CHAPTER - I

HIV/AIDS Introduction
The history of HIV/AIDS is hardly 25 years but the damage it has inflicted on mankind has been appalling and overwhelming. The countries all over the world now know from bitter experience that the deadly AIDS is caused by the virus HIV, and that it can devastate families, communities, countries and whole continents. The countries have seen the epidemic knock decades off national development, widen the gulf between rich and poor nations and push already stigmatized groups closer to the margins of society. HIV/AIDS has become the first truly 'international' epidemic, easily crossing oceans and borders. At the moment, there is neither a fully preventive vaccine of HIV nor cure for AIDS. As such, a person inflicted with HIV typically dies of AIDS in course of time1.

HIV/AIDS is not only a health problem but an overall development problem in developing and poor countries. Lack of awareness and resources for prevention of HIV infection and poor health care systems are the main reasons the spread of the virus in the developing countries. Africa has been the epicenter of HIV/AIDS. In the country's most heavily affected, HIV has reduced life expectancy by more than 20 years, slowed economic growth, deepened household poverty and dramatically skewed the natural age distribution. According to the United Nations Development Programme (UNDP), HIV has inflicted the "single greatest reversal in human development" in modern history. In Asia HIV infection rates are much lower than in Africa.

It has been noted that a country with a very high HIV prevalence rate will often see this rate eventually stabilize, and even decline. In some cases this indicates, among other things, that people are beginning to change risky behavior patterns, because they have seen and known people who have been killed by AIDS. Fear is the worst and last way of changing people's

1. There are not many theoretical studies or empirical studies using primary data on HIV/AIDS. Most of the information presented in chapter I was collected from different websites cited in bibliography.
behavior and by the time this happens it is usually too late to save a huge number of that country's population.

HIV/AIDS:

HIV stands for 'Human Immunodeficiency Virus'. HIV is a retrovirus that was first discovered in early 1980s. HIV infects cells of the human immune system (mainly CD4 positive T cells and macrophages, the key components of the cellular immune system), and destroys or impairs their function. Infection with this virus results in the progressive depletion of the immune system, leading to 'immune deficiency'. Immuno-deficient people are much more vulnerable to a wide range of infections, known as 'opportunistic infections'(UNAIDS). At present, there is no vaccine available to prevent HIV infection.

AIDS is a medical condition. People develop AIDS because HIV has damaged their natural defenses against disease. AIDS stands for 'Acquired Immunodeficiency Syndrome' and is a surveillance definition based on signs, symptoms, infections and cancers associated with the deficiency of the immune system that stems from infection with HIV (UNAIDS). When HIV virus weakens the immune system of the body, the person is unable to fight an infection. This life threatening illness caused by HIV is called AIDS. The term AIDS applies to the most advanced stages of HIV infection. The level of HIV and CD4 cells in the body and the appearance of certain infections are used as indicators that HIV infection has progressed to AIDS. Currently, there is no treatment for AIDS is available.

HIV infects cells of the human immune system and destroys them or stops them from working. Someone whose immune system has been damaged by HIV is much more vulnerable to infections and cancers. Someone with HIV does not have AIDS unless their immune system has been
The person who has developed one of a number of particularly severe illnesses, or who have lost most of their immune system cells is said be in AIDS stage.

**Why is HIV dangerous?**

Different viruses attack different parts of the body - some may attack the skin, others the lungs, and so on. The common cold is caused by a virus. What makes HIV so dangerous is that it attacks the immune system itself - the very thing that would normally get rid of a virus. It particularly attacks a special type of immune system cell known as a CD4 lymphocyte. HIV has a number of tricks that help it to evade the body's defenses, including very rapid mutation. This means that once HIV has taken hold, the immune system can never fully get rid of it.

**When HIV causes AIDS:** A damaged immune system is not only more vulnerable to HIV, but also to the attacks of other infections. It won't always have the strength to fight off things that wouldn't have bothered it before. As time goes by, a person who has been infected with HIV is likely to become ill more and more often until, usually several years after infection, they become ill with one of a number of particularly severe illnesses. It is at this point in the stages of HIV infection that they are said to have AIDS - when they first become seriously ill, or when the number of immune system cells left in their body drops below a particular point. Different countries have slightly different ways of defining the point at which a person is said to have AIDS rather than HIV. AIDS is an extremely serious condition, and at this stage the body has very little defiance against any sort of infection.

**How long does HIV take to become AIDS?**

Without drug treatment, HIV infection usually progresses to AIDS in an average of ten years. This average, though, is based on a person having a reasonable diet. Someone who is malnourished may well progress to AIDS and death more rapidly. Antiretroviral medication can prolong the time between HIV infection and the onset of AIDS. Modern combination therapy is
highly effective and, theoretically, someone with HIV can live for a long time before it becomes AIDS. These medicines, however, are not widely available in many poor countries around the world, and millions of people who cannot access medication continue to die.

Ways in which one can be infected with HIV:

HIV is found in the blood and the sexual fluids of an infected person, and in the breast milk of an infected woman. HIV transmission occurs when a sufficient quantity of these fluids get into someone else's bloodstream. The following are various ways a person can become infected with HIV:

- Unprotected sexual intercourse with an infected person: Sexual intercourse without a condom is risky, because the virus, which is present in an infected person's sexual fluids, can pass directly into the body of their partner. This is true for unprotected vaginal and anal sex. Oral sex carries a lower risk, but again HIV transmission can occur here if a condom is not used - for example, if one partner has bleeding gums or an open cut, however small, in their mouth.

- Use of infected blood products: Many people in the past have been infected with HIV by the use of blood transfusions and blood products which were contaminated with the virus - in hospitals, for example. In much of the world this is no longer a significant risk, as blood donations are routinely tested.

- Contact with an infected person's blood if sufficient blood from an infected person enters someone else's body then it can pass on the virus. Sharing needles and “works” (syringes, spoons, filters and blood-contaminated water) is thought to be three times more likely to transmit HIV than sexual intercourse. Disinfecting equipment between each use can reduce the chance of transmission, but does not eliminate it entirely.

- An infected pregnant woman can pass HIV on to her unborn baby during pregnancy, labour and delivery. HIV can also be transmitted through breastfeeding. If a woman knows she is infected with HIV,
there are drugs she can take to greatly reduce the chances of her child becoming infected. For more information, go to our pages about pregnancy and mother-to-child transmission of HIV.

- Injecting drugs: People who use injected drugs are also vulnerable to HIV infection. In many parts of the world, often because it is illegal to possess them, injecting equipment or works are shared. A tiny amount of blood can transmit HIV, and can be injected directly into the bloodstream with the drugs.

- Tattoos / piercing: Anything that potentially allows another person’s blood to get into your bloodstream carries a risk. If the equipment has not been sterilized before having a tattoo or piercing, there could be a significant risk of exposure if the person before was HIV positive.

**It is not possible to become infected with HIV through:**

- Kissing

- sharing crockery and cutlery

- insect / animal bites

- touching, hugging or shaking hands

- Sneezing, coughing, sharing glasses/cups, etc

- eating food prepared by someone with HIV

- toilet seats

**Prevention of HIV transmission:**

HIV can be transmitted in three main ways:

- Sexual transmission
- Transmission through blood
- Mother-to-child transmission

Wherever there is HIV, all three routes of transmission will take place. However the number of infections resulting from each route will vary
greatly between countries and population groups. For each route of transmission there are things that an individual can do to reduce or eliminate risk. There are also interventions that have been proven to work at the community, local and national level.

First requirements: There are three key things that can be done to help prevent all forms of HIV transmission. First among these is promoting widespread awareness of HIV and how it can be spread. Media campaigns and education in schools are among the best ways to do this.

Another essential part of a prevention programme is HIV counseling and testing. People living with HIV are less likely to transmit the virus to others if they know they are infected and if they have received counseling about safer behavior.

The third key factor is providing antiretroviral treatment. This treatment enables people living with HIV to enjoy longer, healthier lives, and as such it acts as an incentive for HIV testing. It also brings HIV-positive people into contact with health care workers who can deliver prevention messages and interventions. Studies suggest that HIV-positive people may be less likely to engage in risky behavior if they are enrolled in treatment programmes.

Sexual transmission: Someone can eliminate or reduce their risk of becoming infected with HIV during sex by choosing to:

- Abstain from sex or delay first sex
- Be faithful to one partner or have fewer partners
- Condomise, which means using male or female condoms consistently and correctly

There are a number of effective ways to encourage people to adopt safer sexual behavior, including media campaigns, social marketing, peer education and small group counseling. These activities should be carefully tailored to the needs and circumstances of the people they intend to help. Specific programmes should target key groups such as young people, women, men who have sex with men, injecting drug users and sex workers.

Comprehensive sex education for young people is an essential part of HIV prevention. This should include training in life skills such as negotiating
healthy sexual relationships, as well as accurate and explicit information about how to practice safer sex. Studies have shown that this kind of comprehensive sex education is more effective at preventing sexually transmitted infections than education that focuses solely on teaching abstinence until marriage.

**Transmission through blood:** People who share equipment to inject recreational drugs risk becoming infected with HIV from other drug users. Methadone maintenance and other drug treatment programmes are effective ways to help people eliminate this risk by giving up injected drugs altogether. However, there will always be some injecting drug users who are unwilling or unable to end their habit, and these people should be encouraged to minimize the risk of infection by not sharing equipment.

Needle exchange programmes have been shown to reduce the number of new HIV infections without encouraging drug use. These programmes distribute clean needles and safely dispose of used ones, and also offer related services such as referrals to drug treatment centers and HIV counselling and testing. Needle exchanges are a necessary part of HIV prevention in any community that contains injecting drug users.

Transfusion of infected blood or blood products is the most efficient of all ways to transmit HIV. However, the chances of this happening can be greatly reduced by screening all blood supplies for the virus, and by heat-treating blood products where possible. In addition, because screening is not quite 100% accurate, it is sensible to place some restrictions on who is eligible to donate, provided that these are justified by epidemiological evidence, and don’t unnecessarily limit supply or fuel prejudice. Reducing the number of unnecessary transfusions also helps to minimize risk.

Health care workers themselves run a risk of HIV infection through contact with infected blood. The most effective way for staff to limit this risk is to practice universal precautions, which means acting as though every patient is potentially infected. Universal precautions include washing hands and using protective barriers for direct contact with blood and other body fluids.
**Mother-to-child transmission:** HIV can be transmitted from a mother to her baby during pregnancy, labour and delivery, and later through breastfeeding. The first step towards reducing the number of babies infected in this way is to prevent HIV infection in women, and to prevent unwanted pregnancies.

There are a number of things that can be done to help a pregnant woman with HIV to avoid passing her infection to her child. A course of antiretroviral drugs given to her during pregnancy and labour as well as to her newborn baby can greatly reduce the chances of the child becoming infected. Although the most effective treatment involves a combination of drugs taken over a long period, even a single dose of treatment can cut the transmission rate by half.

A caesarean section is an operation to deliver a baby through its mother’s abdominal wall, which reduces the baby’s exposure to its mother’s body fluids. This procedure lowers the risk of HIV transmission, but is likely to be recommended only if the mother has a high level of HIV in her blood, and if the benefit to her baby outweighs the risk of the intervention.

Weighing risks against benefits is also critical when selecting the best feeding option. The World Health Organization advises mothers with HIV not to breastfeed whenever the use of replacements is acceptable, feasible, affordable, sustainable and safe. An HIV positive mother should be counseled on the risks and benefits of different infant feeding options and should be helped to select the most suitable option for her situation.

**Symptoms of HIV/AIDS:** One cannot tell if someone is HIV infected or has AIDS by just looking at them. A blood test is the only way a person can find out if he or she is infected with HIV. A person infected with HIV may look healthy and feel good, but they can still pass the virus to others. Once a person is infected by HIV he/she remains infected for life. Antiretroviral drugs are used in the treatment of HIV infection. They work against HIV infection itself by slowing down the reproduction of HIV in the body. The right combination of antiretroviral drugs can slow down the damage that HIV causes to the immune system and delay the onset of AIDS, thereby
prolonging the life of the People Living with HIV/AIDS (PLHA). The minor and major symptoms of HIV/AIDS, as given by WHO are as follows:

**Minor Symptoms:**

- Persistent cough for longer than one month.
- General itchy dermatitis or skin irritation
- Recurrent herpes zoster (painful patches on the skin)
- Fungus infection in the mouth/throat
- Chronic progressive and disseminated herpes simplex infection
- Swelling of lymph glands

**Major Symptoms:**

- Weight loss greater than 10% of body weight.
- Fever for longer than one month, intermittent or continuous.
- Chronic diarrhea for longer than one month, intermittent or constant.

As time passes without effective treatment, HIV weakens an infected person's immune system, making them much more vulnerable to opportunistic infections. These infections are caused by germs that are around us all the time but which can normally be fought off by a healthy immune system. Once HIV has broken down the body's defenses, such infections can take hold and produce any of a wide range of symptoms - some of them very severe. Certain cancers also become more common when the immune system is weakened.

**HIV tests:**

The only way to know for sure whether you are infected with HIV is to have an HIV antibody test. It is not possible to tell from any symptoms. There are three types of HIV tests.
The first type of test is the HIV antibody test. The standard HIV test looks for antibodies in a person's blood. When HIV (which is a virus) enters a person's body, special proteins are produced. These are called antibodies. Antibodies are the body's response to an infection. So if a person has antibodies to HIV in their blood, it means they have been infected with HIV. There are only two exceptions to this rule. Firstly, babies born to positive mothers retain their mother's antibodies for up to 18 months, which means they may test positive on an HIV antibody test, even if they are actually HIV negative. This is why babies born to positive mothers may receive a PCR test after birth. Secondly, some people who have taken part in HIV vaccine trials may have HIV antibodies even if they are not infected with the virus. Some test centres may recommend testing again at 6 months if you're deemed to be at particularly high risk of infection. Most people develop detectable HIV antibodies within 6 to 12 weeks of infection. In very rare cases, it can take up to 6 months. It is exceedingly unlikely that someone would take longer than 6 months to develop antibodies.

The second type of test is an antigen test. Antigens are the substances found on a foreign body or germ that trigger the production of antibodies in the body. The antigen on HIV that most commonly provokes an antibody response is the protein P24. Early in the infection, P24 is produced in excess and can be detected in the blood serum by a commercial test (although as HIV becomes fully established in the body it will fade to undetectable levels). P24 antigen tests are sometimes used to screen donated blood, but they can also be used for testing for HIV in individuals, as they can detect HIV earlier than standard antibody tests. Some of the most modern HIV tests combine P24 and other antigen tests with standard antibody identification methods to enable earlier and more accurate HIV detection.

The third type of test is a PCR test (Polymerase Chain Reaction test). The whole process of extracting genetic material and testing it with a PCR test is referred to as Nucleic Acid-amplification Testing or 'NAT'. PCR tests detect the genetic material of HIV itself, and can identify HIV in the blood within two or three weeks of infection.
Accuracy of the HIV tests: Standard HIV antibody (ELISA) tests are at least 99.5% accurate when it comes to detecting the presence of HIV antibodies. This high level of sensitivity however means that their specificity (ability to distinguish HIV antibodies from other antibodies) is slightly lowered. Once an individual is out of the window period, it is more likely that they will receive a false positive result than a false negative. Any HIV positive result given by an ELISA test must therefore be confirmed using a second test. Secondary tests include:

- **Western Blot Assays** - One of the oldest but most accurate confirmatory antibody tests. It is complex to administer and may produce indeterminate results if a person has a transitory infection with another virus.
- **Indirect Immunofluorescence Assay** - Like the Western blot, but uses a microscope to detect HIV antibodies.
- **Line Immunoassay** - Commonly used in Europe. Reduces chance of sample contamination and is as accurate as the Western Blot.
- **A second ELISA** - In resource-poor settings with relatively high prevalence, a second ELISA test may be used to confirm a diagnosis. The second test will usually be a different commercial brand and will use a different method of detection to the first.

When two tests are combined, the chance of getting an inaccurate result is less than 0.1%.

Course of HIV infection:

HIV infects cells in the immune system and the central nervous system. The main type of cell that HIV infects is the T helper lymphocyte. These cells play a crucial role in the immune system, by coordinating the actions of other immune system cells. A large reduction in the number of T helper cells seriously weakens the immune system. HIV infects the T helper cell because it has the protein CD4 on its surface, which HIV uses to attach itself to the cell before gaining entry. This is why the T helper cell is sometimes referred to as a CD4+ lymphocyte. Once it has found its way into a cell, HIV produces new copies of itself, which can then go on to infect
other cells. Over time, HIV infection leads to a severe reduction in the number of T helper cells available to help fight disease. The process usually takes several years. HIV infection can generally be broken down into four distinct stages: primary infection, clinically asymptomatic stage, symptomatic HIV infection, and progression from HIV to AIDS.

Stage 1: Primary HIV Infection

This stage of infection lasts for a few weeks and is often accompanied by a short flu-like illness. During this stage there is a large amount of HIV in the peripheral blood and the immune system begins to respond to the virus by producing HIV antibodies and cytotoxic lymphocytes. This process is known as seroconversion. If an HIV antibody test is done before seroconversion is complete then it may not be positive.

Stage 2: Clinically Asymptomatic Stage

This stage lasts for an average of ten years and, as its name suggests, is free from major symptoms, although there may be swollen glands. The level of HIV in the peripheral blood drops to very low levels but people remain infectious and HIV antibodies are detectable in the blood, so antibody tests will show a positive result. Research has shown that HIV is not dormant during this stage, but is very active in the lymph nodes. A test is available to measure the small amount of HIV that escapes the lymph nodes. This test which measures HIV RNA (HIV genetic material) is referred to as the viral load test, and it has an important role in the treatment of HIV infection.

Stage 3: Symptomatic HIV Infection

Over time the immune system becomes severely damaged by HIV. This is thought to happen for three main reasons:

- The lymph nodes and tissues become damaged or 'burnt out' because of the years of activity;
- HIV mutates and becomes more pathogenic, in other words stronger and more varied, leading to more T helper cell destruction;
- The body fails to keep up with replacing the T helper cells that are lost.

As the immune system fails, so symptoms develop. Initially many of the symptoms are mild, but as the immune system deteriorates the symptoms worsen. Symptomatic HIV infection is mainly caused by the emergence of opportunistic infections and cancers that the immune system would normally prevent. These can occur in almost all the body systems, but common examples are featured in the following illustration.

<table>
<thead>
<tr>
<th>System</th>
<th>Examples of Infection/Cancer</th>
</tr>
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</table>
| Respiratory system                  | • Pneumocystis jirovecii Pneumonia (PCP)  
|                                     | • Tuberculosis (TB)  
|                                     | • Kaposi's Sarcoma (KS)  
| Gastro-intestinal system            | • Cryptosporidiosis  
|                                     | • Candida  
|                                     | • Cytomegolavirus (CMV)  
|                                     | • Isosporiasis  
|                                     | • Kaposi's Sarcoma  
| Central/peripheral Nervous system   | • HIV  
|                                     | • Cytomegolavirus  
|                                     | • Toxoplasmosis  
|                                     | • Cryptococcosis  
|                                     | • Non Hodgkin's lymphoma  
|                                     | • Varicella Zoster  
|                                     | • Herpes simplex  
| Skin                                | • Herpes simplex  
|                                     | • Kaposi's sarcoma  
|                                     | • Varicella Zoster  

Stage 4: Progression from HIV to AIDS

As the immune system becomes more and more damaged the illnesses that occur become more and more severe leading eventually to an AIDS diagnosis. At present in the UK an AIDS diagnosis is confirmed if a person with HIV develops one or more of a specific number of severe opportunistic infections or cancers. In the US, someone may also be diagnosed with AIDS if they have a very low count of T helper cells in their blood. It is possible for someone to be very ill with HIV but not have an AIDS diagnosis.

Cure for AIDS:

There is still no way to cure AIDS, and at the moment the only way to remain safe is not to become infected. Surveys show that many people think that there's a 'cure' for AIDS - which makes them feel safer, and perhaps take risks that they otherwise shouldn't. There is antiretroviral medication which slows the progression from HIV to AIDS, and which can keep some people healthy for many years. In some cases, the antiretroviral medication seems to stop working after a number of years, but in other cases people can recover from AIDS and live with HIV for a very long time. But they have to take powerful medication every day of their lives, sometimes with very unpleasant side effects.

HIV infection is not the end of life. People can lead a healthy life for a long time with appropriate medical care. Anti-retroviral therapy (ART) effectively suppresses replication, if taken at the right time. Successful viral suppression restores the immune system and halts onset and progression of disease as well as reduces chances of getting opportunistic infections (OI) this is how ART is aimed to work. Medication thus enhances both quality of life and longevity.

Adherence to ART is Critical: Adherence to ART regimen is therefore very vital in this treatment. Any irregularity in following the prescribed regimen can lead to resistance to HIV drugs, and therefore can weaken or negate its effect.
ART is Accessible to All: ART is now available free to all those who need it. Public health facilities are mandated to ensure that ART is provided to people living with HIV/AIDS (PLHA). Special emphasis is given to the treatment of sero-positive women and infected children.

When is ART Given? ART is initiated depending upon the stage of infection. PLHA with less than 200 CD4 (while blood cells/ mm3) require treatment irrespective of the clinical stage. For PLHA with 200-350 CD4, ART is offered to symptomatic patients. Among those with CD4 of more than 350, treatment is deferred for asymptomatic persons.

There are 127 ART centres operating in the country as of June 2007. By 2012, 250 ART centres will become functional across the country in order to provide people living with HIV/AIDS better access to treatment.

In order to make treatment more accessible ART centres are located in medical colleges, district hospitals and non-profit charitable institutions providing care, support and treatment services to PLHA. A PLHA network person at each of the ART centre facilitates access to care and treatment services at these centres. ART centres also provide counseling and follow up on treatment adherence and support through community care centres.

Pediatric Care and Support: The primary goal of paediatric prevention, care and treatment programme is to prevent HIV infection to newborns through Prevention of Parent to Child Transmission (PPTCT) and provide treatment and care to all children infected by HIV.

**HIV and antiretroviral drug treatment:**

This is the main type of treatment for HIV or AIDS. It is not a cure, but it can stop people from becoming ill for many years. The treatment consists of drugs that have to be taken every day for the rest of a person's life. The aim of antiretroviral treatment is to keep the amount of HIV in the body at a low level. This stops any weakening of the immune system and allows it to recover from any damage that HIV might have caused already. The drugs are often referred to as:
HIV and AIDS drugs: There are more than 20 approved antiretroviral drugs but not all are licensed or available in every country. There are five groups of antiretroviral drugs. Each of these groups attacks HIV in a different way.

What does combination therapy usually consist of: Taking two or more antiretroviral drugs at a time is called combination therapy. Taking a combination of three or more anti-HIV drugs is sometimes referred to as Highly Active Antiretroviral Therapy (HAART). If only one drug was taken, HIV would quickly become resistant to it and the drug would stop working. Taking two or more antiretroviral at the same time vastly reduces the rate at which resistance would develop, making treatment more effective in the long term.

The most common drug combination given to those beginning treatment consists of two NRTIs combined with either an NNRTI or a "boosted" protease inhibitor. Ritonavir (in small doses) is most commonly used as the booster; it enhances the effects of other protease inhibitors so they can be given in lower doses. An example of a common antiretroviral combination is the two NRTIs zidovudine and lamivudine, combined with the NNRTI efavirenz. Some antiretroviral drugs have been combined into one pill, which is known as a ‘fixed dose combination’. This reduces the number of pills to be taken each day.

Most people living with HIV in the developing world still have very limited access to antiretroviral treatment and often only receive treatment for the diseases that occur as a result of a weakened immune system. Such treatment has only short-term benefits because it does not address the underlying immune deficiency itself.

First and second line therapy: At the beginning of treatment, the combination of drugs that a person is given is called first line therapy. If after a while HIV becomes resistant to this combination, or if side effects
are particularly bad, then a change to second line therapy is usually recommended. In Second line therapy will ideally include a minimum of three new drugs, with at least one from a new class, in order to increase the likelihood of treatment success.

**HIV & AIDS treatment and care**

People living with HIV have differing needs depending on their personal circumstances and stage of infection. Forms of HIV treatment and care can be grouped into three broad categories according to when they are usually first needed. A comprehensive package of care covers the entire journey from diagnosis to death, which with antiretroviral treatment may span several decades.

**Table 1.1**

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<th>Early stage</th>
<th>Later stages</th>
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<td>Prevention and treatment of OIs</td>
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<td>Counseling &amp; psychosocial support</td>
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**Early Stage:** Most people remain without major symptoms for several years after becoming infected with HIV. HIV testing provides the gateway to accessing other services; a person living with HIV cannot receive any care until they have been diagnosed. The conventional model is VCT (voluntary counseling and testing), requiring people to come forward to be tested. Recent years have seen increasing promotion of routine testing as well. Under this system, everyone attending certain healthcare facilities - for
example antenatal clinics, sexual health clinics or doctors’ surgeries - is routinely tested for HIV unless they refuse.

Early diagnosis enables more effective treatment and care. If HIV is first detected in the late stages of infection then more complex care may be needed, and there is less chance that treatment will work. Early diagnosis also reduces the risk of onward transmission; once someone knows they have HIV they are more likely to take precautions to avoid infecting others.

A. Counseling and psychosocial support: Receiving an HIV positive test result can be traumatic. Psychosocial support aims to help HIV positive people and their caregivers cope with psychological distress, adjust to change and resume a normal life. Patients who receive good quality counseling are less likely to develop serious mental health problems. Health workers should be able to provide psychosocial support, and additional care can come from trained volunteers or AIDS service organizations. Support is also crucial to the success of any medical treatment. People should understand why and how HIV-related illnesses should be treated, and should be informed of what forms of treatment and care are available locally and how to access them. Malnourishment hastens the progression from HIV infection to AIDS and death. Nutritional counseling can enable people to stay healthy for longer, delaying the point at which they need to begin antiretroviral therapy.

B. Prevention of onward transmission: HIV positive people should receive counseling to help prevent them transmitting HIV to other adults. This means promoting safer sexual behavior through condom use, fidelity and voluntary abstinence. Counselors should ask about partners who might be at risk of HIV infection, and discuss how these partners may be notified. Some sexually transmitted infections - most notably genital herpes - can increase the risk of HIV transmission. It is therefore particularly important that people diagnosed with HIV receive treatment for any other sexually transmitted infections they might have. Mother-to-child transmission of HIV can occur during pregnancy, at the time of delivery, and after birth through breastfeeding. Antiretroviral drugs and safer infant feeding can greatly reduce the risk of a baby becoming infected. Pregnant women with HIV must
be diagnosed early to receive the maximum benefit, including education and counseling on prevention methods.

C. Protection from stigma and discrimination: Stigma and discrimination are triggered by many factors, including lack of understanding of the disease, myths about how HIV is transmitted, prejudice, lack of treatment and social fears. These negative attitudes can deter HIV infected people from getting tested, contribute to them infecting others, and prevent them receiving adequate care and treatment. The involvement of people living with HIV/AIDS in activities for reducing stigma and discrimination is essential. Having people speak openly about their HIV status is one of the first steps to be taken in tackling stigma and discrimination. This can make people realize that HIV is part of their community and not just “someone else’s problem”. In addition, the role of people who are HIV negative should not be underestimated. HIV negative people who speak out about HIV/AIDS can help to promote wider support for those who are infected.

Later stages: The progression from HIV infection to AIDS is gradual; symptoms tend to worsen over time but the pattern varies from person to person.

A. Prevention and treatment for opportunistic infections: Opportunistic infections occur when HIV has weakened the body’s defenses against disease. Common examples are tuberculosis, pneumonia and candidiasis. Providing prevention and treatment for these infections not only helps the sufferer, but also prevents the further spread of disease.

Even in the best-resourced areas, treatment for opportunistic infections remains essential, especially for those who have yet to start, or have only recently started, antiretroviral therapy. For young children and people with weak immune systems, drugs such as cotrimoxazole may be recommended to prevent opportunistic infections occurring.

B. Managing nutritional effects:

As the immune system weakens, people living with HIV become more vulnerable to weight loss and malnutrition. Weight loss and malnutrition can
worsen disease progression. In addition, people are less likely to benefit from antiretroviral treatment if they are malnourished. It is therefore important that people receive the help they require to maintain a healthy diet. Emergency food provision may be appropriate for those in direst need.

C. Antiretroviral therapy: Antiretroviral is the only effective way to control HIV infection. This treatment reduces the amount of virus in the body to very low levels, allowing the immune system to recover its strength. Current guidelines recommend starting antiretroviral therapy at a relatively advanced stage of disease, usually several years after becoming infected. HIV is highly adept at developing resistance to medications. To prevent this happening, it is essential that the drugs be taken every day in the correct way, and that patients undergo regular monitoring. If resistance does emerge then the drug combination must usually be changed. Antiretroviral therapy has transformed HIV infection in rich countries from a death sentence to a chronic illness that people may live with for decades. But in many parts of the world access to antiretroviral treatment remains scarce, mainly because of inadequate resources. Almost all developing countries have only a small range of available drugs, so there are few options for those who must change treatment because of resistance or side effects.

End of life stage: End of life care becomes necessary when antiretroviral treatment is unavailable, is refused, or is no longer working because of drug resistance.

A. End of life care: End of life care aims to provide comfort and support for people who are terminally ill and, ultimately, to allow them to die with dignity. This can involve controlling pain, treating symptoms such as diarrhoea and vomiting, relieving psychological or spiritual anguish, and supporting families and caregivers. It is estimated that at least half of all people with HIV will suffer from severe pain in the course of their disease, and so might require strong painkillers such as morphine. It is recommended that health workers should not withhold pain relief because they worry that a patient will become addicted to the drugs. Pain medication should be
reviewed frequently and increased when necessary, and pain should be controlled in a way that keeps the patient as alert and active as possible.

**B. Preparing for death:** It is often believed that it is inappropriate to talk about the fact that somebody is going to die, and that mentioning death will in some way hasten it. However, for those who wish to discuss death, open discussion, ideally from early diagnosis, can help dying people to feel that their concerns are heard, that their wishes are followed, and that they are not alone. A great worry is what will happen to a patient's dependants after they die. Where possible, plans should be made for dependants and partners. Although it can be distressing to discuss these issues, making plans can reduce anxiety. Making a will can also prevent family conflict and ensure that partners and children are not left destitute.

**C. Support for surviving family and orphans:** For family members, partners and friends, looking after someone with HIV can be very daunting. And the need to offer counseling to partners and families following the death of a family member or friend is often overlooked, particularly in resource poor countries. Counseling can help a person to discuss their loss. The family members may have unresolved fears about HIV infection for themselves, and can be helped to come to decisions about HIV testing. The process of grieving may last many months, and possibly even years. However, for some people a single counselling session may be sufficient to clarify their thoughts and feelings, and to reassure them that they are coping as best as they can under the circumstances. Other people may need several sessions, and some people never completely come to terms with a loss, particularly that of a child.

The impact of loss of life differs across families and communities, but one thing is clear: a child's life often falls apart when she or he loses a parent. More than 15 million children under 18 have lost one or both parents to AIDS. Helping these children requires action at all levels. In the countries hardest hit by HIV/AIDS, care for orphans often lies with their extended families or communities, who without support may struggle to cope.
History of HIV/AIDS in Global Scenario

The history of AIDS is a short one. As recently as the 1970s, no one was aware of this deadly illness. Since then the global AIDS epidemic has become one of the greatest threats to human health and development. In late 1970's and early 1980's, gay men in cities of America were detected with mysterious new disease. At that time, it's called GRID - Gay Related Immunodeficiency Disease. Doctors in New York and Los Angeles noticed that increasing numbers of healthy young men were seeking help for severe weight loss, herpes infections, life-threatening lung and brain infections and rare cancers. Around the same time, doctors in France, Zaire and Haiti also noticed a similar syndrome in both men and women. Before America know what it was -- before the Scientists and Doctors could even diagnose it- 2, 50,000 Americans were suffering from AIDS. Since it surfaced in the early 1980s, a lot has happened in response to the HIV/AIDS epidemic. The HIV/AIDS timeline below explains about some key moments in HIV/AIDS history.

1920s or 1930s (speculated): Simian Immunodeficiency virus (SIV) which destroys immune cells in apes, leaps the species barrier to humans after a bush meat hunter in Western-Central Africa is bitten by an infected animal or handles infected meat.

1981: First cases of AIDS were detected in New York and California. The first cases were among gay men, then injecting drug users. Eight young homosexuals in New York are diagnosed with Kaposi's sarcoma, a skin cancer that usually occurs in older people, while five Los Angeles gays fall sick with a rare form of pneumonia. These clusters alert US authorities to a new disease that wrecks the immune system and exposes the body to opportunistic disease.

1982: After it is known as gay cancer, new pneumonia, and Gay-Related Immune Deficiency (GRID), the syndrome is renamed Acquired Immune Deficiency Syndrome (AIDS) by the U.S. Center for Disease Control (CDC) when it becomes clear that the epidemic is affecting broader populations than originally thought (Stine,1993)
A 20-month-old child dies from AIDS-related infection after a blood transfusion, providing first clear signs that Aids can be transmitted by other than homosexual-contact. The CDC releases its first AIDS case definition, which defines a case of AIDS as 'a disease, at least moderately predictive of a defect in cell-mediated immunity, occurring in a person with no known cause for diminished resistance to that disease' (AIDS ACTION) U.S. Center for Disease Control reports first cases of possible mother to child transmission as well as transmission by blood transfusion. Number of known AIDS death in U.S cross 1000.

1983: A French team including Luc Montagnier and Francoise Barre-Sinoussi at the Institute Pasteur in Paris isolates a virus that penetrates white blood cells, causing AIDS. --The first signs, derived from African men in Europe, emerge that heterosexuals can become infected, unleashing widespread anxiety. Heterosexual AIDS epidemic noticed in Central Africa. Known number of AIDS cases (US only) is 3 064 by the end of the year. The first woman is diagnosed with AIDS (in San Francisco) (AIDS ACTION.)

1984: US scientist Robert Gallo and colleagues at the US National Cancer Institute also isolate an AIDS causing virus but it becomes clear that the agent is the same as the one spotted in France. He and Montagnier share the credit. The virus is named HIV (Human Immunodeficiency Virus) (Stine, 1993). --Later epidemiological evidence continues to strongly support the argument that AIDS is caused by a virus (Cohen, 1998)

1985: The first test to detect HIV antibodies, called Enzyme-Linked Immunosorbent Assay or ELISA, is approved in the United States (Stine, 1993). The test makes it possible to screen blood products, to detect HIV infection in people who have not yet developed AIDS, and to identify seroconversion (the time when the body’s immune system begins reacting to HIV, often with flu-like symptoms) in newly infected individuals (Cohen, 1998). First commercial tests for the AIDS virus help to clear blood banks of contaminated blood.

First International Conference on AIDS, held in Atlanta, Georgia. At the conference, the CDC lists the signs and symptoms of AIDS so that healthcare providers and researchers can identify and report cases,
determine the extent of the epidemic, and figure out the cause of AIDS (Cohen, 1998).

Researchers discover a second retrovirus in West Africa that is closely related to HIV. To distinguish the two highly similar viruses, the first discovered retrovirus is named HIV-1 and the second virus type HIV-2. AIDS cases now reported from every region of the world. Research leads to a description of the stages of HIV/AIDS. American film star Rock Hudson becomes first major public figure known to have died of AIDS.

1986: AIDS pathogen is officially known as the human immunodeficiency virus (HIV). The Surgeon General issues a landmark federal report to the Reagan administration and to the public that calls for AIDS awareness education and condom use to prevent the transmission of HIV. Known AIDS deaths worldwide cross the number 16,300.

1987: First anti-HIV drug, azidovudine (AZT) is approved after trials showed it slowed, but did not cure, the progress of the virus by the US Food and Drug Administration (FDA) (Kanabus & Frederickson). The drug works by interrupting HIV’s invasion of a person’s healthy cells. Treatment cost $6,300 per year. (Rs.3,15,000). AIDS becomes the first disease ever debated on floor of the United Nations General Assembly. President Ronald Regan calls AIDS ‘public enemy number one’.

1990: Death of Ryan White, a young American HIV-infected hemophiliac whose barring from school because of HIV infection unleashed a campaign against AIDS prejudice. One million children worldwide are estimated to have lost one or both parents to AIDS.

1991: The FDA approves the second drug for the treatment of AIDS. It is to be used in combination with the first drug in adult patients with advanced HIV infection. This is the first successful use of a combination of drugs to treat HIV infection (Kanabus & Frederickson). Red Ribbon becomes global symbol of AIDS awareness (Generally means ‘I care for AIDS’). 10 million persons are estimated HIV+ worldwide.

1992: HIV prevalence in Uganda and Thailand begins to decrease following massive mobilization against epidemic. First ‘Nucleoside Reverse
Transcriptase Inhibitor (NRTI)' approved for use in U.S. First clinical trial of multiple drug cocktails held.

1993: Reports show that some people infected with HIV who have never taken HIV drugs already have resistance to the drugs. This occurs because people transmitting HIV have themselves taken HIV drugs and are transmitting a variant of HIV that is already resistant to the drugs (Kanabus & Frederickson). The female condom is approved by the FDA, offering women a new way to protect themselves against contracting HIV.

In recognition of the increasingly diverse populations affected by HIV/AIDS, the CDC revises the AIDS case definition to be more inclusive of women and injection drug users; therefore, the number of documented AIDS cases goes up in these populations. Tennis star Arthur Ashe dies after becoming infected with HIV as result of blood transfusion.

1994: The CDC announces that AIDS is the leading cause of death among 25- to 44-year-old Americans (AIDS ACTION). The first HIV saliva test (OraSure) is approved by the FDA for use in clinical settings (AIDS ACTION). Studies show AZT can dramatically cut mother-to-child transmission of HIV and with that first treatment to reduce mother-to-child HIV transmission.

1995: The first protease inhibitor (a new class of antiretroviral treatment), is approved (AIDS ACTION). Antiretroviral treatment for HIV-positive patients consists of drugs that work against HIV infection itself by slowing down the replication of HIV in the body. First ‘Protease Inhibitor (PT)’ approved for use in U.S.

1996: The use of three antiretroviral medications used in combination becomes the new standard of HIV care. This approach to HIV treatment is sometimes called Highly Active Antiretroviral Therapy (HAART), or simply antiretroviral therapy (ART). The drugs used in HAART target different stages of the HIV reproductive cycle, making HIV less likely to reproduce and to mutate. United Nations sets up the Joint United Nations Programme on Aids (UNAIDS). Epidemic starts to worsen in Eastern Europe and former Soviet Union, India, China. Brazil becomes the first developing country to provide free ART through its public health system. First ‘Non Nucleoside Reverse Transcriptase Inhibitor’ (NNRTI).
1997: The effect of new treatments is clearly seen as the number of Americans newly diagnosed with AIDS drops for the first time since the epidemic began. People with HIV in some countries are able to return to work as a result of the improvement in their health thanks to antiretroviral therapy (Kanabus & Frederickson).

Eight million children in Africa have lost one or both parents to AIDS. Worldwide death toll estimated at 64,000.00. CDC reports first case of probable HIV transmission through kissing.

1998: The number of American AIDS deaths drops 47% from the previous year; the drop is credited to the effectiveness of HAART. Nonetheless, problems with HAART are noted. Hopes that HAART is a cure is dashed. Evidence emerges of HIV "reservoirs" where the virus holes up and rebounds if the drugs are stopped. Thirty nine pharmaceutical companies file law suit to stop South Africa producing cheap generic drugs to treat country's 3.6 million HIV+ victims. Case generates global outrage.

1999: The CDC begins funding the “Prevention for HIV Infected Persons Project” (PHIPP), asking certain jurisdictions to make prevention for peoples with HIV (ex; preventing further infection to themselves and others) a priority. First trial of possible HIV vaccine in a developing country starts in Thailand.

2000: Southern Africa, where anti-HIV drugs are almost absent because of their cost, becomes the epicenter of what is now a global pandemic. UN states call for spread of HIV and AIDS to be halted and thrown into reverse by 2015 as part of Millennium Development Goals. UNAIDS and WHO launch joint initiative with five pharmaceutical companies to increase access to HIV treatment in developing countries.

2001: In a historic session of the United Nations General Assembly on the AIDS epidemic, participants unanimously pass a resolution declaring AIDS a global catastrophe and calling for worldwide commitment to end the epidemic.

2002: The Global Fund for Fighting Aids, Tuberculosis and Malaria starts to make its first allocations.
2003: First HIV vaccine to undergo a full trial proves to be a flop. Cost of antiretroviral plummets, helped by World Trade Organization (WTO) deal allowing poor, vulnerable countries to import generics. Combinations of anti-HIV medications are credited with declines in HIV-related sickness and death (Simoni, Frick, Pantalone, & Turner, 2003). Drug therapy is also found to reduce the spread of HIV from mother to child when given to the mother. (Cohan, 2003)

US President George Bush unveils plans to spend 15 billion dollars over five years to combat AIDS in Africa and Caribbean. UNAIDS and WHO launch 3 by 5 initiative, to increase number of people in developing countries who have access to ART from 4,00,000 to Three million persons by 2005. The Bill and Melinda Gates Foundation awards $60 million to the International Partnership for Microbicides, the largest grant ever awarded to support work in this field.

2004: CDC estimates that 4, 15,193 Americans are living with AIDS. 4 in 10 are African Americans.

2005: World leaders pledge to come as close as possible to universal treatment by 2010. But by year’s end, 3 by 5 initiatives has reached total of only 1.3 million persons.

2006: UN General Assembly sets goal of universal access to HIV and AIDS care by 2010. Pope Benedict XVI asks Vatican officials to study whether use of condoms to stop spread of HIV/AIDS is consistent with church’s pro-life stance. Biggest impact of HIV/AIDS would be in Africa - epicenter of AIDS pandemic where more than 18 million children are expected to be orphaned by end of 2010. In 25 years time AIDS has spread to every corner of the world. It has claimed 25 million lives and infected another 40 million people, half of them women.

2008: Nearly three million people with HIV and AIDS in developing countries had access to anti-retroviral drugs by the end of 2007. Another 6.7 million people are still in need. UNAIDS says more than 25 million people have died of AIDS and, as of 2007; 33 million people were infected with HIV. AIDS deaths in 2007 numbered two million, although this was the second decline in consecutive years, thanks to anti-HIV drugs.
Barre-Sinoussi and Montagnier share Nobel Medicine Prize for their discovery of HIV.

HIV/AIDS around the world:

The overwhelming majority of people with HIV, some 95% of the global total, live in the developing world. The proportion is set to grow even further as infection rates continue to rise in countries where poverty, poor health care systems and limited resources for prevention and care fuel the epidemic. Fig. 1.2 HIV/AIDS around the world depicts the distribution of people living with HIV around the world. The latest statistics on the world epidemic of AIDS & HIV were published by UNAIDS/WHO in July 2008, and refer to the end of 2007.

Africa: It is in Africa, in some of the poorest countries in the world, that the impact of the virus has been most severe. At the end of 2007, there were 9 countries in Africa where more than one tenth of the adult population aged 15-49 was infected with HIV. In three countries, all in the southern cone of the continent, at least one adult in five is living with the virus. In Botswana, a shocking 23.9% of adults are now infected with HIV, while in South Africa, 18.1% are infected. With a total of around 5.7 million infected, South Africa has more people living with HIV than any other country.

Sub-Saharan Africa: The area in Africa south of the Sahara desert, known as sub-Saharan Africa, is by far the worst-affected in the world by the AIDS epidemic. The region has just over 10% of the world's population, but is home to 67% of all people living with HIV. An estimated 1.9 million adults and children became infected with HIV during 2007. This brought the total number of people living with HIV/AIDS in the region to 22 million by the end of the year. HIV prevalence varies considerably across this region -
ranging from less than 1% in Madagascar to over 25% in Swaziland. In this part of the world, particularly, women are disproportionately at risk. As the rate of HIV infection in the general population rises, the same patterns of sexual risk result in more new infections simply because the chances of encountering an infected partner become higher.

Although West Africa is less affected by HIV infection, the prevalence in some large countries is creeping up. Côte d'Ivoire is already among the fourteen worst affected countries in the world, and in Nigeria over 3% of adults have HIV. In West Africa the epidemic displays a greater diversity; national prevalence rates can remain low, while infection rates in certain populations can be very high indeed.

Infection rates in East Africa, once the highest on the continent, hover above those in the West but have been exceeded by the rates now seen in southern cone. In 2007, HIV prevalence among adults in Kenya, Tanzania and Uganda exceeded 5%.

It is widely thought that North Africa managed to sidestep the global AIDS epidemic - perhaps due to its strict rules governing sexual behavior. However, the latest UNAIDS estimates indicate that 35,000 people in North Africa and the Middle East acquired an HIV infection in 2007, bringing the total number of people living with HIV/AIDS in the Middle East and North Africa to an estimated 380,000. AIDS killed a further 27,000 people in 2007.

Increasing prevalence rates are not inevitable. In Uganda the estimated prevalence rate fell to around 5% from a peak of about 15% in the early 1990s. This trend is thought in part to have resulted from strong prevention campaigns, and there are encouraging signs of the same effect happening in parts of Zambia, Kenya and Zimbabwe. Yet the suffering generated by HIV infections acquired years ago continues to grow, and a drop in HIV prevalence is generally associated with a massive number of AIDS deaths. Just under a third of Africans in need of antiretroviral treatment were receiving it at the end of 2007.

**Asia:** Until recently it was thought that India was home to around 5.7 million people living with HIV - more than any other country in the world. In
July 2007 this estimate was revised to between 2 million and 3.1 million, based on better data including the results of a National Household Survey.

Because of the major revision of the Indian estimate, the number of people living with HIV in the whole of Asia is now thought to be substantially less than the figure published by UNAIDS in late 2006. In 2007, there were 2.4 million people living with HIV in India. Other large epidemics are present in China (700,000), Thailand (610,000), Viet Nam (290,000) and Myanmar (240,000). The total number of people living with HIV in Asia is thought to be around 5 million.

In most Asian countries the epidemic is centered among particular high-risk groups, particularly men who have sex with men, injecting drug users, sex workers and their partners. However the epidemic has already begun to spread beyond these groups into the general population. Some Asian countries, such as Thailand, have responded rapidly to the epidemic with extensive campaigns to educate the public and prevent the spread of HIV - and have succeeded in cutting prevalence. Other very populous regions, such as China, have only recently admitted that the spread of HIV threatens their populations, and as a result their prevention work is lagging behind the spread of the virus. Unless rapid and effective action is taken in this part of the world, then the size of the epidemic to come will dwarf the many deaths that have already occurred.

Although HIV and AIDS are found in all parts of the world, some areas are more afflicted than others. The epidemic is spreading most rapidly in Eastern Europe and Central Asia, where the number of people living with HIV increased 150% between 2001 and 2007. The number of people living with HIV has risen from around 8 million in 1990 to 33 million today, and is still growing.

The devastation: During 2007 more than two and a half million adults and children became infected with HIV. By the end of the year, an estimated 33 million people worldwide were living with HIV/AIDS. The year also saw two million deaths from AIDS, despite recent improvements in access to antiretroviral treatment. More than 25 million people have died of AIDS since 1981. Africa has 11.6 million AIDS orphans. At the end of 2007,
women accounted for 50% of all adults living with HIV worldwide, and for 59% in sub-Saharan Africa. Young people (under 25 years old) account for half of all new HIV infections worldwide.

**Young people affected by HIV and AIDS:** Around half of the people who acquire HIV become infected before they turn 25 and typically die of the life-threatening illnesses called AIDS before their 35th birthday. By the end of 2007, the epidemic had left behind 15 million AIDS orphans, defined as those aged fewer than 18 who have lost one or both parents to AIDS. These orphans are vulnerable to poverty, exploitation and themselves becoming infected with HIV. They are often forced to leave the education system and find work, and sometimes to care for younger siblings or head a family.

In 2007, around 370,000 children aged 14 or younger became infected with HIV. Over 90% of newly infected children are babies born to women with HIV, who acquire the virus during pregnancy, labor or delivery, or through their mother's breast milk. Almost nine-tenths of such transmissions occur in sub-Saharan Africa. Africa's lead in mother-to-child transmission of HIV is firmer than ever despite the evidence that HIV ultimately impairs women's fertility; once infected, a woman can be expected to bear 20% fewer children than she otherwise would. Drugs are available to minimize the dangers of mother-to-child HIV transmission, but these are still often not reaching the places where they are most needed.

**What can be done to combat the AIDS epidemic?**

There is much that can be done to reduce the impact of AIDS, beginning with the prevention of HIV transmission. Averting sexual transmission involves encouraging safer sexual behavior including delayed first sex, partner reduction and condom use. The spread of HIV through injecting drug use can be slowed by outreach work, needle exchange and drug substitution treatment. And mother-to-child transmission can be almost eliminated through use of medicines and avoidance of breastfeeding.

There is still no cure for AIDS, but treatment for people with HIV has improved enormously since the mid-1990s. Those who take a combination of three antiretroviral drugs can expect to recover their health and live for
many years without developing AIDS, as long as they keep taking the drugs every day.

Yet although it is known how to prevent and treat AIDS, few people have access to the necessary services. Most rich countries - and a few middle-income nations such as Brazil and Botswana - have achieved near-universal treatment coverage. But across the developing world only 31% of people who need anti-AIDS drugs are receiving them. Access to prevention tools such as HIV education, condoms, clean needles and programmes to prevent mother-to-child transmission is utterly inadequate. For example, in 2007 only 33% of pregnant women with HIV received the drugs that could stop their children becoming infected.

In recent years, efforts to fight AIDS around the world have stepped up, with much greater funding being supplied by the US, other rich nations and developing country governments. But the amount of money available is barely half what is needed for an effective response.

Challenges: Apart from inadequate funding, major obstacles in tackling the global AIDS epidemic include weak infrastructure and shortages of health workers in the worst affected countries. Political or cultural attitudes are also significant: for example some authorities are opposed to condom promotion, while others refuse to support needle exchanges for injecting drug users. Many are reluctant to provide young people with adequate education about sex and sexual health.

Another very serious issue is stigma and discrimination. People known to be living with HIV are often shunned or abused by community members, employers and even health workers. As well as causing much personal suffering, this sort of prejudice discourages people from seeking HIV testing, treatment and care.

The future: Based on recent trends it is likely that AIDS around the world will keep getting worse for many years to come. Millions more will become infected with HIV and millions will die of AIDS. The only way to turn things around is to rapidly scale up the measures we already know are effective, but which are currently reaching far too few of those in need.
In 2005 the world’s leaders pledged to try to achieve universal access to HIV prevention, treatment and care worldwide by 2010. This would be one of the greatest health achievements in history - saving millions of lives and giving new hope to suffering nations. But meeting this challenge will take bold leadership and a massive increase in effort; otherwise the promise is sure to be broken.

Fig. 1.3
Selected events in the global response to the epidemic

The following few illustrations will give the prevalence of HIV/AIDS in global and regional scenarios as per 2008 Report on the global AIDS epidemic published by UNAIDS. The statistics presented hereunder are the latest figures made available by UNAIDS.
Table 1.2
Global particulars of Adults, Women and Children and HIV/AIDS in 2008
(in millions)

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>People living with HIV/AIDS</td>
<td>33.0</td>
<td>30.3 - 36.1</td>
</tr>
<tr>
<td>Adults living with HIV/AIDS</td>
<td>30.8</td>
<td>28.2 - 34.0</td>
</tr>
<tr>
<td>Women living with HIV/AIDS</td>
<td>15.5</td>
<td>14.2 - 16.9</td>
</tr>
<tr>
<td>Children living with HIV/AIDS</td>
<td>2.0</td>
<td>1.9 - 2.3</td>
</tr>
<tr>
<td>People newly infected with HIV</td>
<td>2.7</td>
<td>2.2 - 3.2</td>
</tr>
<tr>
<td>Children newly infected with HIV</td>
<td>0.37</td>
<td>0.33 - 0.41</td>
</tr>
<tr>
<td>AIDS deaths</td>
<td>2.0</td>
<td>1.8 - 2.3</td>
</tr>
<tr>
<td>Child AIDS deaths</td>
<td>0.27</td>
<td>--</td>
</tr>
</tbody>
</table>

Fig 1.4: HIV Prevalence around the world

Fig 1.5: HIV adult prevalence around the world
### Table 1.3
Regional statistics of HIV & AIDS

<table>
<thead>
<tr>
<th>Region</th>
<th>Adults &amp; children living with HIV/AIDS</th>
<th>Adults &amp; children newly infected</th>
<th>Adult prevalence*</th>
<th>Deaths of adults &amp; children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa</td>
<td>22.0 million</td>
<td>1.9 million</td>
<td>5.0%</td>
<td>1.5 million</td>
</tr>
<tr>
<td>North Africa &amp; Middle East</td>
<td>380,000</td>
<td>40,000</td>
<td>0.3%</td>
<td>27,000</td>
</tr>
<tr>
<td>Asia</td>
<td>5 million</td>
<td>380,000</td>
<td>0.3%</td>
<td>380,000</td>
</tr>
<tr>
<td>Oceania</td>
<td>74,000</td>
<td>13,000</td>
<td>0.4%</td>
<td>1,000</td>
</tr>
<tr>
<td>Latin America</td>
<td>1.7 million</td>
<td>140,000</td>
<td>0.5%</td>
<td>63,000</td>
</tr>
<tr>
<td>Caribbean</td>
<td>230,000</td>
<td>20,000</td>
<td>1.1%</td>
<td>14,000</td>
</tr>
<tr>
<td>Eastern Europe &amp; Central Asia</td>
<td>1.5 million</td>
<td>110,000</td>
<td>0.8%</td>
<td>58,000</td>
</tr>
<tr>
<td>North America, Western &amp; Central Europe</td>
<td>2.0 million</td>
<td>81,000</td>
<td>0.4%</td>
<td>31,000</td>
</tr>
<tr>
<td>Global Total</td>
<td>33.0 million</td>
<td>2.7 million</td>
<td>0.8%</td>
<td>2.0 million</td>
</tr>
</tbody>
</table>

**Fig 1.6**
HIV prevalence in Asia

![HIV prevalence in Asia](image)
HIV/AIDS in India

HIV emerged later in India than it did in many other countries. At the beginning of 1986, despite over 20,000 reported AIDS cases worldwide, India had no reported cases of HIV or AIDS. India's first cases of HIV were diagnosed in the year 1986 among sex workers in Chennai, Tamil Nadu. It was noted that contact with foreign visitors had played a role in initial infections among sex workers. This would not be the case for long, and concerns were raised about how India would cope once HIV/AIDS cases started to emerge as India is one of the largest of most populated countries in the world. Population of India has crossed one billion. There are so many people living in India that a mere 0.1% increase in HIV prevalence would increase the estimated number of people living with HIV by over half a million.

In 1987 a National AIDS Control Programme was launched to coordinate national responses. Its activities covered surveillance, blood screening, and health education. By the end of 1987, most of these initial cases of HIV/AIDS had occurred through heterosexual sex, but at the end of the 1980s a rapid spread of HIV was observed among injecting drug users in Manipur, Mizoram and Nagaland.

At the beginning of the 1990s, as infection rates continued to rise, responses were strengthened. In 1992 the government set up NACO (the National AIDS Control Organisation), to oversee the formulation of policies, prevention work and control programmes relating to HIV and AIDS. In the same year, the government launched a Strategic Plan for HIV prevention. This plan established the administrative and technical basis for programme

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2 Bureau of Hygiene & Tropical Diseases (1986) 'AIDS newsletter' Issue 1 January 30th
4 NACO (2006), 'UNGASS India report: progress report on the declaration of commitment on HIV/AIDS'
management and also set up State AIDS bodies in 25 states and 7 union territories. It was able to make a number of important improvements in HIV prevention such as improving blood safety.  

Throughout the 1990s, it was clear that although individual states and cities had separate epidemics, HIV had spread to the general population. Increasingly, cases of infection were observed among people that had previously been seen as 'low-risk', such as housewives. In 2001, the government adopted the National AIDS Prevention and Control Policy. During that year, Prime Minister Atal Bihari Vajpayee addressed parliament and referred to HIV/AIDS as one of the most serious health challenges facing the country. The Prime Minister also met the chief ministers of the six high-prevalence states to plan the implementation of strategies for HIV/AIDS prevention, Andhra Pradesh being one among the six. HIV had now spread extensively throughout the country, in all states and union territories. In 1990 there had been tens of thousands of people living with HIV in India; by 2000 this had risen to millions.

To combat HIV/AIDS, Government of India formulated the National AIDS Control Programme. This programme runs through three Phases namely: NACP Phase I, Phase II, and Phase III. The following are key achievement under NACP:

**Phase-I (1992 - 1999)** was implemented across the country with objective to slow the spread of HIV to reduce future morbidity, mortality, and the impact of AIDS by initiating a major effort in the prevention of HIV transmission.

**Phase-II (1999 - 2006)** was aimed at reducing spread of HIV infection in India and strengthens India's capacity to respond to HIV epidemic on long term basis. Some of the significant achievements of NACP-I & II are:

- Scaling up PMTCT and VCCTC services especially in the high prevalence states.

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8 NACO website, 'About NACO, National AIDS Control Programme Phase 1 (1992-1999)',
9 Baria F. et al., India Today (15th March 1997), 'AIDS - striking home'
10 Atal Bihari Vajpayee, speech at the meeting with Chief Ministers of high prevalence states on the issue of control and prevention of HIV/AIDS, New Delhi, May 22, 2001
11 NACO, Annual Report 2002-2004
• Increasing access to free ARV is one of the major achievements of NACP-II. Recognizing the need of care and support for people living with HIV and AIDS and scaling up of Community Care Centers.

• The effectiveness of the condoms as one of the safest methods to prevent and control the spread of HIV and other STIs has been well established.

• Initiating the process for developing draft legislation on HIV and AIDS.

Phase-III (2007-2012) is based on the experiences and lessons drawn from NACP-I and II, and is built upon their strengths. The strategic objectives of NACP-III are:

- Prevent infections through saturation of coverage of high-risk groups with targeted interventions (TIs) and scaled up interventions in the general population.
- Provide greater care, support and treatment to more people living with HIV/AIDS.
- Strengthen the infrastructure, systems and human resources in prevention, care, support and treatment programmes at District, State and National levels.
- Strengthen the nationwide Strategic Information Management System.
- The specific goal of this phase is to reverse and stabilize the spread of AIDS by reducing the rate of incidence by 60 per cent in high prevalence States and by 40 per cent in vulnerable States.

Current estimates:

In HIV situation in the country is assessed and monitored through regular annual sentinel surveillance mechanism established since 1992. The current estimates are based on the internationally comparable Workbook method and using multiple data sources namely expanded sentinel surveillance system, NFHS-III, IBBA and Behavioral Surveillance Survey. 2006 UNAIDS estimated that there were 5.6 million people living with HIV in India, which indicated that there were more people with HIV in India than in any other country in the world. However, NACO disputed this estimate,
and claimed that the actual and revised figure\textsuperscript{13} was lower.\textsuperscript{14} In 2007, following the first survey of HIV among the general population, UNAIDS and NACO agreed on a new estimate - between 2 million and 3.6 million people living with HIV. The figure was confirmed to be 2.47 million in 2008 and that adult national HIV prevalence was 0.36%. This puts India behind South Africa and Nigeria in numbers living with HIV.\textsuperscript{15} Overall, around 0.3% of India's population is living with HIV and it is greater among males (0.44%) than among females (0.23%).\textsuperscript{17} While this may seem a low rate, India's population is vast, so the actual number of people living with HIV is remarkably high.

In 2006 UNAIDS estimated that there were 5.6 million people living with HIV in India, which indicated that there were more people with HIV in India than in any other country in the world.\textsuperscript{18} However, NACO disputed this estimate, and claimed that the actual and revised figure\textsuperscript{19} was lower.\textsuperscript{20} In

\textsuperscript{13} From the July, 2007, India has updated its methods for analysing the data collected from surveys and HIV surveillance efforts. The present data is more complete and accurate. The revised HIV estimates for India are the outcome of several key improvements. Multiple data sources such as a community based HIV prevalence study of National Family Health Survey-III, Integrated Bio-behavioral Assessment Survey and Endline Behavioural Surveillance Survey were utilized along with the data from the expanded sentinel surveillance system to arrive at more robust HIV estimates that are closer to reality. A major improvement has been the national household survey (the National Family Health Survey 3, conducted in 2005–2006), which sampled about 100,000 households and which, for the first time, included a component on HIV (NFHS-3, 2007). This survey constitutes an entirely new source of data for India and is the widest population-based survey with an HIV component ever carried out in the country. India has also expanded its HIV surveillance system in recent years. The system has grown from 155 surveillance sites (in 1998) to 1,122 sites (in 2006). It now collects data from pregnant women attending antenatal clinics, people attending sexually transmitted infections clinics and population groups that are at a higher risk of HIV infection. The latter data are especially important because such groups (including men who have sex with men, injecting drug users and sex workers) are often missed by population-based surveys. These various sources of data therefore complement one another. Moreover, in 2006, the Workbook Model of WHO–UNAIDS is adopted that allows international comparability. Special statistical packages such as Random effects Model and Spectrum Projection Software are utilized to make more accurate and reliable estimates.

\textsuperscript{14} NACO (April 2006), HIV/AIDS epidemiological Surveillance & Estimation report for the year 2005

\textsuperscript{15} UNAIDS (2007), ’2.5 million people in India living with HIV, according to new estimates’, press release

\textsuperscript{16} UNAIDS 2008 Report of the global AIDS epidemic

\textsuperscript{17} UNAIDS 2008 Report of the global AIDS epidemic

\textsuperscript{18} UNAIDS 2008 Report of the global AIDS epidemic

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2007, following the first survey of HIV among the general population, UNAIDS and NACO agreed on a new estimate - between 2 million and 3.6 million people living with HIV. The figure was confirmed to be 2.47 million in 2008 and that adult national HIV prevalence was 0.36%. This puts India behind South Africa and Nigeria in numbers living with HIV. Overall, around 0.3% of India’s population is living with HIV. While this may seem a low rate, India’s population is vast, so the actual number of people living with HIV is remarkably high. The overall HIV prevalence among different population groups in 2007 continues to portray the concentrated epidemic in India, with a very high prevalence among High Risk Groups - IDU (7.2%), MSM (7.4%), FSW (5.1%) & STD (3.6%) and low prevalence among ANC clinic attendees (Age adjusted - 0.48%).

The national HIV prevalence rose dramatically over the years of the epidemic, but a study released at the beginning of 2006 suggests that the HIV infection rate has recently fallen in southern India, the region that has been hit hardest by AIDS. In addition, NACO has released figures suggesting that the number of people living with HIV has declined. Researchers claim that this trend is the result of successful prevention campaigns, which have led to an increase in condom use. However there has been doubts about the HIV/AIDS situation improving in India and Peter Piot,

time, included a component on HIV (NFHS-3, 2007). This survey constitutes an entirely new source of data for India and is the widest population-based survey with an HIV component ever carried out in the country. India has also expanded its HIV surveillance system in recent years. The system has grown from 155 surveillance sites (in 1998) to 1122 sites (in 2006). It now collects data from pregnant women attending antenatal clinics, people attending sexually transmitted infections clinics and population groups that are at a higher risk of HIV infection. The latter data are especially important because such groups (including men who have sex with men, injecting drug users and sex workers) are often missed by population-based surveys. These various sources of data therefore complement one another. Moreover, in 2006, the Workbook Model of WHO-UNAIDS is adopted that allows international comparability. Special statistical packages such as Random effects Model and Spectrum Projection Software are utilized to make more accurate and reliable estimates.

20 NACO (April 2006), HIV/AIDS epidemiological Surveillance & Estimation report for the year 2005
21 UNAIDS (2007), '2.5 million people in India living with HIV, according to new estimates', press release
22 UNAIDS 2008 Report of the global AIDS epidemic
23 UNAIDS 2008 Report of the global AIDS epidemic
Executive Director of UNAIDS, stresses: "the statement that India has the AIDS problem under control is not true. There is a decline in prevalence in some of the Southern states... In the rest of the country, there are no arguments to demonstrate that AIDS is under control" -26

The vast size of India makes it difficult to examine the effects of HIV on the country as a whole. India’s epidemic is highly varied across states and regions, and diverse trends are evident in different parts of this huge country. The HIV prevalence data for most states is established through testing pregnant women at antenatal clinics (ANC) and sexually transmitted disease (STD) clinics. As per HIV Sentinel Surveillance and HIV Estimation, 2006, even in the four southern states, Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu, where the large majority of people living with HIV in India are believed to reside, HIV prevalence varies, and the epidemic tends to be concentrated in certain districts.27

Heterogeneity of HIV Epidemic:

The epidemic in India is very heterogeneous with diverse modes of infection, particularly in southern and western states, namely, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra and two north eastern states, namely, Nagaland and Manipur. Even within states, there is a wide variance in HIV prevalence between and within districts as evidenced by data from HIV sentinel surveillance centres and Integrated Counseling and Testing Centres (ICTCs). The epidemic in India is largely driven by sub epidemics among sex workers, injecting drug users and men who have sex with men. HIV infection prevalence among high risk groups as per the data in 2006 is as under:

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26 Sexually Transmitted Infections (2007) 'Interview with Peter Piot' Volume 83(6)
Fig 1.7: HIV prevalence among high risk groups

Fig 1.8
HIV seropositivity among ANC attendees by Districts

HIV prevalence among ANC clinic attendees

<table>
<thead>
<tr>
<th>Districts</th>
<th>HIV Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANDHRA PRADESH</td>
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</tr>
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<td></td>
</tr>
<tr>
<td>Machilipatnam</td>
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</tr>
<tr>
<td>Visakhapatnam</td>
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</tr>
<tr>
<td>Nellore</td>
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<tr>
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<tr>
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<td>Udaipur</td>
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<tr>
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<tr>
<td>Guwahati</td>
<td></td>
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<tr>
<td>ORISSA</td>
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<tr>
<td>Guwahati</td>
<td></td>
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<tr>
<td>Gangapur</td>
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<tr>
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</tr>
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<td>Salem</td>
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</table>

<table>
<thead>
<tr>
<th>Districts</th>
<th>HIV Prevalence</th>
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<tbody>
<tr>
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<td>West Godavari</td>
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<td>Machilipatnam</td>
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<tr>
<td>Visakhapatnam</td>
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<tr>
<td>Nellore</td>
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<tr>
<td>Belgaum</td>
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<tr>
<td>MAHARASHTRA</td>
<td></td>
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<td>Chandrapur</td>
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<td>Sangli</td>
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<tr>
<td>Udaipur</td>
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<tr>
<td>NAGALAND</td>
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<tr>
<td>Guwahati</td>
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<td>ORISSA</td>
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<tr>
<td>RAJASTHAN</td>
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<tr>
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<tr>
<td>Nungambakkam</td>
<td></td>
</tr>
<tr>
<td>Salem</td>
<td></td>
</tr>
</tbody>
</table>

ANC HIV prevalence 4%
Fig 1.9
HIV Seropositivity among High Risk Groups

14 Districts with HIV
Prevalence >13% among STD clinic attendees:

ANDHRA PRADESH
Huzurnagar
Prolusam
Warangal
Vikaladhputnam
Khammam
Krishna
Guntur
MAHARASHTRA
Sangli
Mumbai
Nagpur
KARNATAKA
Bellary
TAMIL NADU
Tirunelveli
Madurai
GUJARAT
Ahmadabad

HIV prevalence among STD Clinic Attendees:

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<th>Year</th>
<th>STD</th>
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<tr>
<td>2003</td>
<td>5.68</td>
</tr>
<tr>
<td>2004</td>
<td>5.55</td>
</tr>
<tr>
<td>2005</td>
<td>5.66</td>
</tr>
<tr>
<td>2006</td>
<td>3.74</td>
</tr>
</tbody>
</table>

HIV prevalence among High Risk Groups:

<table>
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<tr>
<th>Year</th>
<th>FSW</th>
<th>MSM</th>
<th>IDU</th>
</tr>
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<tr>
<td>2003</td>
<td>10.33</td>
<td>8.47</td>
<td>13.15</td>
</tr>
<tr>
<td>2004</td>
<td>9.43</td>
<td>7.47</td>
<td>11.16</td>
</tr>
<tr>
<td>2005</td>
<td>8.44</td>
<td>8.74</td>
<td>10.16</td>
</tr>
<tr>
<td>2006</td>
<td>4.90</td>
<td>6.41</td>
<td>6.92</td>
</tr>
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</table>
Table 1.4
State wise HIV prevalence - Different population Groups, 2006

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<thead>
<tr>
<th>S.No</th>
<th>Name of the State</th>
<th>STD</th>
<th>ANC</th>
<th>IDU</th>
<th>MSM</th>
<th>FSW</th>
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<tr>
<td>1</td>
<td>Andaman &amp; Nicobar Islands</td>
<td>0.80</td>
<td>0.17</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>2</td>
<td>Andhra Pradesh</td>
<td>24.40</td>
<td>1.26</td>
<td>NS</td>
<td>10.25</td>
<td>8.84</td>
</tr>
<tr>
<td>3</td>
<td>Arunachal Pradesh</td>
<td>0.42</td>
<td>0.00</td>
<td>0.00</td>
<td>NS</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>Assam</td>
<td>0.50</td>
<td>0.00</td>
<td>2.86</td>
<td>0.78</td>
<td>0.40</td>
</tr>
<tr>
<td>5</td>
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<td>0.50</td>
<td>0.20</td>
<td>0.30</td>
<td>0.60</td>
</tr>
<tr>
<td>6</td>
<td>Chandigarh</td>
<td>1.66</td>
<td>0.25</td>
<td>17.60</td>
<td>4.80</td>
<td>0.67</td>
</tr>
<tr>
<td>7</td>
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<td>0.00</td>
<td>NS</td>
<td>NS</td>
<td>1.65</td>
</tr>
<tr>
<td>8</td>
<td>Dadra Nagar Haveli</td>
<td>NS</td>
<td>0.00</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Daman &amp; Diu</td>
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<td>0.00</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
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<td>10.00</td>
<td>12.27</td>
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</tr>
<tr>
<td>11</td>
<td>Goa</td>
<td>8.6</td>
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<td>NS</td>
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<td>NS</td>
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<td>6.40</td>
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<tr>
<td>16</td>
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<td>11.60</td>
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<td>1.60</td>
<td>NS</td>
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</tr>
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<td>4.00</td>
<td>6.60</td>
<td>7.58</td>
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</table>
Fig. 1.10
Categories of States by HIV prevalence in India

<table>
<thead>
<tr>
<th>High Prevalence</th>
<th>Moderate Prevalence</th>
<th>Low Prevalence</th>
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<td>Tamil Nadu</td>
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<td>Assam</td>
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<td>Andhra Pradesh</td>
<td>Goa</td>
<td>Bihar</td>
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</table>

**Category of Districts**

Based on the HIV surveillance data, epidemiological profile, risk and vulnerability, NACO has classified the 609 districts in the country into four categories viz. A, B, C and D.

**Category of District**

1. More than 1% ANC/PPTCT prevalence in district in any time in anytime of the sites in the last 3 years **A**

2. Less than 1% ANC/PPTCT prevalence in all the sites during last 3 years associated with more than 5% prevalence in any HRG group (STD/CSW/MSM/IDU) **B**

3. Less than 1% in ANC prevalence in all sites during last 3 years with less than 5% in all STD clinic attendees or any HRG with known hot spots (migrants, truckers, large aggregation of factory workers, tourists etc.) **C**

4. Less than 1% in ANC prevalence in all sites during last 3 years with less than 5% in all STD clinic attendees or any HRG or No or poor HIV data with no known hot spots/unknown **D**
## Table 1.5
Categorization of Districts - State Summary

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<th>S.No</th>
<th>Name of the State</th>
<th>Total No. of Districts</th>
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### Table 1.6
List of Districts in Category A and B

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To summarize, HIV situation in the country is assessed and monitored through regular annual sentinel surveillance mechanism established since 1992. The sentinel surveillance started with 180 sentinel sites which later expanded to 1122 sites, covering most of the districts of the country. These sentinel sites have been established in 628 Antenatal clinics representing general population and 494 at High Risk sites, representing High Risk Population.

As per the recent estimates multiple data sources namely expanded sentinel surveillance system, NFHS-III, IBBA and Behavioural Surveillance Survey, there are 2 - 3.1 million (2.47 million) people living with HIV/AIDS at the end of 2006. Out of these, 0.97 million (39.3%) are women and 0.09 million (3.8%) are children. The estimated adult prevalence in the country is 0.36% (0.27% - 0.47%). However, there are considerable differences in the prevalence rates across different geographical regions. HIV Prevalence amongst ANC clinic attendees has remained around 1% in the states of Andhra Pradesh, Karnataka, Manipur and Nagaland. The states of Tamilnadu and Maharashtra have recorded less than 1% HIV prevalence in ANC clinic attendees. A total of 118 districts have HIV prevalence among ANC clinic attendees greater than 1%, out of which 26 districts are in low prevalence states. The HIV Prevalence among high risk groups continues to be nearly six to eight times greater than that among general population. Hence, India continues to be in the category of concentrated epidemic. Higher HIV prevalence among IDU is an important feature of North Eastern States.

There is decline in the HIV Prevalence among ANC clinic attendees in most of the high burden states, reflecting the impact of interventions. The epidemic is greater in urban areas than rural areas, greater among males than females, decreases with increasing education level, and is found to be highest among women whose spouses work in transport industry. There are 156 A category districts and 39 B category districts. Thus, HIV epidemic in India is a dual epidemic driven by sexual and IDU routes of transmission, concentrated in nature with high HIV prevalence among high risk groups and heterogeneous in spread with pockets of infection found in various districts of the country.
HIV/AIDS in Andhra Pradesh

Andhra Pradesh tops the list of States in India, where HIV is generalized epidemic. Andhra Pradesh is facing a serious HIV epidemic. The State has high prevalence rate of HIV in country (1.26 in Antenatal Clinic cases (ANC) and 24.4% among Sexually Transmitted Disease (STD) clinic attendees. About 22% of all HIV positive people in India estimated as more than half a million PLHAs are in Andhra Pradesh alone. (HIV Sentinel Surveillance and HIV Estimation, 2006)

All the 23 districts of Andhra Pradesh figure in the AIDS 'hot zone'28. HIV/AIDS is no longer confined to groups with high-risk behaviour and has penetrated the general population of State and has assumed proportions of a generalized epidemic29.

Whereas 1% ANC HIV infection is ‘generalized epidemic’, West Godavari, Mahaboob Nagar, Prakasam and Nizamabad Districts in the State account for an incredible more than3% of ANC HIV prevalence in 2006. The enormity of the HIV/AIDS situation in Andhra Pradesh was startlingly felt and realized by one and all. Dr. Y. S. Rajashekar Reddy said that ‘the gravity of the epidemic is high and this demands a collective effort on the part of the different stakeholders in meeting the emergency’. The Health Minister of Andhra Pradesh K. Rosaiah on the eve of Worlds AIDS day on 1-12-2005 has said the future of Andhra Pradesh would be ‘dreadful unless the disease is tackled properly’ and said ‘there is no time to lose’. Dr. Anbumani Ramdoss, the Union Health Minister said that Andhra Pradesh has witnessed ‘a boom in

28 The National AIDS Control Organization (NACO) has categorized as many as 156 districts in the country as ‘A’ grade, calling them ‘hot zone’, which means that the epidemic threshold has been exceeded in the districts. Over 1 percent of the general population and 5 percent of the high-risk group would be infected with HIV in such districts. Apart from Andhra Pradesh, Karnataka with 24 of 27 districts, Maharashtra with 30 of 36 districts are categorized in the ‘A’ grade.

29 Once the HIV prevalence crosses 1% percent in general population it becomes a generalized epidemic and is extremely difficult to contain. For example in South Africa, once the HIV has become a generalized epidemic, in five years time, the prevalence increased from 4% to 24%! In 15 years time of AIDS existence in Botswana, almost one in every three in 15-49 age group was HIV infected. Botswana lost 26 years of life expectancy (from 65 years to 39 years) and recorded 40% increase in Infant Mortality rate!. ‘Missing generations’ and ‘double orphans’ are the demographic features of this nation now.
HIV cases’, and also said that Andhra Pradesh had been ‘lax in HIV awareness programme’ and that is one of the reasons for the boom in the HIV cases. Director General of NACO, Ms. Sujatha Rao described that it is a ‘serious HIV/AIDS situation’ in Andhra Pradesh.

The NACO Director General noticed that high prevalence of HIV in Andhra Pradesh is because of ‘one in every five men in Andhra Pradesh has multi partner sex’ and of them only 25% use condoms. She also said that the surveys conducted by APSACS showed that of the youngsters who have been surveyed, 20-30% had premarital sex.

The first HIV/AIDS case in Andhra Pradesh was reported in the year 1986, only twenty years ago. But the rate and speed at which the HIV infections are increasing in Andhra Pradesh is astonishing, incredible and mind-boggling.

**Why HIV/AIDS is widespread in Andhra Pradesh?**

The following bare facts explain the reasons for high prevalence of HIV in Andhra Pradesh30.

1. Andhra Pradesh records high prevalence of sex with Non Regular Partners and it is 19% (12%) in Men and 7% (2%) in Women (percentages in the parentheses are national figures). Guntur district has the infamous record of 38% of Men and 10% of married Women engaging in Sex with non-regular partners. Sex with non-regular partner is extreme risk behaviour in terms of HIV/AIDS.

2. Traditional as well modern strong Commercial Sex networks made Andhra Pradesh high HIV Prevalence State in the Country. Castes such as Dommara, Kalavantulu, Erukala, Bhogam and the like are traditionally in commercial sex and places like Chilakaluripeta, Peddapuram, Rajamundry and the like have been historically commercial sex centres. High trafficking of Women and Girls from Andhra Pradesh make the State major supplier of Commercial Sex Workers to all the Sex Networks31 in the country including Goa,

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30 Almost all the reasons that explain high prevalence of HIV/AIDS in Andhra Pradesh are related to ‘unsafe sex’ and as such more than 80% HIV infections are through sexual route of transmission.

31 According surveys conducted by renowned NGO’s that work against girl and women trafficking and also police, there are about 137 notorious red light areas across the country that house more than 20 lakh Commercial Sex Workers. Andhra Pradesh has emerged as the largest supplier of girls and women for sexual exploitation. Every year one lakh girls and
Mumbai, Delhi and Kolkata. Trafficking of girls and women, Commercial Sex and HIV/AIDS abet one other and go together.

3. Andhra Pradesh also records low condom use of 25% (32%) in sex with Non Regular Partners (percentages in the parenthesis are national figures). Not using condom in sex with non-regular partner is indulging in unsafe sex.

4. Vast network of Highways running through the State of Andhra Pradesh has been the breeding centre for Highway prostitution and women are trafficked to different cities in the country. A survey conducted by National Commission for Women in 1977 projects approximately 40% representation from Andhra Pradesh in commercial sex. According to Prof. Rekha Pande, (2006) Andhra Pradesh accounts for 25-85% of the commercial sex workers in different sex centres in the country and 60% of them are less than 18 years of age. According to a survey (by A. M Nayar, IPS, supported by National Human Rights Organization) on an average these girls and women are sold for Rs. 30,000 and this business annually involve 250 Crores. Of the Commercial Sex workers, 50% are from Scheduled Castes and Scheduled Tribes and 27% from Other Backward Castes. If poverty alone is the reason for this calamity, there must be equal contribution from poor states like Orissa, Chhattisgarh and Bihar. It is said the brokers and the gangs are more active in Andhra Pradesh. The fact that 85% of commercial sex workers in Biana Beach, Goa, are from Andhra Pradesh is a striking proof of Andhra Pradesh contribution to commercial sex.

The surveys indicate that the Commercial Sex Workers from Andhra Pradesh are much in demand. The research indicates that the Commercial sex workers from Andhra Pradesh are much sought after by the promiscuous men who visit commercial sex workers, as they accept sex without condoms. Sex without the use of condom by this commercial sex worker, who is said to be forced to satisfy about 200 visitors a week in her prime, is nothing but an open invitation to HIV/AIDS. Engaged in commercial sex work these girls and women generally get infected. They subsequently return to the State and spread HIV infections further. Commercial Sex Workers have been an important reason for rapid growth of HIV infections in the State.

d) Vijayawada railway station is said to be hotbed for transporting girls and women to various Sex Networks in the country. However, in the past 5 years, not a single case of trafficking of women was registered by the police in Vijayawada. Non serious attitude of police, low priority attached to implementation of P.I.T Act and lack of coordination among different agencies are said to be the reasons. The intensity of the situation has forced the police into taking necessary steps to prevent trafficking. Women Protection Cell of the police, with the support of United Nations, is coming out with a special action plan and as a part of this, three Anti Trafficking Units, one each at Hyderabad, Elur and Anantapur has come into existence, to stop trafficking. Each unit is headed by a DSP and includes 15 police personnel and Additional D.G, C.I.D, is the nodal officer for the units. The units in the Women Protection Cell immediately carried out ‘rescue’ operation in different parts of Maharastra wherein 41 brokers were rounded up and 83 commercial sex workers were rescued. In one such single rescue 37 out of 41in the Commercial Sex network was from Andhra Pradesh.
this has resulted in high prevalence of HIV/AIDS. The involved high-risk groups in this situation are native sex workers and widely traveling truck drivers. The long stretch of NH-5 particularly runs through the costal districts of the state. NH-5 is notoriously known for highway prostitution.

5. High incidence of Sexually Transmitted Infections (STI) among men and women (7%) also contribute for high prevalence of HIV/AIDS in Andhra Pradesh. STI increases the chances HIV infections ten-fold.

6. Large number of migrant populations is also contributing for rapid spread of HIV/AIDS in the State. (For example the incidence of HIV/AIDS is very high in Bihari workers, who work as manual labour in granite quarries of Prakasam district). On the other hand young manual labour from drought hit districts of Andhra Pradesh seasonally migrate to different metropolitans (like labour from Mehaboobnagar) and come back infected. So is the case with skilled, semi skilled and unskilled workers who go to Gulf countries is search of employment. (From Karimnagar and Kadapa districts). Studies have indicated, on the way to and way back from Gulf countries, the neo-rich youth under peer influence, alight in metropolitan cities and indulge in risk behaviour. Anonymity in unknown places encourages the migrants (especially the single migrant) to indulge in risk behaviour.

7. Delay in initiating targeted programmes to contain HIV/AIDS in the State; lack of concerted efforts, failure to sustain the efforts by the concerned agencies and little coordination between and among stakeholders has also contributed to the present HIV/AIDS situation in the State.

The data in the following pages illustrates the seriousness of HIV situation in the state of Andhra Pradesh. Though the data is about the year 2006, it is the latest data available published by NACO.
Fig 1.11
Seropositivity among ANC attendees and High Risk Group in Andhra Pradesh

ANC 2006

STD: 2006

HIV prevalence in different population groups

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Districts with HIV Prevalence > 15% among STD clinic attendees

- West Godavari
- Macherla
- Prakasam
- Nizamabad
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