

AIDS

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Introduction

- Caused by retrovirus known as Human immunodeficiency virus (HIV)
- Breaks down the body immune system.
- Term AIDS refers only to last stage of HIV infection
- Modern Pandemic
- Nearly 60 %of AIDS cases reported to be suffering from opportunistic TB infection.

- **Route of infection in india**

Sexual - 85.72 %

Perinatal transmission - 3.14 %

Blood & blood products- 2.17 %

IDU - 2.95 %

Others(not specified) - 6.02 %

- **30 %**

Risk of transmission

Sexual - 0.01 to 1 %

BI & BI product - > 90 %

Sharing needles / syringes- 3 to 5 %

Percutaneous exposure - 0.4 %

Mucocutaneous exposure- 0.05 %

Mother to child transmission- 25 to

Epidemiological features

- **Agent factors**

- **Agent** - Lymphadenopathy associated virus (LAV)



Human T cell lymphotropic virus (HTLV)



Human immunodeficiency virus (HIV)

It is 1/10000th mm diameter

RNA virus

Two types – HIV1 , HIV 2

Easily killed by heat, ether, acetone , ethanol.

Reservoir of infection

Cases

Carrier

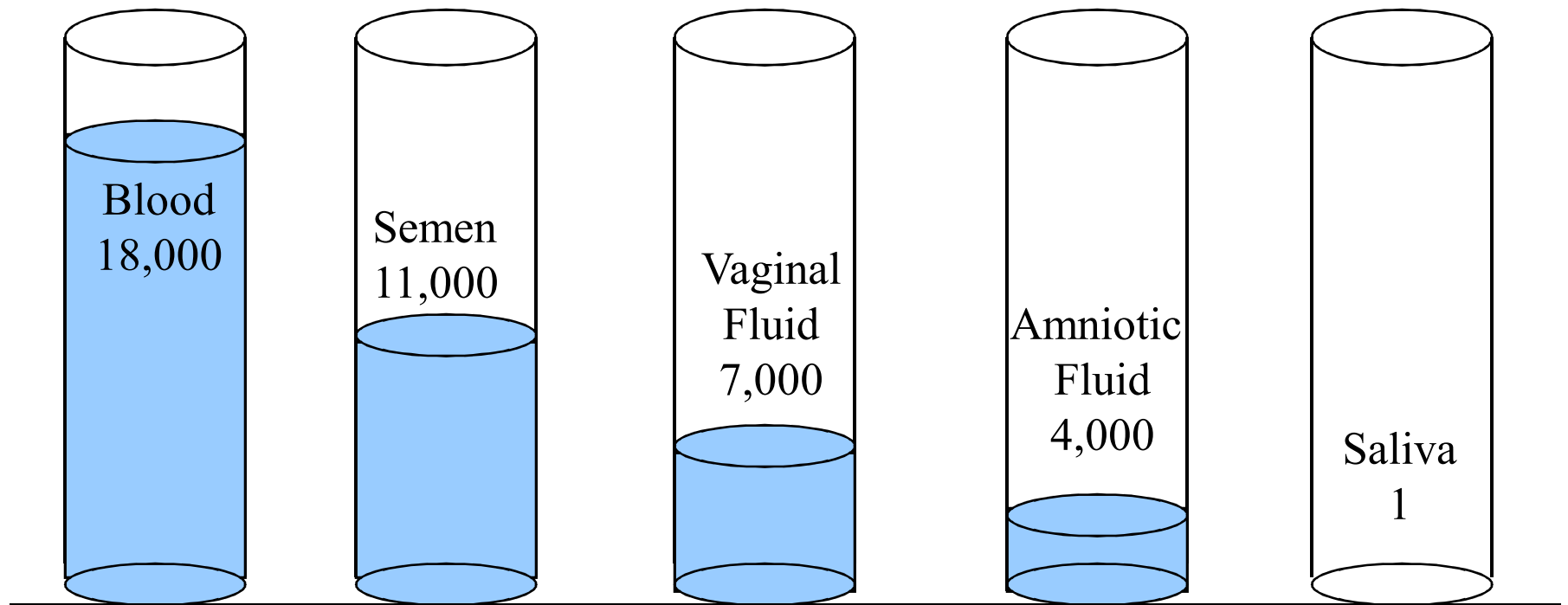
Once infected , virus remains in the body for life time

Source of infection

Blood, semen, CSF – major source

Breast milk, saliva, tears, vaginal secretions also contains virus.

HIV in Body Fluids



Average number of HIV particles in 1 ml of these body fluids

- **Host factors-**

- **Age** –sexually active age group 20-49 yr

- children < 15 , less than 3 %

- **Sex** –nearly equal in both sex

- **High risk groups** –

- Male homosexuals & bisexuals

- Heterosexual partners (including prostitute)

- IDU

- Blood transfusion recipient

- Hemophiliacs

- Clients of STDs

Modes of transmission

a) **Sexual route**- any vaginal, anal or oral sex can spread AIDS.

- Risk factors -presence of STD, sex & age of uninfected partners,
 - type of sexual act , stage of illness of infected partner,
 - virulence of HIV strain involved.
- Women are more vulnerable to HIV inf because of larger surface is exposed & semen contains higher concentration of HIV than vaginal or cervical fluid.
- Anal intercourse carries higher risk.
- Exposed adolescent girls & women above 45 yrs of age are more prone
- For vaginal sex risk is greater when women is menstruating.

b) Blood contact-

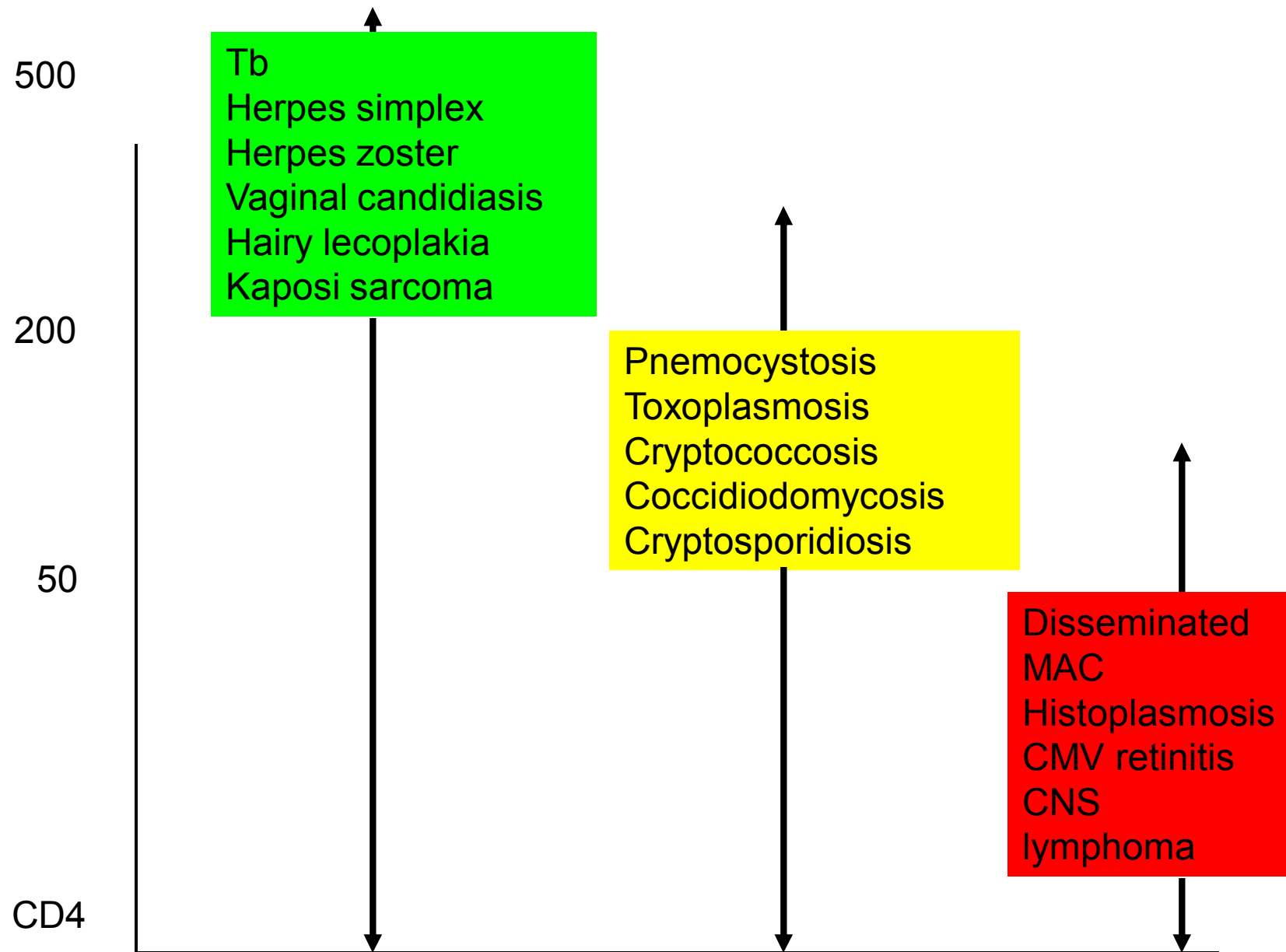
transmitted by contaminated blood –transfusion of whole blood cells, platelets, factor VIII, & IX derived from human plasma.

Any skin piercing like injections, ear piercing, tattooing, acupuncture, scarification can transmit the infection.

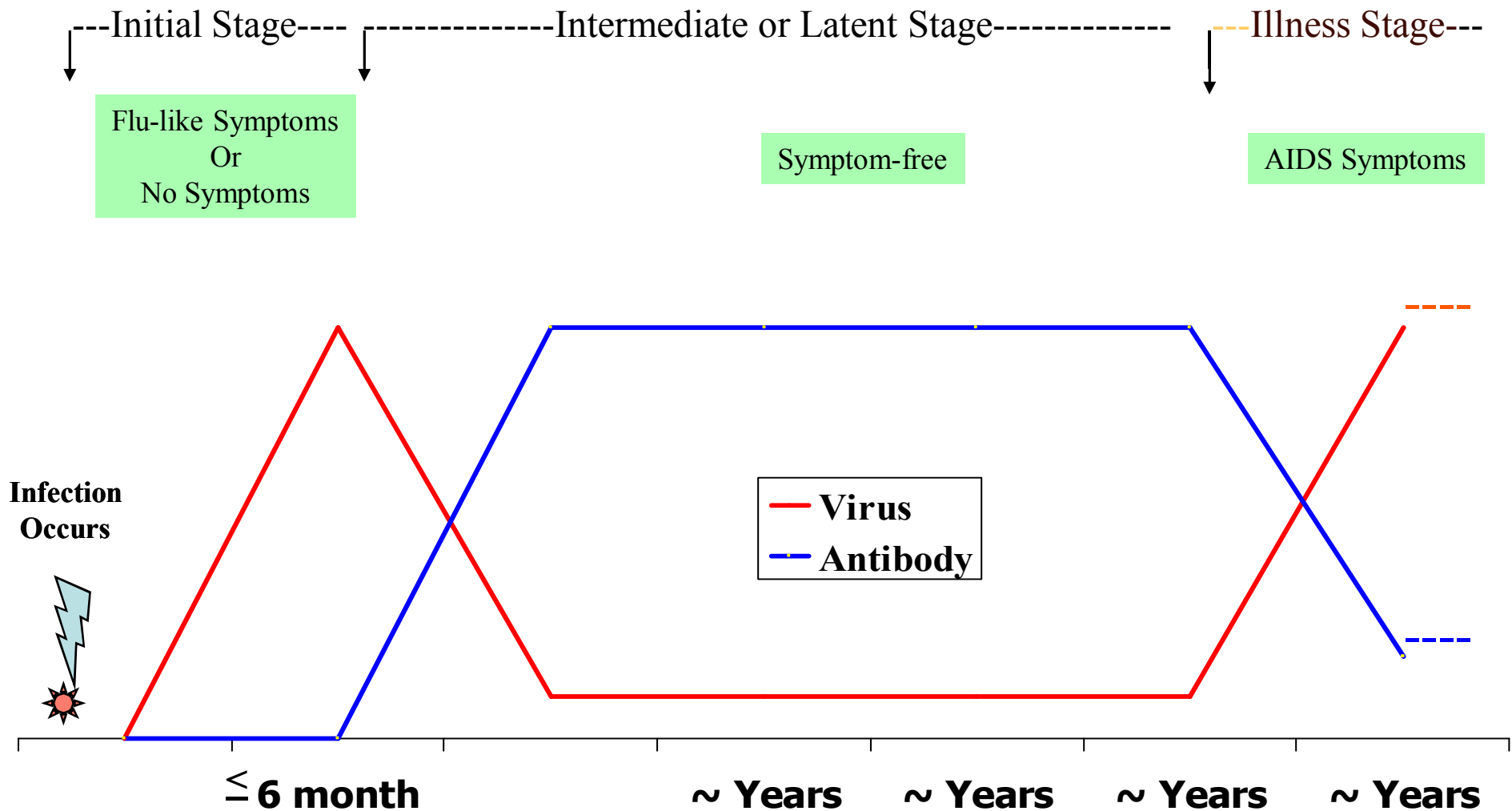
c) Maternal –foetal transmission : mother to child transmission-

through the placenta, or her infant during delivery or by breast feeding.

- Incubation period- from few mths to ≥ 10 yr
- Clinical manifestation



HIV Infection and Antibody Response



Diagnosis of AIDS

I. WHO case definition for AIDS surveillance

Major sign-

Wt loss $\geq 10\%$ of body weight

Chronic diarrhoea > 1 mth

Prolonged fever > 1 mth

Minor signs

Persistent cough for > 1 mth

Generalized pruritic dermatitis

History of herpes zoster

Oropharyngeal candidiasis

Chr progressive or

disseminated herpes simplex inf

Generalized lymphadenopathy

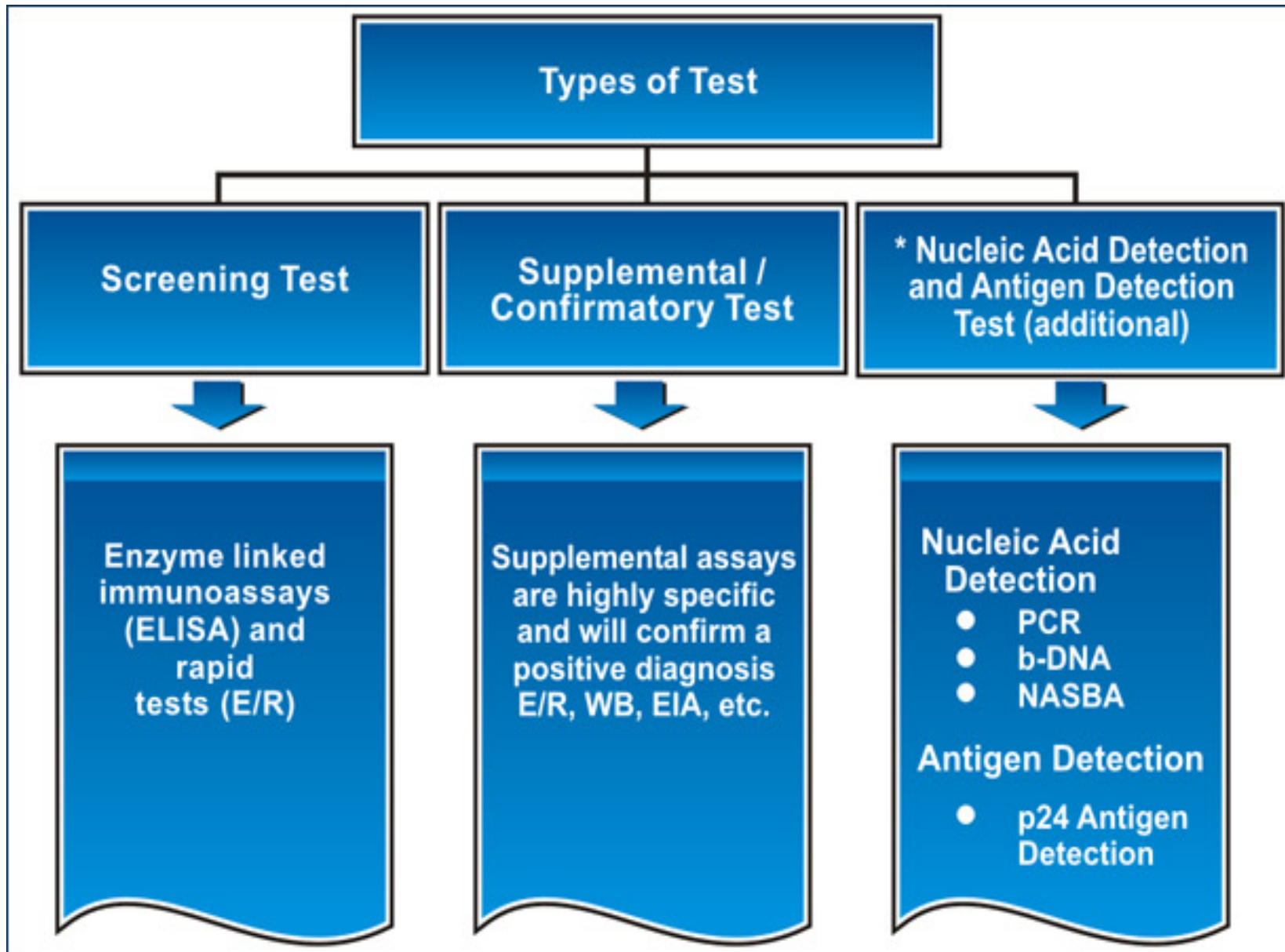
At least 2 major & 1 minor sign should be present
for the man > 12 yr to have AIDS

- **II. Expanded WHO case definition for AIDS surveillance**

For purpose of AIDS surveillance a man >12 yr have AIDS if a test for HIV ab is pos & one or more following condition present

- $\geq 10\%$ wt loss, with diarrhoea, fev or both for > 1 mth
- Cryptococcal meningitis
- Pulmonary or extra pulmonary TB
- Kaposi sarcoma
- Neurological condition
- Candidiasis of oesophagus
- Life threatening pneumonia
- Invasive cervical cancer

Laboratory test



Other test

- **Complete blood count** -Anaemia, Neutropenia, thrombocytopenia
- **Absolute CD₄ lymphocyte count**- most widely used predictor of HIV progression
- **CD₄ lymphocyte percentage** -more reliable than CD4 count
- **HIV viral load tests**- measures the amount of actively replicating HIV virus.
- **B₂ –Microglobulin** -levels> 3.5 mg/dL associated with rapid progression of disease
- **p24 antigen**- indicates active HIV replication

Control of AIDS

1.Prevention

- a) **Education** –until a vaccine or cure for AIDS is found , the only means at present available is Health Education.
- enabling people to make life saving choices (avoiding indiscriminate sex , using condom)
 - Avoid the use of shared razors & toothbrush.
 - IVD users should informed that the sharing of needles & syringes involve special risk.
 - Women suffering from AIDS should avoid pregnancy.
 - Educational material & guidelines for prevention should be made available widely
 - All mass media channels should be involved in educating the people on AIDS, its nature , transmission & prevention

B) Prevention of blood borne HIV transmission

- People in high –risk grps should be urged to refrain from donating blood, body organs, sperms or other tissues.
- Strict sterilization practices should be ensured in hospitals & clinics
- Presterilised practices should be used as far as possible
- Avoid injections unless they are absolutely necessary.

ART/ HAART

NRTIs

Zidovudine (AZT)
Stavudine (d4T)
Lamivudine (3TC)
Zalcitabine (ddC)

NNRTIs

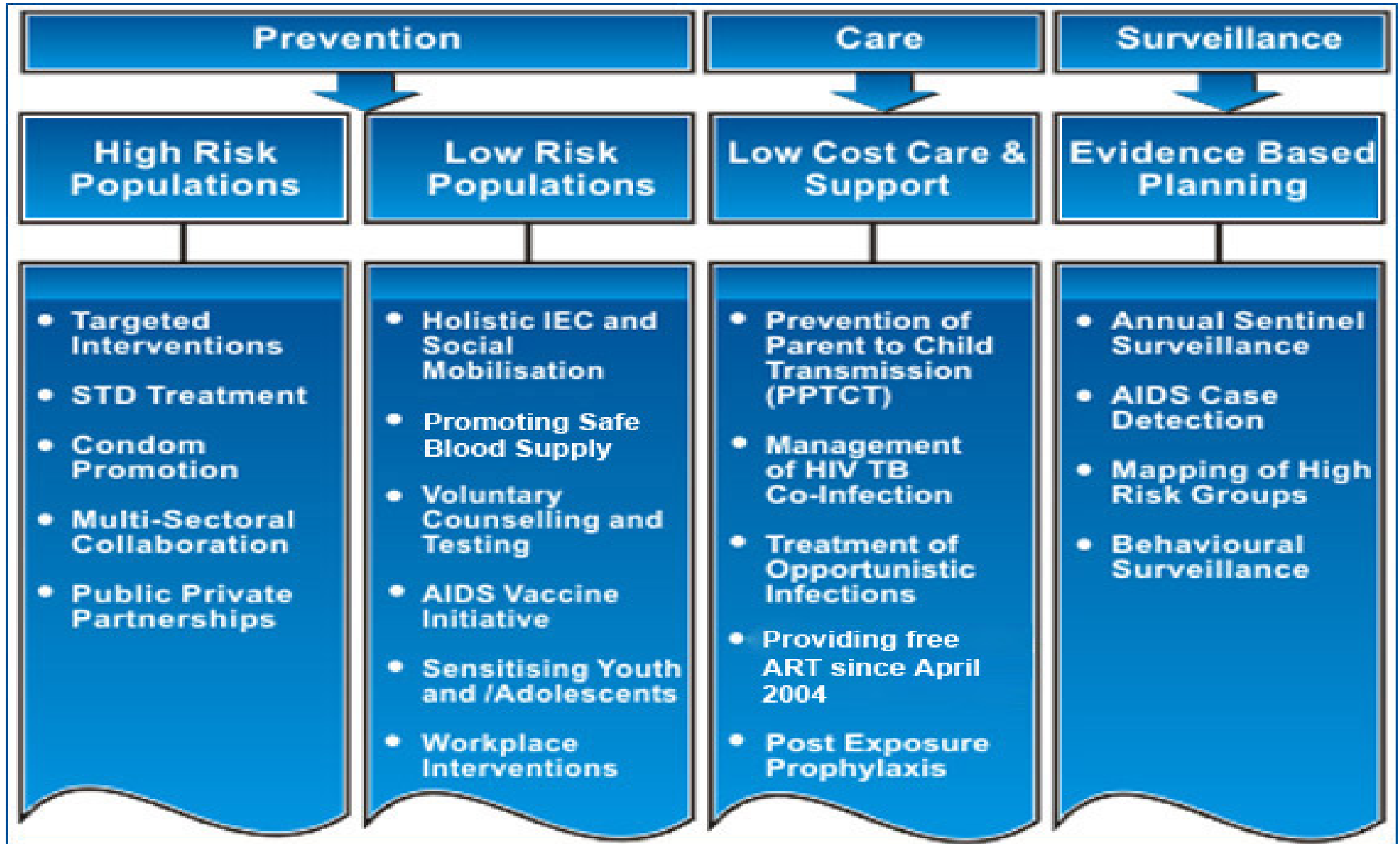
Nevirapine
Delavirdine
Efavirenz

PI

Indinavir
Saquinavir
Ritonavir
Nelfinavir

- **Post exposure prophylaxis-**
- It refers to ART started within 4 hrs following accidental exposure to viruses
- Zidovudine, lamivudine, indinavir ,saquinavir are drugs recommended by GOI.

National AIDS Control Programme



Counseling & HIV testing –

- HIV testing on voluntary basis with appropriate pre-test & post-test counseling.
- VCT is a non-coercive, confidential & cost effective approach that provides information, education & communication to motivate behavioral change in HIV – pos individual.
- VCTC will be located in blood testing centers in Microbiology Department of all Medical college & District Hospital, also at other settings depending on demand.

- **STD Control Programme-**

- HIV is easily transmitted more easily in the presence of another STD.
- Early diagnosis & t/t of STD is strategy for HIV control.
- Syndromic approach- for
 1. Urethral discharge
 2. Vaginal discharge
 3. Genital ulcer
 4. Inguinal swelling
 5. Lower abdominal pain

Norfloxacin 800 mg / ciprofloxacin 500mg
singlely
Doxycycline 100 mg BD X 10 days
Metronidazole 400 mg BD X 10 days
Candid vaginal pessary

- **Prevention of Parent To Child Transmission (PPTCT/ PMTCT) Programme –**

- The project using Nevirapine, single dose , to the mother & child has been started from 2001.
- Drug regimens will be modified & adapted based on emerging evidence of efficacy.
- Special attention would be given to drug prophylaxis linked with infant feeding , nutritional support & contraception.

- **Targeted intervention (TI) -**

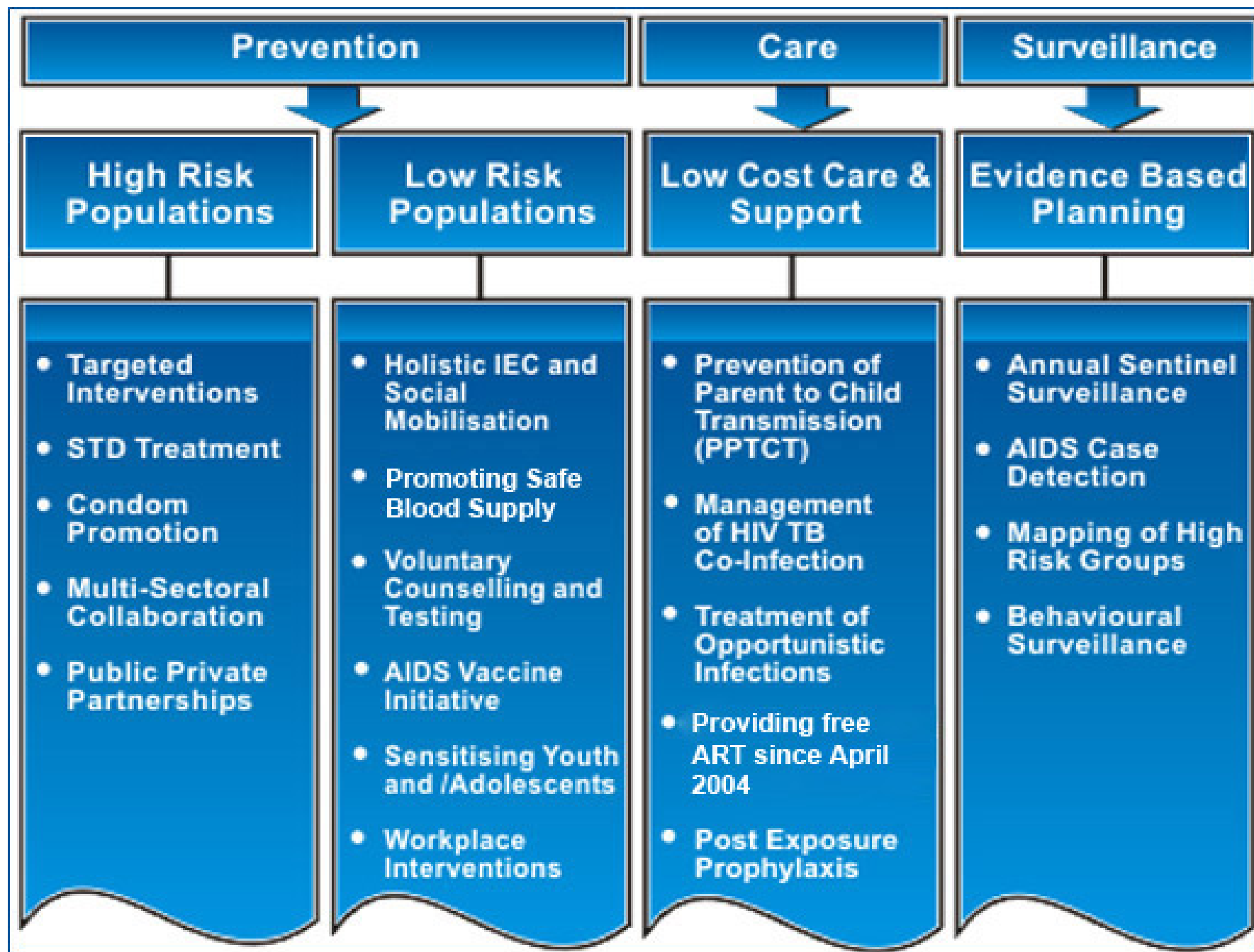
- Basic purpose is to reduce the transmission of HIV amongst the most vulnerable pop.
- It combines a comprehensive & integrated approach to vulnerable pop like- sex workers, IVDs, truckers, homosexuals, migrant labourers & street children.
- Activities- behavioral change, communication, t/t of STDs, & creating an environment that will facilitate behavioral changes.

- **HIV surveillance-**

- Objective- To identify trends of seropositivity in specific high risk grps as well as low risk groups.
- Types- HIV sentinel surveillance
 - HIV sero surveillance
 - AIDS case surveillance
 - STD surveillance
 - Behavioral surveillance
 - Integration with surveillance of other diseases like TB.

- **Condom promotion**

- Heterosexual promiscuity is major route of HIV transmission in India.
- It can be prevented by consistent use of good quality condoms.
- NACO made progress in
 - a) quality control programme.
 - b) social marketing of condoms
 - c) involvement of NGO's & private voluntary organizations in the programme.



Thank You

