)

LABORATORY INVESTIGATION

- Gram stain & wet mount
- Culture & sensitivity (if available)

TREATMENT

- Follow lower abdominal Pain (PID) treatment protocol.

4.3.6. CONJUNCTIVITIS OF THE NEWBORN:

DEFINITION

- Infection with discharge from the conjunctivae of the newborn (in one or both eyes) in the first month of life.

IMPORTANCE

- Ophthalmia neonatorum can lead to blindness (esp. gonococcal ophthalmia)

AETIOLOGY

- Neisseria gonorrhoeae
- Chlamydia trachomatis.
- Staphylococcus aureus.
- Streptococcus pyogenes
- Haemophilus spp.
- Pseudomonas spp.

SUBJECTIVE COMPLANTS

- Mother presents her newborn baby because of redness & swelling of palpebrae or "sticky eyes" or purulent discharge from the eye(s)

CCRDA

PHYSICAL EXAMINATION

- Purulent discharge
- Redness & Swelling of conjunctivae
- Oedema & redness of palpebrae

LABORATORY INVESTIGATION

(Where available)

- Gram stain
- Methylene Blue
- Giemsa stain

TREATMENT

- Follow ophthalmia neonatorum treatment protocol

4.3.7. PAINFUL SCROTAL SWELLING

DEFINITION

Inflammation of the epididymis associated with pain and swelling usually unilateral and relatively acute at onset.

IMPORTANCE

When not effectively treated, STD-related epididymitis may lead to infertility.

AETIOLOGY

- Neisseria gonorrhoeae
- Chlamydia trachomatis
- Trepnema pallidum
- Mycobacterium tuberculosis
- Pseudomonas aerugiuosa.

SUBJECTIVE COMPLAINTS

- Acute onset of painful swollen scrotum (unilateral)
- Urethral discharge (recent)

PHYSICAL EXAMINATION

- Red, oedematous, tender scrotum
- Evidence of urethral discharge.

LABORATORY INVESTIGATION

(Where available)
Gram stain (if urethral discharge)

TREATMENT

- Follow painful scrotal swelling treatment protocol

CCRDA

4.4. PARTNER MANAGMENT, PARTNER NOTIFICATION AND COUNSELLING

Partner notification — A spectrum of public health activity in which sexual partners of individuals with STDs are notified on their exposure and offered services.

The Partner should be given information on

- the nature of exposure and risk of infection
- the need for and location of the appropriate clinical services
- the need to avoid sexual contact until treated and/or counselled.

Partner notification can be done either through patient referral or provider referral.

Patient referral

- This is the approach whereby infected patients are encouraged to notify partner(s) of their possible infection without the direct involvement of health care providers.

The Patient May

- Provide the partner with information
- accompany the partner to the clinic
- simply hand over a contact card.

PROVIDER REFERRAL

In this case, health care providers or other health care workers notify a patient's partner(s) based on the information provided by the infected patient.

PRINCIPLES OF PARTNER NOTIFICATION :

- Confidentiality
- Freedom from coercion (voluntary)
- Availability of services for partners
- Protection against discrimination
- Priority (giving priority based on available resources to encourage partner notification)

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COUNSELLING

Counselling of STD patients should follow the steps indicated below:

a) **Explain about the STD**

- Name of STD
- Symptoms of STD
- Its way of spreading

b) **Give drug information**

- Name of drug
- Method of taking
- Reasons(s) of taking
- Reason(s) of taking full dose
- Side effects
- Write directions (use symbols for those who don't read)
- Have client repeat (to assess full understanding) what is told.

c) **ASSIST IN TRACING CONTACTS**

- Talk about the importance of having partners treated.
- Discuss the risk of reinfection if partners are not treated.
- Ask how you can help clients bring in their partners for treatment.

4.5. MANAGEMENT OF STD COMPLICATIONS

4.5.1. Since the management of STD complications by far require the identification of specific aetiologic agents, which in turn requires sophisticated laboratory equipment and highly qualified laboratory personnel, inclusion of this topic under the syndromic management was not found to be appropriate.

4.6. ASSOCIATION OF STD WITH HIV/AIDS

Information on STDs are important now than ever because of the evidence that they increase the spread of HIV.

All STDs including HIV are caused by the same high risk sexual behaviour. Having multiple partners and changing partners often are risky and expose

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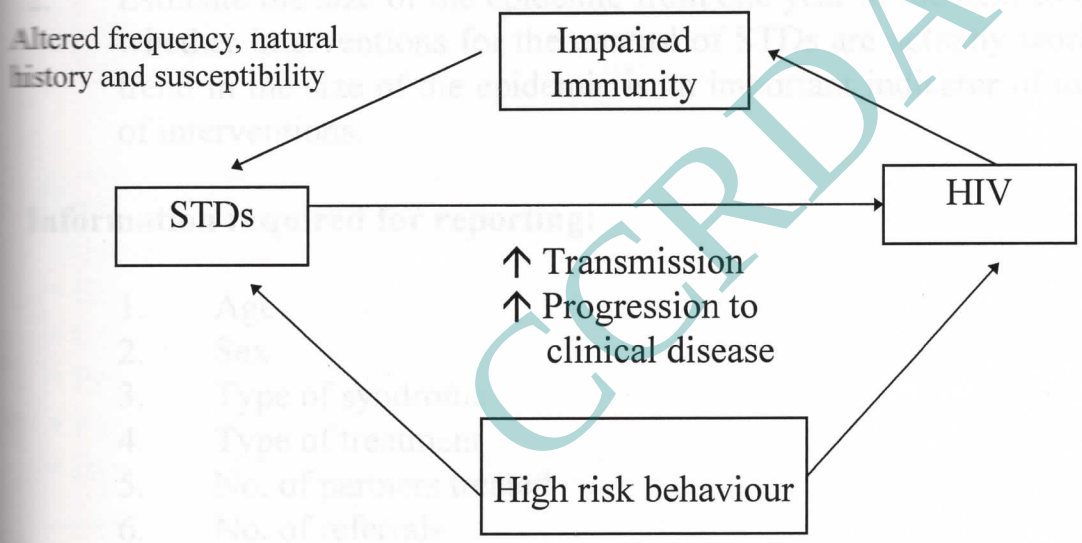
people to STDs. People who have one STD are likely to get another. This is important for health workers to know. Talking to people with STDs and getting them think about their risk may help them to change their sexual behaviour and avoid getting another STD.

Having STDs such as ulcerative STDs (syphilis, chancroid and genital herpes) and the non-ulcerative STDs (gonorrhoea, chlamydial infection and trichomoniasis) is associated with increased risk of HIV transmission. The ulcerative STDs increase risk is up to 9-fold and the non-ulceratives risk is from 3-to 5-fold.

From an individual perspective, the ulcerative STDs present a greater risk. However, on a population basis, non-ulcerative STDs are arguably higher than that of the ulcerative STDs.

The association of STDs with HIV can be summarized as shown in the figure below.

Figure 1.



- Presence of STD enhances the transmission of HIV.
- HIV (consequent immunodeficiency) alter the natural history, diagnosis and response to treatment of other STDs.
- STDs may influence the natural history of HIV (accelerate the progression to AIDS)
- HIV may alter the incidence or frequency of STD recurrences.
- HIV might modify clinical expression and natural history of STDs (more frequent and rapid development of complications).
- HIV may alter laboratory test results (false-negative RPR tests)

CGRDA

- HIV results in inadequate response to standard therapy (requirement for a third generation cephalosporine for the treatment of Syphilis in HIV-positives).

4.7. REPORTING

DEFINITION : Reporting is keeping records of the people treated for STDs, and sending them to the appropriate authority.

Reporting is important for two main reasons.

1. Enables the reporting unit to assess the size of the STD epidemic so that one can plan the human and material resources needed to cope up with the problem.

2. Estimate the size of the epidemic from one year to the next to determine whether interventions for the control of STDs are actually working. The trend in the size of the epidemic is an important indicator of the success of interventions.

Information required for reporting:

1. Age
2. Sex
3. Type of syndrome
4. Type of treatment
5. No. of partners treated
6. No. of referrals.
7. No. of repeaters
8. Total No. of people treated for STDs out of all people attending the health care unit during the period of reporting.

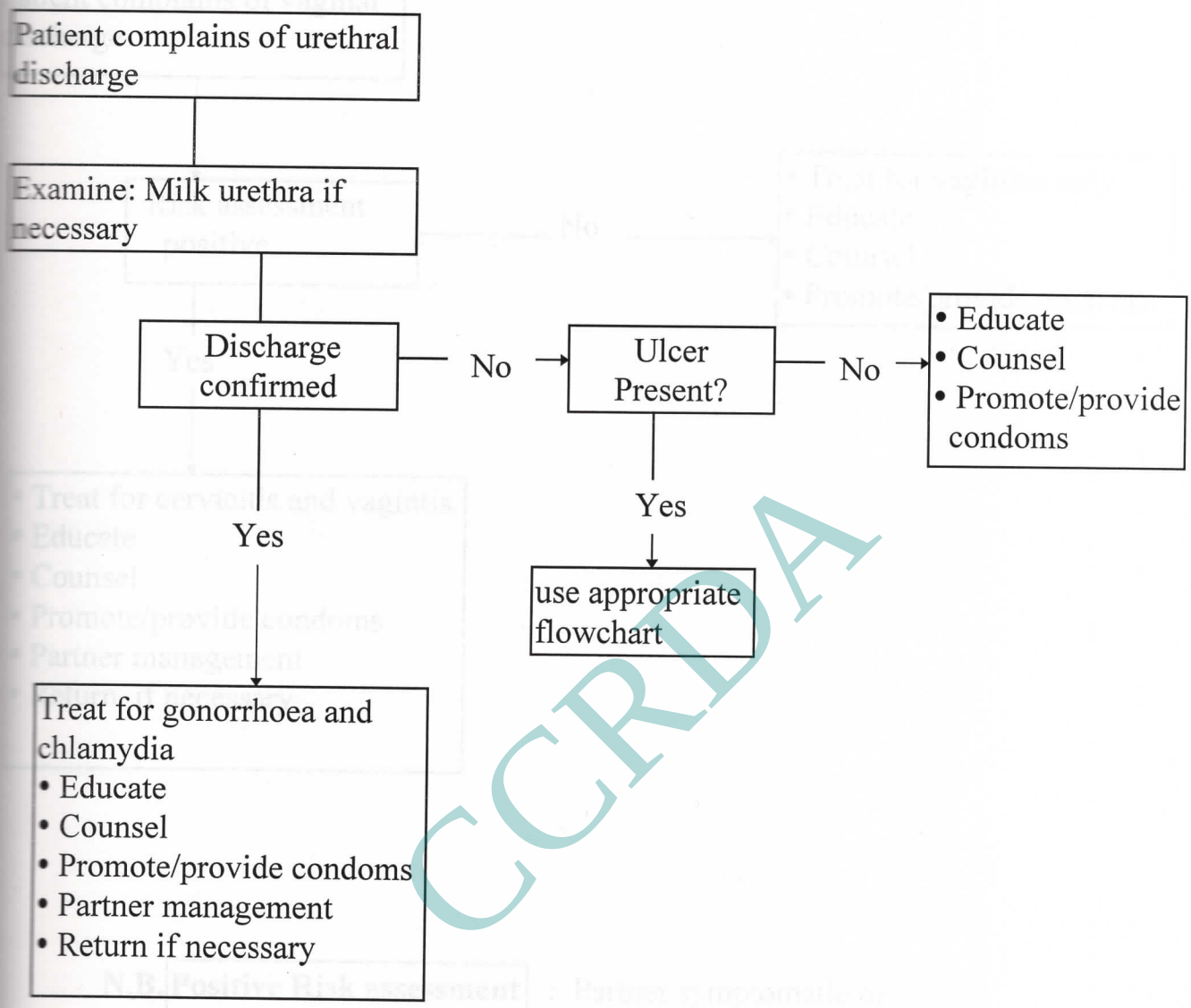
Frequency of reporting to the appropriate level depends on the requirement of the decision making body.

Reporting forms should be simple, easy to fill and include relevant information for the level.

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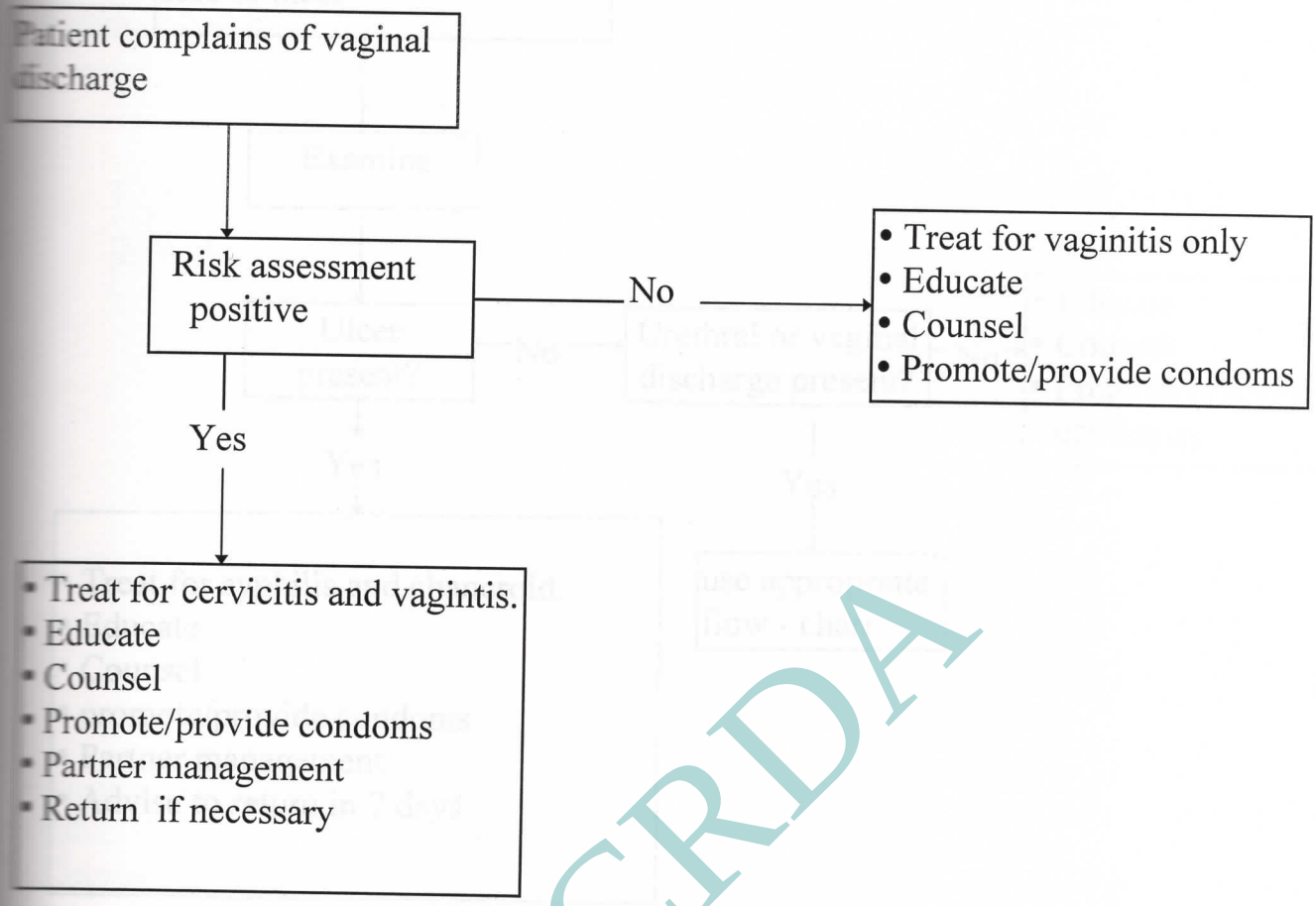
4.8 FLOW CHARTS FOR SYNDROMIC MANAGEMENT

4.8.1. URETHRAL DISCHARGE



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4.8.2. VAGINAL DISCHARGE



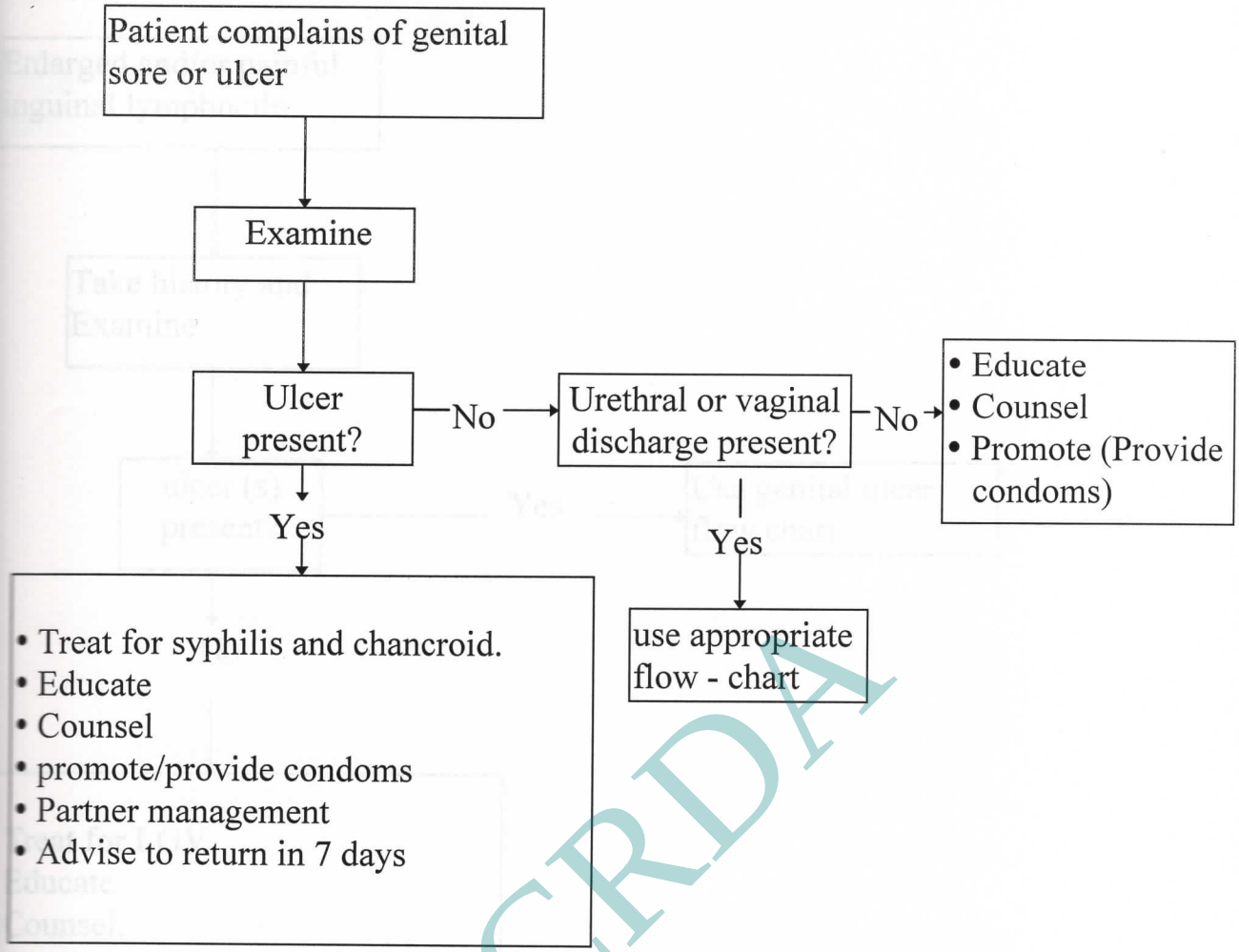
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N.B. **Positive Risk assessment** : Partner symptomatic or any two of : age < 21 years single, > 1 partner; new partner in the past 3 months.

Treatment for Cervicitis : Includes gonorrhea + chlamydia

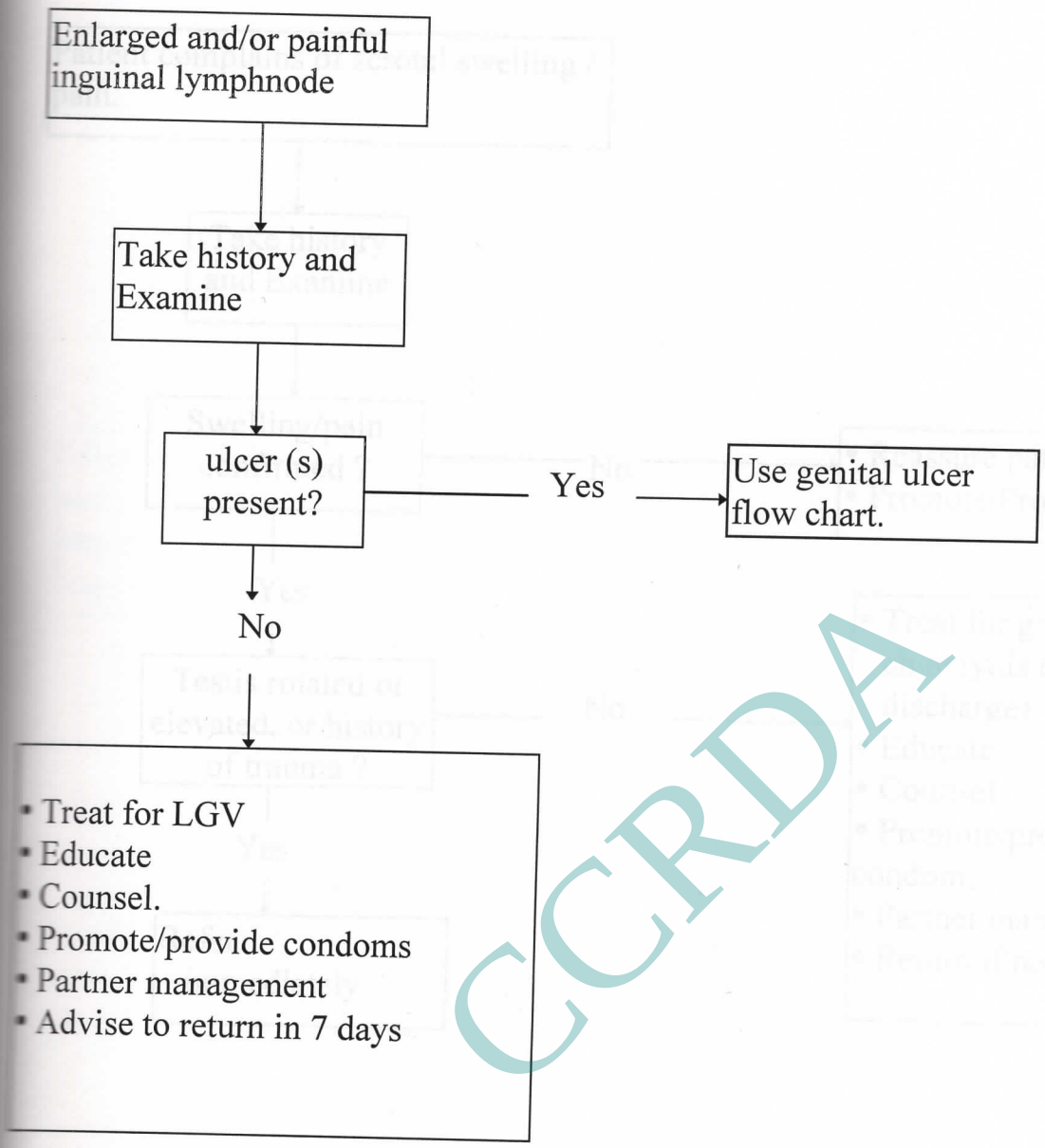
Treatment for Vaginitis : Includes Trichomoniasis
Candidiasis
Bacterial Vaginosis.

4.8.3. GENITAL ULCER



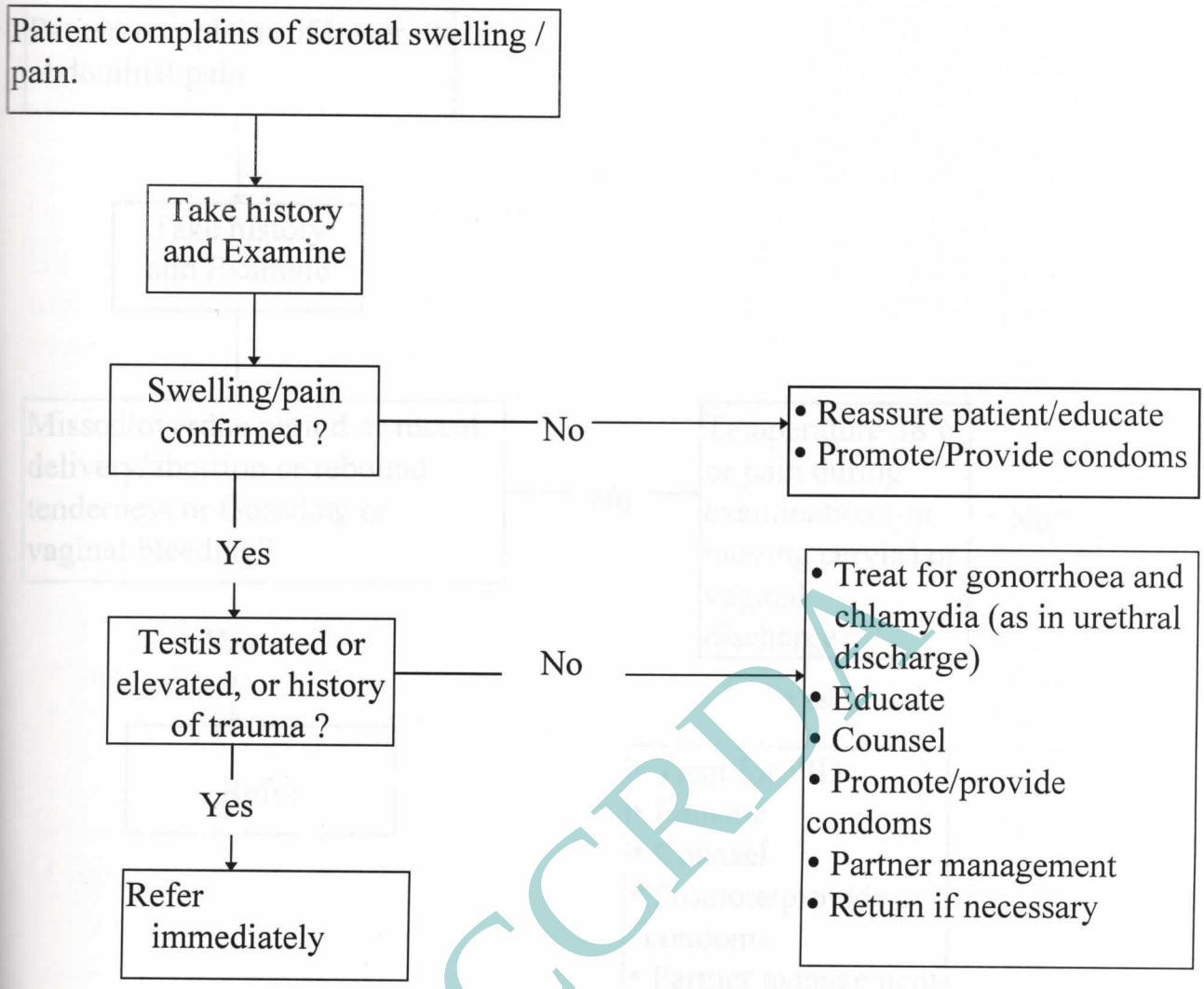
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4.8.4. INGUINAL BUBO



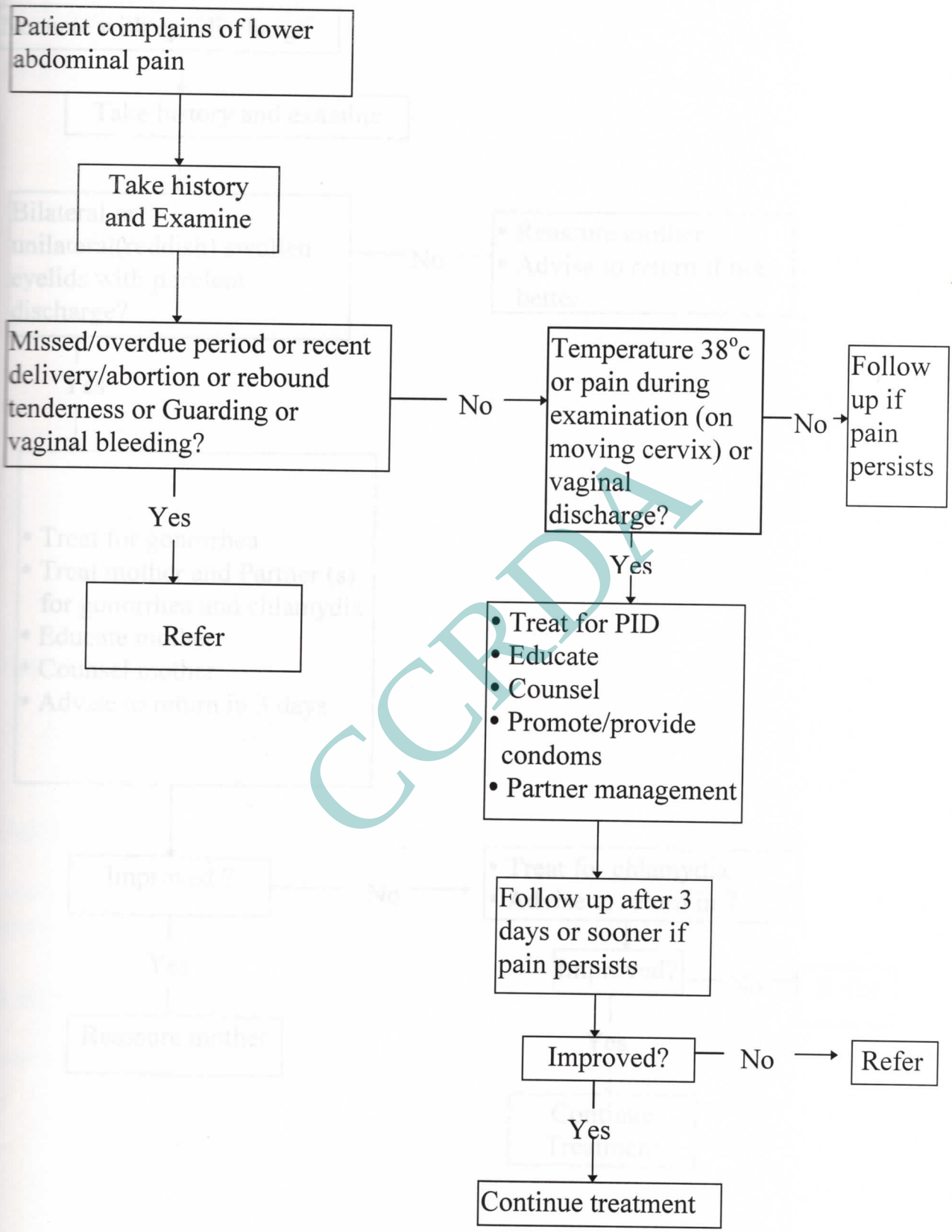
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4.8.5. PAINFUL SCROTAL SWELLING



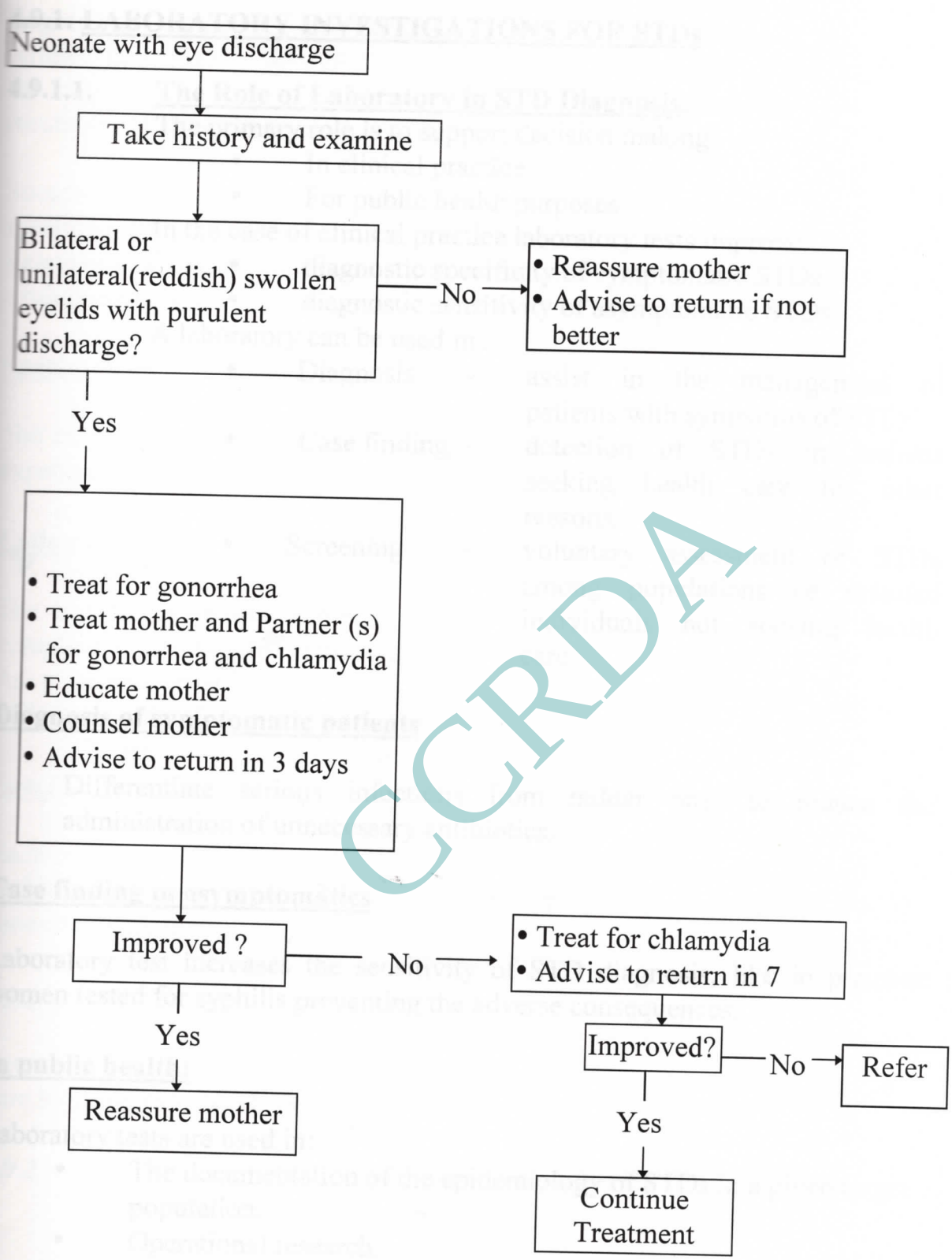
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4.8.6. LOWER ABDOMINAL PAIN



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4.8.7. NEONATAL CONJUNCTIVITIS



CCRDA

4.9. LABORATORY INVESTIGATIONS

4.9.1. LABORATORY INVESTIGATIONS FOR STDs

4.9.1.1. The Role of Laboratory in STD Diagnosis.

The primary role is to support decision making.

- In clinical practice
- For public health purposes

In the case of clinical practice laboratory tests improve:

- diagnostic specificity of symptomatic STDs
- diagnostic sensitivity of asymptomatic STDs

A laboratory can be used in :

- Diagnosis - assist in the management of patients with symptoms of STDs.
- Case finding - detection of STDs in patients seeking health care for other reasons.
- Screening - voluntary assessment of STDs among populations or selected individuals not seeking health care.

Diagnosis of symptomatic patients

Differentiate serious infections from milder ones to reduce the administration of unnecessary antibiotics.

Case finding in asymptomatics

Laboratory test increases the sensitivity of STD diagnosis, like in pregnant women tested for syphilis preventing the adverse consequences.

In public health:

Laboratory tests are used in:

- The documentation of the epidemiology of STDs in a given target population.
- Operational research.
- Validation of guidelines.
- Monitoring the quality of results.
- Training of staff.

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4.9.1.2 SPECIMEN COLLECTION

Regardless of the sophistication level of the laboratory, laboratory sevices will remain inadequate unless established techniques are meticulously followed for the collection, transport, examination of the sample, and the reporting of results.

Successful isolation of pathogens starts with the collection of the correct specimen under appropriate conditions and its transport to the laboratory. Relevant clinical inforamtion and antimicrobial treatment must be indicated for a reliable interpretation of results.

Specimen type:

The correct type of specimen will depend on the clinical presentaion and the expected causative pathogens.

Collection time:

The time of collection for most specimens depends on the presentation of complaints and practical considerations.
As a general rule, it is crucial to minimize the time between specimen collection and delivery to the laboratory.

Specimen labelling and request form:

Each specimen must be clearly labelled with the patient's name, card number and other relevant information including the type of specimen and the date and time of collection.

Specimen handling & transportation

Specimens are potentially infectious and must thus be handled with the greatest care by those collecting, delivering, receiving and examining them.

4.9.2 PROCEDURES OF LABORATORY INVESTIGATIONS FOR STDs

4.9.2.1 GRAM STAIN:

- Cover the fixed smear with crystal violet solution for 30-60 seconds.

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- Rapidly wash off the stain with clean water.
- Remove excess water and cover with gram's Iodine for 30-60 seconds.
- Wash off the iodine with clean water.
- Tilt the slide at an angle of 45-60^0 and decolourise the smear with acetone alcohol mixture. Decolourisation occurs very rapidly and is usually complete within 2-3 seconds.
  Immediately remove the excess acetone alcohol mixture by washing the slide with clean water.
- Cover the smear with safranin (counter stain) for 2 minutes.
- Wash off with clean water
- Wipe the back of the slide clean and place the slide in a draining rack for the smear to air dry.

N.B Avoid reusing the blotting paper for drying as this may lead to contamination.
Look for the bacteria under the oil immersion

Result
- Gram negative bacteria appear Red or Pink.
- Nuclei of pus cells appear as Red.

4.9.2.2 Wet Mounts

a) SALINE WET MOUNT- used for the rapid detection of T.vaginalis
b) KOH (10%) WET MOUNT- used to detect yeast.

4.9.2.2.1 SALINE WET MOUNT

PROCEDURE:
- Place approx.0.5ml of saline in a small test tube
- Collect vaginal material on a swab by rubbing the swab against the vaginal walls, and emulsify in the saline to make a heavy suspension.
- Leave the swab in the tube and do microscopy within 15 minutes.
- Place a drop of the specimen on a slide and cover with a coverslip (Be careful not to trap air bubbles under the cover slip).
- Read the slide immediately

4.9.2.2.2. KOH SLIDE

- Collect the vaginal specimen on swab, then roll the swab on a small area of the slide.

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- Add a large drop of 10% KOH and mix with a wooden applicator or swab.
- Sniff for a "fishy" odour.
- Cover with a cover slip; avoid trapping air bubbles.
- Read th slide as soon as possible.
- Scan for pseudohyphae on low power.
- confirm presence of pseudohyphae and locate yeast buds on high dry.

RPR TEST FOR SYPHILIS

RPR (Rapid Plasma Reagin) test is a simple, rapid and inexpensive screening assay for syphilis. (It is also commonly used in the screening for syphilis in pregnant women).

It can be used for both qualitative and quantitative analysis and has the following advantages.

- The test is provided in the form of a kit and contains all the required materials.
- It uses unheated serum or plasma
- The result of the assay can be read visually
- Most materials in the kit are disposable.

PRINCIPLE

The cardiolipin antigen is a stabilized suspension to which charcoal particles have been added.

The antigen is added to the serum of the patient, mixed on a mechanical rotator (or by) and examined macroscopically for the degree of flocculation.

Any degree of reactivity obtained in the undiluted serum indicates a positive test.

RPR Kit

The RPR Kit is commercially available and contains:

- Card test antigen suspension
- Disposable calibrated 20 gauge needle
- Plastic antigen dispensing bottle.
- Plastic coated cards with circles, and disposable plastic sampling pipette spreaders, which deliver 50 µl of serum.

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The instructions included in the kit should be strictly adhered to.

In case kits have been bought without the controls, positive and negative controls can be prepared "in-house" as follows:

- Pool known RPR positive sera in a tube.
- Pool known RPR negative sera in a tube.
- Aliquot the controls into small quantities, label and store the vials at -20°C, store the controls as aliquots to avoid repeated freezing and thawing leading to inconsistent results of the controls.

Qualitative RPR

Include known reactive (positive) and non-reactive (negative) control samples in each test run of RPR analysis.

- Place 50µl (1drop) of unheated serum on a circle of the test card and spread to fill the circle.
- Gently suspend the RPR antigen. Hold the dispensing bottle in the vertical position and add exactly 1 free - falling drop of suspension to each test area containing serum.
- Place the card on a mechanical rotator under a humidity cover and rotate for 8 min at 100 rpm. (If rotator is not available mixing with hand by gently tilting up and down for 10-15 minutes is possible).
- Read the test reaction in the wet state under a good light source, immeditely after removing the card from the rotator.

Result:

Reactive : Small to large clumps (agglutination)

Non -Reactive : No clumpping or slight roughness.

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CHAPTER 5

PREVENTION AND CONTROL

GENERAL

Although a lot of researches have been done nearly for 20 years, scientists have not yet succeeded in developing neither a preventive vaccine nor a therapeutic medicine against HIV/AIDS. The only weapon available to date to prevent HIV infection is to disseminate correct and up to date information, education and communication (IEC) in order to bring about the desired behavioural change. The information, education and, communication (IEC) activities should focus on specific segments of the society. As the HIV virus mostly affects the young,who are productive and reproductive in the age group of 15-49 years, most of our efforts and resources should also focus on this part of population without leaving aside the others.

The IEC messages should be specified to satisfy the information needs of the various segments of the target population.

The following classification could be an example.

- In-School-Youth
- Out-of-School-Youth
- Women
- Commercial Sex workers (CSWs)
- Workers
- Peasants
- Soldiers
- Drivers etc..

Another catagory of target population includes the policy making and decision making bodies in government institutions, NGOs and community organizations like Trade Unions, Idirs, Ekubs, Mahebers, etc...

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Since each organization has its own leadership, it would be easier to approach all target groups through their respective organizations and promote relevant and timely messages.

Each region and locality should possess relevent and up to date information of its communities such as age, sex, language, culture/religion and their distribution in the region as well as their access to the available media.

It is also important to have knowledge on the factors that put people at risk of HIV infection and the level of awareness, beliefs and attitudes of the population. Adequate information should further be obtained on the extent of the infection, the number of people infected and the ones that developed AIDS. This is important because control and prevention of the disease depends upon the type and quality of education and counselling provided to the healthy and the infected.

Socio demographic information can be obtained by making an assessment of the situation and by taking samples of the various segments of the population. Data on the spread of the disease can be found from statistical reports of health institutions.

Once the baseline information is obtained,the remaining task will be designing of strategies and drawing of action plans on how to reach the targets so as to carry out a sustained programme.

In the following pages we will see the various aspects of IEC and Counselling that can be used in the prevention of HIV/AIDS/STDs.

CCRDA

I. Information Education & Communication

Definition of the terms

Information : it is a process by which a message, an idea or knowledge is transmitted from a source to a receiver.

Information transmission is a one way process where the receivers do not have the chance to actively participate in the process.The message received through this process is short lived and if long lasting retention of the message is needed it has to be reinforced by using other components of IEC.

Education: this is a process by which two or more people exchange messages.In education we have the educator on one side and the learner on the other. In education, learners actively participate in discussions, retain the messages passed by their educators and automatically apply the knowledge they possessed whenever the need arises.

Communication: communication is a process by which messages are exchanged between two or more people. Communication has basic elements of its own which includes, the communicator or the source of information, the message,the channel and the receiver and finally what we call the feed back. This is the simplest model of communication.

Communication can be explained in the following ways:-

(I) the mass communication : which usually involves the mass media:-radio,TV and the press

(II) Interpersonal communication : which involves the communicator and the receiver.

Each kind of communication has its own advantages and disadvantages.

Mass communication has the advantage of reaching many people within a short period of time but is not sufficient for educating people since it does not give them the chance to interact.

Interpersonal communication is a person to person communication. It gives chances to people to ask questions, to make comments and to share ideas and experiences. The educator and the learner can go on till they exhaust their points of discussion without leaving room for doubts. It is thus advatageous for conducting effective education. It has, of course, a disadvantage of not reaching many people in a short period of time. A combined use of different methods of communication fills the gap that could be created if only one method is used. e.g. if inter-personal communication is combined with mass communication, the transfer of knowledge will be complete and clear.

Peer education is one form of interpersonal communication and is a favored appoarch to educate people about HIV/AIDS.

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PEER EDUCATION

Peer education is a forum where groups of people can educate each other. People are often more willing to listen to and follow advice from their peers - those similar to themselves in age, background and interest. However, members/leaders of the peer group need to be given basic training and support. Once the peer educators are identified and provided with the basic training, they can carry out a range of educational activities with their peers.

The activities range from informal conversations to organized group sessions, and can take place in communities, youth clubs, schools or work places.

Peer education programmes are especially helpful for young people. They can increase their confidence, knowledge and skills in relation to their sexual development, reduce their risk of HIV, STDs and unwanted pregnancy and increase their support for people with HIV/AIDS.

Why does peer education work

People tend to behave in similar ways as their peers. Young people's influence on each other is called peer pressure. Peer education aims to use this influence in a positive way, by promoting norms, attitudes and behaviour that reduce the risk of infections and unwanted pregnancies.

- As part of adolescence, young people often question the attitudes and values held by other young people. They feel that they have common interest with their counterparts far from their surroundings with other young people, and their peer group becomes an important source of support. Peer education thus uses the positive aspects of this process.

- Many young people speak of their intention to learn about sex and sexual development from their peers. Adults often find it difficult to talk about these issues with young people.

- Young people need skills as well as information, to enable them to make important decisions on sexual activity or to negotiate safer sex . It is easier for them to practice this with other young people who already possess the skills.

- Young people usually feel that they are not at risk of HIV infection. Peer educators can help their peers to realize that they are at risk with this disease.

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- Young people need to have confidence in themselves if they are to resist pressure and adopt safer behaviours such as postponing sex. Peer education can encourage individuals to think about their values and the consequences of their decisions, and to feel positive about their choices.

Peer approaches

Peer approaches can be divided into three types.

* **Peer information**

This involves briefing people with information,often to large groups on a one time basis.This could include distributing leaflets, performing drama or participating in radio listening sessions.

* **Peer education**

This involves carrying out informal or organized educational activities with individuals or small groups over a period of time.

* **Peer counselling**

This involves training of people to carry out counselling activities with their peers. It includes providing support and help with problem solving.

Recruiting peer educators

Peer educators should come from similar social group of young people they work with. Young people should be involved in developing the selection of criteria and in choosing the peer educators. Adults usually choose qualities they like i.e. - respectful and well-behaved individuals. Young people may have different criteria, including popularity, enthusiasm for project and ability to keep secrets. They are more likely to respect, trust and support peer educators whom they have selected. The selection may be reviewed and agreed by adult staff.

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Training for peer educators

Training is based on what the peer educators need to do for the planned activities.

Training usually focuses on the following areas.

- discussing the roles and expectations of the peer educators and adults in the project.
- enhancing knowledge by explaining what the peer educators already know about sex and sexual development, HIV/AIDS and STDs.
- discussing sex and sexuality as well as community norms and attitudes of young people.
- enabling the peer educators to explore their own values, especially about sexuality and relationships, and to feel confident in talking about sex and sexuality with their peers.
- developing their attitudes and skills for working with other young people as facilitators rather than teachers.
- develop their skills for keeping confidentiality and enable them to give firm decisions as to when to refer some one for help or to consult adults.
- building their skills for recognizing risk situations, for negotiating safer sex or using condoms.
- practicing the activities they carry out with other young people.
- giving peer educators opportunities to buy condoms from local pharmacists or any other outlets, and to visit staff at the STD or family planning clinics.

To develop and sustain a desirable behaviour that protects them from contracting HIV/AIDS and other STDs, young people need to get proper knowledge on the subject. They should have positive attitude towards learning about HIV/STDs, and possess the necessary skills which protects them from such a scourge.

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Ability to Act

Skills

Physical:- Physical exercise, dances, sports ...
Technical/Vocational:- Sewing, carpentry technical home
Home Economics:- cooking, mixing ORS
proper use of condom

Cognitive:-literacy, numerous, critical thinking,
problem solving, decision making

Psychosocial:-Self awareness, assertiveness,
coping up with emotions,
conflict resolution, negotiation,
self confidence, self empowerment
pressure resistance,self esteem,
communication skills...etc

Life skills are those skills needed by an individual to operate effectively in situation and active constructive way. (Edward de bono)

The ABCs of HIV/AIDS prevention

A. Abstinence:- This is the safest of all preventive practices. Young people should be encouraged to abstain from sexual intercourse untill they are married or are ready to do it safely. People should understand that no one has encountered a problem by abstaining from sex. There are people who abstain and there is no reason why others cannot do it.

B. Be faithful to partners - Sexually active people who have regular sex partners should stick to their partners mutually and for life. A moment failure will risk the lives of both partners.

C. Use condom:- If sexually active people can't abstain from sex and have non regular partners, they should be encouraged to reduce their partners and properly use condoms in all sexual encounters.

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II. COUNSELLING

Counselling is a problem solving and decision making process, involving a counsellor and a client. The client often feels the need for help while the counsellor is an impartial person who is not associated with the client and who is skilled in listening, supporting and guiding. Or, it may be that the client is sought out by the counsellor, who has been asked by a friend, family member, or health provider to assist the client. Here the counsellor can explore with the client whether a problem exists or not. Through dialogue and interaction counselling helps to identify, solve or manage problems, as well as understand, and respond as rationally as possible to psychosocial disturbances and needs.

Counselling is designed to :

(1) Encourage a change when it is needed for prevention or control of infection;

(2) Provide support at times of crisis;

(3) Propose realistic action adapted to different clients and circumstances; and

(4) Assist clients to accept and act upon information on health and well-being.

Counselling is concerned with individuals, couples, families and groups. The psychosocial aspects of counselling are explained in the following ways:

A. PREVENTIVE COUNSELLING:

Preventive counselling is aimed at helping people understand and change risk behaviour before they are infected, and at supporting those who are infected or are in an active stage of the disease.

Every encounter between a counsellor and a person worried about his or her health, already infected or diagnosed with AIDS should cover certain topics and issues. The context of counselling is determined by the available time, the situation in which counselling takes place, the ability of a client to understand information and interpretations and the skill of the counsellor.

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Although uniformity is not possible, from the first contact to the last,the counsellor ensures that the following areas are covered and repeated as frequently as necessary.

1. Primary prevention information
   - difference between HIV infection and ARC/AIDS
   - all means of transmission (risk behaviour)
   - methods of prevention related to each means of transmission (e.g. "safer sex", condom use, clean needles)

2. Personal implications of this information for the client's present and future life, and for the lives of spouses or partners and the family.

3. Assessment of the client's level of risk and possible need of antibody testing.

4. Reactions to testing and the possibility of a positive result (pre-and post-test counselling).

5. Specific behaviour which must be changed if a person is to prevent infection in the first instance or to control transmission if already infected.

6. Motivation to change behaviour, and maintain the change.

7. Obstacles to behavioural change (e.g. peer pressures, religious objections to use of condoms)

8. Psychosocial support available for maintaining behavioural change and in (the case of AIDS) for managing illness.

9. How and for whom to tell about HIV infection and possible consequences of telling or not telling.

10. Intention to donate blood or to become pregnant.

11. Follow-up of the counselling and the need for health and social welfare services.

12. Reinforcement and maintenace of existing safe behaviour.

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B. PSYCHOSOCIAL ASPECTS OF COUNSELLING

Psychosocial counselling includes giving information, providing emotional, social and psychological support; as well as expression and discussion of feelings, and the maintenance or establishment of social-support and health care arrangements.

Counselling in relation to HIV infection and AIDS requires an understanding of not only the human nature in general but of the unique and changing ways in which individuals react to fear of infection or to the threat of life.

It is also concerned with asessing the degree to which family, friends and intimate associates accept or reject the infected individual and are anxious about the infected person or themselves; the level of their knowledge about HIV/AIDS and their intention to learn more; their willingness to support the individual psychologically, emotionally, spiritually and materially.

Counselling helps clients in managing their emotions at different stages of their worry about infection and diseases so that they take responsibility for their own and others' protection, adjust to their situation, and maintain essential social relationships.

Counselling involves judgement, through knowledge of the physical impact of HIV infection and AIDS, skill in supporting people as they talk about their fear of being infected and its consequences, and understanding of emotional response to illness or to the possibility of HIV infection.

Preventive counsellors are trained on how symptoms and causes of HIV infection and AIDS are explained in a society or culture, and how to adapt counselling to cultural norms, traditions and views.

C. PSYCHO SOCIAL ASPECTS OF COUNSELLING TO UNINFECTED PERSON.

When clients who heard about HIV/AIDS and who have the fear of contracting the disease come to ensure their good health, the counsellor explores in detail their knowledge, beliefs and attitudes which would serve to support motivation to avoid or change risk behaviour.

The counsellor also assesses the degree to which people close to the client can be involved, and will or will not support the client's desire to prevent infection e.g.

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in a single man having many sexual encounters, pressure from friends may be very strong if they see him abstaining. Finding alternative social support may be an important counselling task. The counsellor with a worried person looks at once for signs of personal strength and social support.

For uninfected person, continuing support of safe behaviour and follow up from the counsellor, and (if available) from family, friends or peer groups is the best psychosocial means of maintaining health.

D. PSYCHOSOCIAL REACTIONS

People react differently to learn of having HIV infection, or even discussing its possibility. It is common, however, to observe certain kinds of behaviour and feelings in response to the realization that one is infected with or has AIDS.

A typical reaction has been described as progression from shock, through denial, crisis, tension, fear, depression, panic, guilt, anger, self-pity, bargaining, search for meaning, and fighting, to a stage of sense of self, positive action and acceptance.

Shock

Confusing and bewilderment are typical. Some people react courageously while others lose emotional control. In either event shock severely damages their usual ways of dealing with problems. There is no way to predict the reaction.

Miller by observing that shock is a normal response to life threatening news, has listed some common emotional shock reactions to diagnosis or infection.

Numbness/stunned silence/disbelief

Confusion/distractibility/uncertainty about the present and future circumstances.

Denial ('It can't be true;' Don't worry things will be fine')

Despair ('Oh my God! everything is ruined')

Anger towards health staff, loved ones, etc, over impact on life and circumstances.

Fear of pain, death, disability, loss of bodily/mental functioning.

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Guilt/self-blame over the association of infection or illness with sexual activity, or with being homosexual or a drug abuser.

Anxiety

It would be unusual for an HIV-infected person not to be anxious. A calm, unemotional reaction may be an expression of psychological denial.

Anxiety will be a reaction to several issues at once; fear and uncertainty about the future; fear of possibly having infected a spouse or a partner; later, concern about the future of dependent children or other relatives; and fear of social support and of being left alone.

Acute and severe anxiety

Emotional liability (moving quickly and unpredictably from tears to laughter and vice versa)

Sadness and morbid concern about the future, work, lover/spouse/family health.

Suspicion over the action and behaviour of staff/loved ones/helpers.

Relief at knowing what the cause of recent illness is.

In conjunction with these, Miller cites several behavioral reactions to shock:

Crying - episodic and often unpredictably

Anger and irritability - towards anybody, from 'sparked off' by trivial and unimportant events (may be physical or verbal).

Withdrawal - distancing from present issues and circumstances, reluctance to become involved in conversation activities or plans for treatment.

Self-degradation - referring to self as being 'deserving of this plague', worthless, 'unclean and dirty'

Bodily checking - for signs of further infection or physical deterioration

Questioning - for reassurance or further information

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Stress

Stress affects everybody who is infected or who has the fearing of being infected because of having engaged in risky behaviour. Various factors cause stress: fear of being infected; having to decide whether or not to be tested; knowing about the outcome of AIDS and AIDS-related conditions; facing premature death; having to change familiar and pleasurable forms of behaviour. Stress diminishes the ability to make decisions, to understand information, and to change behaviour so as to protect one's own and others health.

The counsellor determines what the person has been thinking about since becoming concerned about infection, and whether there have been any signs of stress or depression such as inability to sleep, loss of appetite, fits of anger, withdrawal from close relationships, or rapid swings in mood.

Testing is itself a source of stress. The time before testing waiting for the result, and after obtaining a positive result can all be times of stress with progressive anxiety. There is no cure, and there is the continuous uncertain threat of AIDS after a positive result. The counsellor deals directly with the distress and refers to sources of culturally acceptable emotional and spiritual support, as well as medical care.

Anger

Anger is part of the shock reaction and may persist for a long time. It may be directed inwardly or at the family, friends, or at fate for dealing a mortal blow. The counsellor deals with this anger (which may be directed also at the counsellor), and even stands up to the client.

By accepting the anger and not being intimidated by it, the counsellor helps the client redirect it - at the disease itself, for example - as a means of eliciting motivation to respond constructively to the challenge posed by the disease.

Denial

Denial is a common and normal reaction to unpleasant or to unbearable news about one's health, and can be positive or productive if it induces a strong motivation to survive against all odds and predictions. However, if it persists to the point of refusing medical or counselling assistance, or if continuining in risk behaviour the counsellor may need to challenge the person directly and point out the consequences.

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Fear of illness

Fear of the disease, of the increasing disability and disfigurement, and of death can result from ignorance about HIV infection and its effects as well as from knowledge about the disease.It can influence greatly the response to counselling, and therefore its causes must be found. If it is due to rumors and misinformation, the counsellor gives the facts. If it is well founded, the counsellor must offer emotional support, realistic reassurance, and help in planning for the prospect of being overcome by feelings of loneliness, helplessness, weakness, sickness and loss of control of bodily functions.

Fear of desertion

A positive diagnosis may lead to questions about the circumstances in which infection occurred. A secret life may be revealed, perhaps involving prostitutes or extramarital relations. The person may be branded as immoral. In such circumstances people often fear desertion by family and friends, or loss of work or even of their home and social security. The counsellor encourages the client to discuss these issues in confidence while in counselling and to do everything possible to preserve the family relationship and friendships.

Isolation

The HIV-infected person may react by withdrawing from all social interactions. The counsellor respects the felt need of isolation for a while, but continues a supportive counselling relationship to the degree that is possible. The position may be aggravated by unnecessary isolation or excessive use of barrier protection in hospital, and by a noticeable tendency of people to avoid physical contact.

Loss

AIDS patients usually experience a deep sense of loss. They lose jobs and hope for the future (e.g. of having children, of success in their work, of standing in the community). They may lose their looks, strength and sexual ability; their status at work and at home; their social life, independence, privacy and income. They may grieve greatly at their loss. As the disease progresses, the sense of loss often increases, and signs of depression become very evident.

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Resentment at changes in living patterns

With progressing illness the person with ARC or AIDS may become unfit for work while yet he/she is strong. Boredom with life i.e. increasing restriction in diet, activity, social contacts - is common. Resentment at having to follow a restrictive medical regimen can lead to rejection of counselling or medical advice.

Self-blame

Preoccupation with the circumstances in which infection occurred may lead to self-blame and consequent thoughts of helplessness, worthlessness and suicide. With progressing disease, changes in appearance can bring a sense of being punished for sin or misbehaviour. Patients may feel guilty for living while others whom they know have died of AIDS.

Loss of self-esteem

The level of self-esteem is closely related to self-blame. Intense guilt and a sense of being avoided by others will erode the sense of self-worth. Self-reproach is common and delusions of being harmful or poisonous to others occur.

Depression

Some degree of depression is to be expected as a natural reaction to a frightening and life-threatening illness. When alternating hopelessness and relative cheerfulness give way to continuing hopelessness, the possibility of depressive illness must be considered. It is usually characterized by persisting and perhaps deepening sadness, fatigue and apathy; changes in sleep patterns and eating habits; feelings of self-blame, guilt and helplessness. There is often fear of loss of control and harming oneself or others.

Suicide

Although thoughts of suicide can be irrational and a sign of depression, they may also be rational, in the sense that suicide would be a solution to an impossible problem. Such thoughts are very common, but suicidal acts are rare in people with AIDS. Attempted suicide, however, is fairly common among HIV-infected people.

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Dependency and loss of control

The sense of dependency, helplessness, and loss of control engendered by chronic and fatal illness is a critical issue in counselling. The counsellor pays great attention to restoring some sense of independence and control.

E. PRE-REQUISITES OF COUNSELLING

Acceptance

Everyone who is counselled in connection with HIV infection and AIDS should always be made to feel fully accepted.

The counsellor accepts without question the client's fears and circumstances,irrespective of lifestyle, past behaviour,sexual orientation, social class, race, religion or other characteristics.

Listening

The ability to listen is an important first step to establish rapport and without which the counselling process cannot continue.

Consistency

All information about infection,transmission, risk of infection and risk reduction must be consistent.

Trust and Confidentiality

Confidentiality is a basic principle of counselling. Trust is an essential element of the counsellor-client relationship. The relationship between the counsellor and the client is built on the understanding that whatever is discussed remains a private matter between the two.

Informed Consent

Any client who may be tested is told all the possible, psycological, legal and social implications of testing.

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Protection Against Discrimination

Arrangements for testing should minimize the risk of discrimination.

F. THE COUNSELLING PROCESS

The counselling process begins at the first contact or meeting between the counsellor and the client with HIV infection or otherwise involved with HIV infection.

Counselling has the following constant and universal features:

It Provides Time and Support

Perhaps the most important function of counselling is to provide clients with the time and opportunity, in a sheltered environment, to come to terms with the information they have received and the need for behavioural change in order to prevent infection or control transmission.

It helps Pinpoint Problems

People who have tested positive for HIV may be overwhelmed by both facts and fears. The counsellor helps identify the range of problems to be faced, pinpoints the ones to be faced most urgently, and proposes ways of dealing with the problems systematically which helps to restore a sense of being controlled.

It Provides Information and Advice on Medical and Social Services and Resources

If the HIV infection progresses to AIDS, the counsellor may need to explain what facilities, self help groups, community resources and medical support are available and perhaps make arrangements on behalf of the person with AIDS.

It Helps in Selecting Realistic Alternatives

Helping individuals with changes in lifestyle requires a detailed evaluation of family, financial resources, and educational background as well as the degree of risk, need for change, and the individual's capacity for change. The role of counselling is to ensure that the alternatives can be implemented to ways that meet the individual's needs and those of families and friends.

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It Stimulates Motivation and Decision Making

Motivation for change is enhanced when individuals feel they have control over their lives and decisions. They should be helped to assess different possible courses of action in a way that build up self-respect and confidence in their ability to take decisions.

STAGES OF COUNSELLING

BEGINNING (OR ENGAGEMENT) STAGE

- Listen carefully and non -critically
- Respond to signs of crisis and begin helping the person express feelings and regain control
- Explain pertinent facts about prevention of HIV infection and control of further transmission of HIV infection and AIDS
- Discuss the pros and cons of antibody testing if this is at issue
- Whether or not the client is infected, emphasize the absolute need for behavioural change
- Offer emotional support and help, contact family and other resources if required and the client agrees
- Determine all the personal, family, social, economic and other problems that may be associated with the client's condition
- Assess the client's capacity for using information and counselling and together select problems on which both the client and the counsellor work
- Establish short-term and long-term goals
- Make a plan of action with regard to the selected problems.

MIDDLE (ACTION) STAGE

- Clarify whether the client is HIV-positive or negative or whether a diagnosis of AIDS has been made: discuss related problems
- Continue to provide emotional support and connection to resources

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- Discuss the infected person's plans for telling and involving the family and other close associates
- Support continuous expression and discussion of feelings
- Help the person move towards acceptance and control
- Support and sustain work on the selected problems
- Monitor progress towards goals and modify them as necessary
- Promote continuation of changes in behaviour

END-STAGE (Contacts may extend over a long period but with longer intervals between meetings)

- Prepare the client for a changed counselling relationship
- Support maintenance of behavioural changes
- Help handle any continuing problems in the family or work place associated with the clients condition
- Reassure the client as to continuing interest and availability
- If AIDS has developed, review plans for management of illness, care of survivors
- Make sure that all needed and available resources have been identified and are being used or will be used when needed.

H. PRETEST COUNSELLING

This is the counselling offered to persons before they have an HIV antibody testing.

It provides for a person to:

- find out accurate information on HIV/AIDS.
- consider positive changes in behaviour to prevent transmission of HIV
- consider all possible implications of a positive or negative test result
- make an informed decision about whether or not to have a test done

I. POST TEST COUNSELLING

It is the counselling offered to a person after he/she has known the results of an HIV test or has been informed that he/she has been diagnosed as having AIDS.

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It is aimed at providing emotional support to help the person cope up with the news. Post test counselling provides the opportunity for a person to share worries and concerns and to consider what his/her HIV status means to him/her emotionally and socially and to start to plan accordingly.

J. OTHER PREVENTIVE MEASURE

MOTHER TO CHILD TRANSMISSION

* Women at risk of or known to have HIV infection need safe and effective contraception. Whether or not other contraceptive methods are used, condoms should always be used when ever there is a risk of sexual transmission of HIV infection.

* The counsellor must help women understand that no other method protects against HIV infection, and that condom must always be used for this purpose whether or not another method is being used for contraception.

* Studies have shown that HIV infected mothers can pass on the virus to their new borns through breast feeding. More than 1/3 of the 300,000-400,000 new HIV infection in children each year result from breast feeding.

To reduce the HIV transmission through breast feeding, the following measures are helpful:

- heat treatment of the colostrum (first milk) to destroy the virus or
- provision of artificial milk to new born

The other possibility is to limit breast feeds to the first few months since HIV transmission through breast feeding occurs throughout the first and second years of life.

BLOOD TRANSFUSION

This is a procedure where the health workers take responsibility. All hospitals that have transfusion facilities do also have the means for HIV testing as a routine procedure to be followed prior to transfusing blood to their patients.

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CONTAMINATED INSTRUMENTS/UTENSILS & HARMFUL TRADITIONAL PRACTICES

Health authorities need to give special emphasis for proper sterilization of instruments/utensils whether in government or private health facilities. The role of the health educator/counsellor is to educate and counsel the target population to avoid HIV infection by avoiding unauthorized injectors/practitioners and harmful traditional practices.

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ANNEX 1

TREATMENT REGIMEN FOR STDS IN ETHIOPIA ACCORDING TO RECOMMENDATIONS BY THE STD TECH. COMMITEE - 1990

HEALTH CENTER/RURAL HOSPITAL LEVEL

1. **GONOCOCCAL UNCOMPLICATED UROGENITAL INFECTION**
REGIMEN OF CHOICE: Trimethoprim (160mg) + Sulfamethoxazole (800 mg) 5 tablets once/day for two days.

PREGNANT WOMEN: Spectinomycin 2 gm i.m. stat.
SULPIIONAMIDE ALLERGIC PATIENTS: Tetracycline 500 mg q.i.d. for 7 days

2. **NON-SPECIFIC URETHRAL/CERVICAL INFECTIONS**
REGIMEN OF CHOICE: Tetracycline hydrochloride (500mg) 1 tablet p.o., q.i.d for 7 days.

3. **SYPHILIS:**

3.1. **PRIMARY SYPHILIS:** Benzathine penicillin (2.4 million units) 1 vial i.m. in a single dose.

In patients allergic to penicillin and pregnant women:
Erythromycin (500 mg) 1 tab q.i.d for 15 days.

In non Pregnant allergic to penicillin:
Tetracycline 500 mg p.o q.i.d. for 15 days

3.2. **SECONDARY SYPHILIS**:
DRUG OF CHOICE: Benzathine penicillin 2.4. million units i.m. weekly for 2 weeks.
In penicllin allergy non-pregnant women
Tetracycline 500 mg tablets - 1 tablet p.o., q.i.d for 15 days.

In penicillin allergy pregnant women:
Erythromycin (500 mg) 1 tab q.i.d for 15 days

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3.3. **EARLY LATENT SYPHLIS:**
Benzathine penicillin 2.4 million units im weekly for 2 weeks.
In non-pregnant women allergic to penicillin:
Tetracycline 500 mg 1 tablet - 1 tablet p.o.q.i.d for 15 days.
In pregnat women allergic to penicillin:
Erythromycin (500mg) 1 tab q.i.d for 15 days

3.4. **CONGENITAL SYPHLIS:**
REGIMEN OF CHOICE: Procaine penicillin 50.000 units /kg i.m. once daily for 10 days.

4. **CHANCROID:**
DRUG OF CHOICE: Trimethoprim 160 mg + sulfamethoxazole (800 mg) - tablet p.o.q.i.d for 7 days.

In non-pregnant women allergic to sulphonamide: Tetracycline 500 mg p.o.q. i.d for 7 days.

Pregnant women and adverse reaction to Tetracycline:
Erythromycin 500 mg tablets - 1 tablet p.o.,q.i.d for 7 days.

5. **LYMPHOGRANULOMA VENEREUM:**
DRUG OF CHOICE: Tetracycline hydrochloride (500 mg) 1 tablet p.o.,q.i.d for 2 weeks.

Adverse reactions to Tetracycline and pregnant Women:
Erythromycine (500 mg) 1 tablet - 1 tablet p.o.,q.i.d for 2 weeks.

6. **TRICHOMONIASIS:**
DRUG OF CHOICE: Metronidazole 2.0g in a single dose.

Pregnant women (during first trimester)
Clotrimazole (100mg) 1 tablet p.v at bed time for 7 days

7. **BACTERIAL VAGINOSIS**
DRUG OF CHOICE: Metronidazole 2 gm once and repeat same dose after 48 hours.

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Pregnant women (during first trimester) and Breast-feeding women:
Ampicillin 500 mg caps - 1 capsule p.o.q.i.d. for 7 days.

8. **GENITAL CANDIDIASIS**:
Nystatin (100,000 units) 1 pessary per vagina at bed time daily for 14 days.

9. **CONJUNCTIVITIS IN THE NEWBORN**:
For prophylaxis: Apply Tetracycline eye ointment 1% to both eyes of the neonate at birth.

Treatment of gonococcal ophthalmia neonatorum:
Ceftriaxone 125 mg i.m. stat.

TREATMENT REGIMEN FOR STDs IN ETHIOPIA ACCORDING TO RECOMMENDATIONS BY THE STD TECH. COMMITTEE - 1990

REGIONAL REFERRAL HOSPITAL LEVEL

1. **GONOCOCCAL UNCOMPLICATED UROGENITAL INFECTION**

FIRST LINE DRUG FOR FIRST VISITS: As at health center level.

SECOND LINE DRUG: Norfloxacin (400 mg) 2 tabs p.o., in a single dose.

In resistance to Teracycline and pregnant women:
Spectinomycin 2 gm. i.m. in a single dose.

In Spectinomycin resistance cases:
Ceftriaxone 250 mg i.m single dose (to be used at central level)

2. **NON - SPECIFIC URETHRAL/CERVICAL INFECTIONS**:
Tetracycline hydrochloride 500 mg 1 tablet p.o.,q.i.d for 7 days.

In resistance to Tetracycline and pregnant women:
Erythromycin 500 mg tablets - 1 tablet p.o.,q.i.d for 7 days.

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3. SYPHLIS

3.1. PRIMARY SYPHILIS:

DRUG OF CHOICE: Benzathine penicillin 2.4 million units i.m.single dose.

In non-pregnant women: Tetracycline hydrochloride 500 mg tabs - 1 tablet p.o.,q.i.d for 15 days.

In resistance to Tetracycline and Pregnant women:
Erythromycine 500 mg tablets - 1 tablet p.o.,q.i.d for 15 days.

3.2. SECONDARY SYPHILIS

DRUG OF CHOICE: Benazthine penicillin 2.4 million units i.m. weekly for 2 weeks.

Non-pregnant women and allergy to penicillin:
Erythromycine 500 mg tablets - 1 tablet p.o.,q.i.d for 15 days.

3.3. EARLY LATENT SYPHILIS

DRUG OF CHOICE: Benzathine penicillin 2.4 million units i.m weekly for 2 weeks.

Non-pregnant women allergic to penicillin:
Tetracycline hydrochloride 500 mg tablets - 1 tablet p.o.,q.i.d for 15 days.

Pregnant women and adverse reactions to Tetracycline:
Erythromycine 500 mg tablets - 1 tablet p.o.,q.i.d for 15 days

3.4. LATE LATENT SYPHILIS:

DRUG OF CHOICE: Procaine penicillin 600.000 units i.m daily for 20 days.

Non-pregnant and allergy to penicillin:
Tetracycline hydrochloride 500 mg tablet - 1 tablet p.o.,q.i.d for 30 days.

Pregnant women and allergy to penicillin
Erythromycine 500 mg tablet - 1 tablet p.o.,q.i.d for 30 days.

3.5. CONGENITAL SYPHILIS

DRUG OF CHOICE: Procain penicillin 50.000 units/kg i.m. once daily for 10 days.

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4. **CHANCROID**

DRUG OF CHOICE: Tetracycline hydrochloride 500 mg tablets 1 tablet p.o.,q.i.d for 7 days.

In pregnant women adverse reactions and resistance to Tetracycline:
Erythromycine 500 mg tablets - 1 tablet p.o.,q.i.d for 7 days.

5. **LYMPHOGRANULOMA VENEREUM (LGV)**

DRUG OF CHOICE : Tetracycline hydrochloride 500 mg tablets 1 tablet p.o.,q.i.d for 2 weeks.

In pregnant women allergic to penicillin and resistance to Tetracycline:
Erythromycine 500 mg tablets - 1 tablet p.o.,q.i.d for 2 weeks.

6. **TRICHOMONIASIS:**

DRUG OF CHOICE: Metronidazole 2 gm p.o.single dose

or

Metronidazole 250mg-1 tablet three lines a day for 7 days.

Pregnant Women (During the first trimester)
Clotrimazole 100 mg tablets - insert 1 tablet p.v at bed time for 7 days.

7. **BACTERIAL VAGINOSIS:**

DRUG OF CHOICE: Metronidazole 2 gm once and repeat the same dose after 48 hours.

If no improvement: Metronidazole 500 mg tablets 1 tablet p.o/b.i.d for 7 days.

Pregnant (During the first trimester) and Breast feeding women:
Ampicillin 500 mg capsule - 1 capsule p.o.,q.i.d for 7 days.

8. **GENITAL CANDIDIASIS**

FIRST LINE TREATMENT: Nystatin 100,000 units. 1 pessary p.v. daily for 14 days.

or

Clotrimazole 100 mg tablet - 1 tablet p.v at bed time for 7 days.

SECOND LINE TREATMENT

- Miconazoic vaginal ovules - 1 vaginal ovule p.v. daily for 5 days.
- Nizoral 200 mg tablets - 1 tablet twice daily for 5 days.

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ANNEX 2

CLINICAL ASPECT OF HIV/AIDS

DEFINITION - Adult AIDS - 1985 Bangui's case definition

A case of AIDS in an adult is defined as a patient with no known underlying cause of cellular immunodeficiency who presents with at least two of the major signs associated with at least one minor sign:

Major signs:-
Weight loss of > 10% of body weight in 1 month
chronic diarrhoea > 1 month
prolonged fever > 1 month (intermittent or constant)

Minor signs:-
persistent cough > 1 month
generalised lymphadenopathy
herpes Zoster
persistent fatigue
night sweats

DEFINITION - Paediatric AIDS
Paediatric AIDS is suspected in an infant or child (under 13 years of age) presenting with at least two major signs associated with at least two minor signs in the absence of known causes of immunodeficiency:

Major signs:-
recurrent fever > 1 month
recurrent oropharyngeal candidiasis
recurrent pulmonary infections

Minor signs:-
chronic diarrhoea> 1 month
weight loss or abnormally slow growth
generalised lymphadenopathy
persistent cough> 1 month
extrapulmonary tuberculosis
pneumocystis carinii pneumonia
confirmed maternal HIV infection.

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THE ETHIOPIAN AIDS CASE DEFINITION FOR SURVEILLANCE IN ADULTS JULY 1993

I. AIDS in adolescent or Adult (≥ 12 year of age) with laboratory evidence of HIV infection is defined in the presence of:

A. 2 major signs alone or
B. 1 major with at least 2 minor signs or
C. At least one of the indicator diseases

OR

II. AIDS in adolescent or Adult (≥ 12 years of age) with out laboratory evidence of HIV infection is defined in the

A. 2 major and at least 1 minor sign except in the case of cough where additional one minor sign is required.

OR

III. AIDS in adolescent or Adult (≥ 12 years) is defined if patient fulfills the CDC surveillance case definition (1993) excluding tuberculosis at any site.

I. MAJOR SIGNS/DISEASES

1. Neuropsychiatric impairment
2. Significant weight loss
3. Unexplained chronic/recurrent diarrhoea for more than 1 month continuous or intermittent
4. Un explained prolonged fever for more than 1 month (continuous or intermittent).
5. Tuberculosis at any site.

NB. In the presence of tuberculosis weight loss and prolonged fever will not be considered (counted) as major signs.

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II. MINOR SIGNS/DISEASES

1. Persistent cough in the absence of pulumonry Tuberculosis and other known cuases of cough.
2. Generalized pruritic dermatitis
3. Herpes zoster (past or present)
4. Persistent genital ulcer or extensive genital warts
5. Generalized lynphadenopthy
6. Oro-pharyngeal candidiasis (thrush)
7. Silking of the hair

III. INDICATOR DISEASES

1. Candidiasis of the oro-pharynx and oeophagus (diagnosed presumptively)
2. Invasive carcinoma of the cervix
3. Kaposis sarcoma (all types at any age)
4. *Recurrent pneumonia*
5. Disseminated/Miliary Tuberculosis (Diagnosed presumptively)

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THE ETHIOPIAN AIDS CASE DEFINITION FOR SURVEILLANCE IN PAEDIATERICS JULY 1993

I. AIDS in a child < 12 years of age is defined with evidence of positive HIV test in the presence of.

A. 3 major signs alone

In the absence of other known cause of immunosuppression

OR

II. AIDS in a child < 12 years of ages is defined with out laboratory evidence of HIV infection in the presence of

A. 2 major and 2 minor signs

B. 3 major and 1 minor signs

In the absence of other known causes of immunosuppression

OR

III. AIDS in a child < 12 year of age is defined if a patient fulfills the 1987 CDC surveillance case definition.

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SIGNS/DISEASES

I. Major signs/diseases

1. Failure to thrive
2. Repeated/persistent lower respiratory tract infection (LRTI)
3. Chronic/Recurrent diarrhoea for more than 1 month (continuous or intermittent).
4. Prolonged fever > 1 month (continuous or intermittent).

II. Minor Signs/diseases

1. Generalized lymphadenopathy
2. Repeated or persitent common infections (otitis media, pharyngitis, orophargyal candiasis; purulent rhinitis, sinusitis, Impetigo, boils, etc.)
3. Unexplained neurological disorders or developmental delay or/and microcephaly
4. Hepatosplenomegaly or splenomegaly
5. Extensive varicella infections or molluscum contagiosum
6. Confirmed maternal HIV Infection

N.B: Fever should not be counted as a major sign in the presence of LRTI.

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ANNEX 3

World Health Organisation Staging System for HIV Infection and Disease

CLINICAL STAGE 1

1. Acute retroviral infection
2. Asymptomatic
3. Presistent generalised lymphadenopathy (enlargement of the lymph nodes)

   Performance Scale 1: asymptomatic, normal activity

CLINICAL STAGE 2

4. Weight loss, < 10% of body weight
5. Minor mucocutaneous mainifestations (seborrhoeic dermatitis, prurigo (chronic itchy skin), fungal nail infections, recurrent oral ulcerations, angular cheilitis (inflammation of the corners of the mouth)
6. Herpes zoster (shingles), within the last 5 years
7. Recurrent upper respiratory tract infections (i.e. bacterial sinusitis)

CLINICAL STAGE 3

8. Weight loss, > 10% of body weight
9. Unexplained chronic diarrhoea, > 1 month
10. Unexplained prolonged fever (intermittent or constant), > 1 month
11. Oral candidiasis (thrush)
12. Vulvo-vaginal candidiasis, chronic (>1 month) or poorly responisve to therapy
13. Oral hairy leukoplakia (thickening of the dorsal surface of the tongue)
14. Pulmonary tuberculosis, within the past year
15. Severe bacterial infections (e.g. pneumonia)

And /or performance scale 3: bedridden<50% of the day during the last month

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CLINICAL STAGE 4 (AIDS - defining conditions)

16. HIV wasting syndrome, as defined
17. Pneumocystis carinii pneumonia
18. Toxoplasmosis of the brain
19. Cryptosporidiosis with diarrhoea, >1 month
20. Cryptosporidiosis, extrapulmonary
22. Herpes simplex virus infection, mucocutaneous > 1 month, or visceral (any duration)
23. Progressive multifocal leuko-encephalopathy (selective destruction of the central nervous system)
24. Any disseminated endemic mycosis (i.e. histoplasmosis, coccidiomycosis)
25. Candidiasis of the oesophagus, trachea, bronchi or lungs
26. A typical mycobacteriosis, disseminated
27. Non-typhoid salmonella septicaemia
28. Extrapulmonary tuberculosis
29. Lymphoma
30. Kaposi's sacroma
31. HIV encephalopathy, as defined

And/or performance scale 4: bedridden > 50% of the day during the last month.

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ANNEX 4

Phases of Chemotherapy (manual NTLCP Ethiopia, 1997 17-21)

The treatment of TB has two phases:

Intensive (initial) Phase

This phase consists of three or more drugs for the first 8 weeks. This has the advantage of making the patient non-infectious by rapidly reducing the load of bacilli in the sputum and minimizing the danger of development of drug resistance.

Continuation Phase

This phase immediately follows the intensive phase and is important to ensure that the patient is permanently cured and does not relapse after completion of treatment. This phase requires at least two drugs to be taken for 6 to 10 'months', depending on the drug regimen.

Drug Regimens and Treatment Categories

In order to treat the patients with the correct drug regimen, it is essential to question all patients closely and carefully to determine whether or not they have previously taken treatment for TB. There are three different treatment regimens, each regimen recommended for a definite group of patients.

Directly Observed Short Course Chemotherapy (DOTS)

The regimen is to be prescribed to:

- new PTB + patient;
- new PTB - patients, who are serious ill;
- new EPTB patient, who are seriously ill;
- relapses, treatment failures or return after default (all only when PTB +, after LCC);

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- returns after default, who are PTB - after DOTS (case definition = 'other');
- all forms of TB in children.

This regimen consists of 8 weeks treatment with streptomycin, rifampicin, isoniazid and pyrazinamide during the intensive phase followed by six 'month' (1 'month' = 4 weeks) thioacetazone and isoniazid [25(RH)Z/6(TH)]. In the presence of (the risk of) side-effects caused by thioacetazone this drug is replaced by ethambutol (appendix VII).

During the intensive phase, the drugs have to be taken under the direct observation of a health worker.

Table 1: Short Course Chemotherapy Regimen for TB; 2S(RH)Z/6(TH) or 25(RH)Z/6(EH)

Duration of Treatment	Drugs	Child Pre-treatment Weight			Adult Pre-treatment Weight	
		5-10 kg	11-20kg	21-30kg	<50kg	>50kg
Intensive Phase (8 weeks)	(RH 150/75)	½	1	2	3	4
	Z 400	½	1	2	3	4
	S or E 400	.25 gm	.50 gm	.50 gm or 1	.75 gm or 2	1 gm or 3
	(TH50/100)	½	1			
Continuation Phase (6 'months')	(TH 150/300) or (EH 400/150)			½ or 1	1 or 2	1 or 2

- (RH150/75) = Combined tablet consisting of 150 mg rifampicin and 75 mg isoniazid.
- E 400 = Tablet consisting of 400 mg ethambutol.
- S = Streptomycin injection

- For patients aged 50 and over, the maximum does of streptomycin should not exceed 750 mg.

- Streptomycin should not be given to pregnant women and has to be replaced by ethambutol.

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- Thioacetazone/isoniazid combination should be replaced by ethambutol/isoniazid combination tablets in patients who (are highly suspected to) have co-infection with HIV, e.g. when the patient has clinical signs and symptoms compatible with HIV-infection like herpes zsoster, Kaposi sarcoma, chronic diarrhoea or oral thrush and/or patients develop side-effects to thioacetazone (appendixz VII). Children in this group, who are 6 years or below, only receive H in the continuation phase. Children older than 6 years may receive E, but have to be regularly asked whether they have complaints of visual impairment.

- It is a good practice to have the patient take thioacetazone/isoniazid daily in the health unit for the first week of the continuation phase in order to monitor the possible emergency of side-effects.

For common side-effects of drugs and their managment, see appendix VII.

Re-treatment Regimen

This regimen is to be prescribed to:

- relapses after DOTS;
- treatment failures after DOT;
- returns after default, who are PTB+after DOTS (case definition = 'treatment after default')

Table 2: Re-treatment Regimen for TB; 2SE(RH)Z/1E(RH)Z/5 $E_3R_3H_3$

Duration of Treatment	Drugs	Pre-treatment Weight		
		<30 kg	30-50 kg	>50 kg
Intensive Phase (8 weeks)	(RH 150/75)	2	3	4
	Z 400	2	3	4
	S	.50 gm	.75 gm	1 gm
	E 400	1	2	3
Intensive Phase (third 'month')	(RH 150/75)	2	3	4
	Z 400	2	3	4
	E 400	1	2	3
Continuation Phase (5 'months) (3 times weekly)	(RH 150/75)	2	3	4
	H 100	1	2	3
	E 400	2	3	4

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- 5 $E_3R_3H_3$ = 5 'months' (20 weeks) of treatment with a combination of E,R and H three times a week on alternating days (e.g. every Monday, Wednesday and Friday)
- Streptomycin should not be included in the re-treatment for pregnant women.
- Throughout the duration of re-treatment, inducing the continuation phase, the drugs have to be taken under the direct observation of a health worker.

Long Course Chemotherapy (LCC)

- This regimen is to be prescribed to:

- new patients with PTB;
- new patients with EPTB;
- returns after default, who are PTB, after LCC
- (case definition = other);
- new PTB + patients, who are eligible for DOTS, but do not have access to a treatment center which is prepared for DOTS.

Table 3: Long Course Regimen for TB, 2S(TH)/10(TH) or 2S(EH)/10(EH).

Duration of Treatment	Drugs	Child Pre-treatment Weight			Adult Pre-treatment Weight	
		5-10 kg	11-20kg	21-30kg	<50kg	>50kg
Intensive Phase (8 weeks)	S	.25 gm	.50 gm	.50 gm	.75 gm	1 gm
	(TH 50/100)	½	1			
	(TH 150/300) or (EH 400/150)			½ or 1	1 or 2	1 or 3
Continuation Phase (6 'months')	(TH50/100)	½	1			
	(TH 150/300) or (EH 400/150)			½ or 1	1 or 2	1 or 2

- For patients aged 50 years and above, the dose of streptomycin should not exceed 750 mg.
- Streptomycin should not be given to pregnant women and has to be replaced with ethambutol. Preferably all pregnant women should be treated with DOTS (with ethambutol).

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- In patients who (are suspected to) have co-infection with HIV thioacetazone must be replaced by ethambutol. Children in this group, who are 6 years or below, only receive H in the continuation phase. Children older than 6 years may receive E, but have to be regularly asked whether they have complaints of visual impairment (See appendix VII on drug side-effects).

Treatment of Chronic cases

Chronic cases are those who continue to be smear-positive after completion of the re-treatment regimen. These patients are almost certainly resistant to both isoniazid and rifamicin and are considered essentially incurable. They may be given isoniazid for the rest of their life time.

Treatment of Special Cases

Treatment during Pregnancy and Breast Feeding

Before starting as well as during TB treatment of women in the child-bearing age, health worker should always ask if there is a possible pregnancy (missed periods). Preferably, all pregnant women should be treated with DOTS. Streptomycin should, however, not be given because of the risk of toxic effects on the unborn baby. Instead ethamobutol must be given.

When a breast feeding mother has PTB the infant should, regardless of prior vaccination with BCG, be given chemoprophylazis for a minimum period of 6 months and then be vaccinated with BCG if not vaccinated before (Section 2.5.1). Breast feeding should not be stopped.

Treatment of Patients also Infected with HIV

Patients infected with HIV usually respond equally well to TB treatment as those without HIV infection, with a few exceptions:

- they are more likely to die during the course of treatment, usually from causes other than TB;

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- they are more likely to experience serious side-effects to thioacetazone than those without HIV infection. Their treatment should not include thioacetazone.

Because of the association between TB and HIV infection, great care must be taken to prevent the spread of both infections. When injections have to be given, every health worker should strictly adhere to the principle of using a new disposable syringe and a new disposable needle for each injection to each individual patient.

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