HIV-AIDS

MBBS, 3rd year

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Introduction

- HIV was first Identified in 1981 in USA among homosexuals
- In 1983, French investigator named Lymphadenopathy associated virus (LAV).
- In 1984 virus was isolated by Gallo and co-workers from national institute of health in United States.

They named Human T-cell Lymphotropic virus III (HTLV-III).

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- Thailand was the first country in the SEAR to report a case of AIDS, in 1984.
- In 1986, a new strain of HIV was isolated in West African patient with AIDS which is called HIV-2.
- In May 1986, international committee on taxonomy gave a new name called Human immune deficiency virus.
- Since its identification, HIV/AIDS is devastating disease of mankind

Etiology

- Human Immuno Deficiency Virus
- Size: 1/10,000th of a millimeter in diameter.
- It is a protein capsule containing two short strands of genetic material (RNA) and enzymes.
- **Two types**: HIV-1 and HIV-2

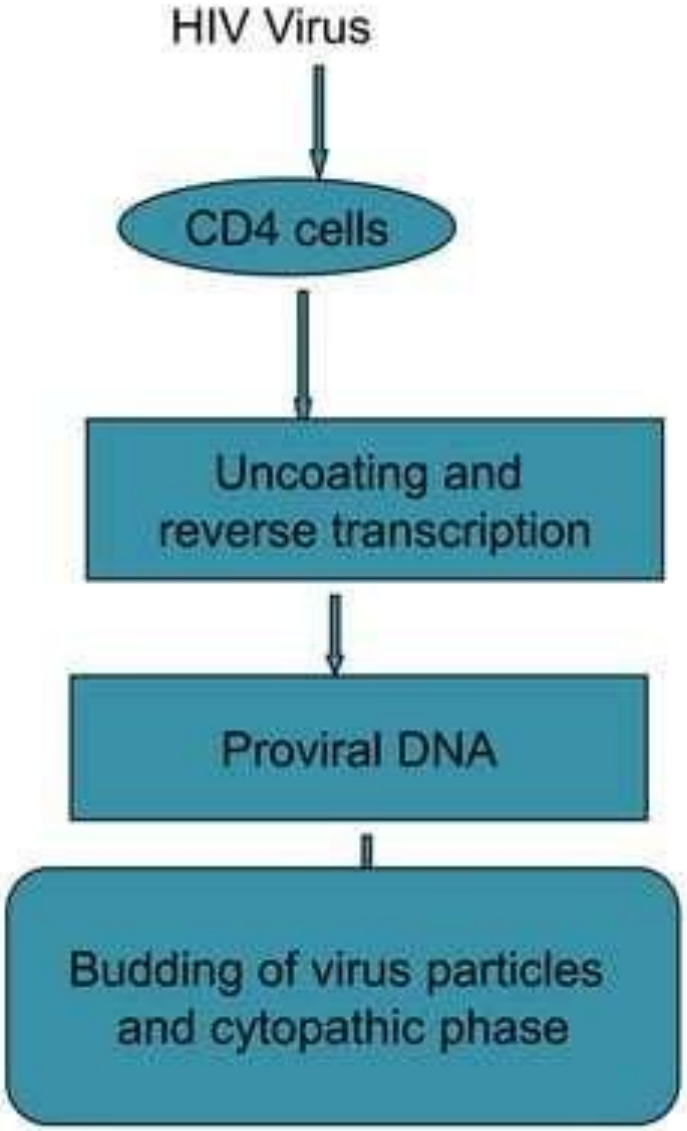
Reservoir of infection

- Cases and carriers.
- Once a person is infected, virus remains life-long
- It can be transmitted even if the person is symptoms less.

Source of infection

- Virus has been found in greatest concentration in **blood, semen and CSF**.
- Lower concentration have been detected in tears, saliva, breast milk, urine, and cervical and vaginal secretion.
- To date, only blood and semen have been conclusively shown to transmit the virus.

Pathogenesis of HIV infection



Host factors:

1. Age: Most cases have occurred among sexually active persons aged 20-49
2. Sex: In Africa: More female are affected

- In North America, Europe and Australia, about 51 per cent of cases are homosexual or bisexual men.
- In Nepal: 2:1

Risk Groups for HIV infection

- Sex workers
- IDUs
- Clients of sex workers
- Labor migrant / Transport workers
- MSM
- Partners of migrants / house wives
- Street children
- Military, police
- Health care workers

PHASES OF HIV INFECTION

1. Phase 1 (3-12 weeks)

- Acute HIV syndrome
- Sore throat
- Fever
- Skin rash
- Meningitis
- High viremia

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2. Middle chronic Phase(10-12 years)

- Competition between HIV and host immune system
- Patient asymptomatic or has mild symptoms
- Moderate viremia

3. Phase 3

- Full blown AIDS
- Severe immuno- suppression
- Drop in CD4 count below 200/µl
  (normal count: > 950 CD4 cells/µl }
- High viremia

AIDS-signs

1. Major
- Weight loss >10% body weight
- Chronic diarrhea >1 months duration
- Prolonged fever >1 month

2. Minor
- Recurrent oral-pharyngeal candidiasis
- Persistent generalized lymphadenopathy
- Persistent cough>1 month
- Recurrent herpes zoster

Diagnosis is made on the basis of presence of at least two major and one minor sign

Mode of Transmission:

HIV is transmitted:

During sexual contact

- **Unprotected sex**
  - **Anal (10 times higher risk)**
  - **Vaginal**
  - **Oral**
- **transmission from male to female is more (twice) as compared to female to male.**
- **STDs facilitate for transmission of HIV.**

HIV is transmitted:

Through infected blood

- Sharing needles
- Use of contaminated needles and syringes

HIV is transmitted:

Though infected blood / blood products

- **Transfusion of**

HIV infected blood
or
blood products

HIV is transmitted:

From mother to child

- During pregnancy
- During child birth
- Through breast feeding

Lab diagnosis

Direct tests

- ELISA (enzyme-linked-immunosorbent serologic assay)
- Recombinant DNA techniques
- Viral isolation in culture
- PCR

Indirect Tests

- CD4 counts
- Lymphopenia
- Lymphnode biopsy

Incubation period:

- Current data suggest that the incubation periods is uncertain, (from a few months to 10 years or even more)

Severity of the epidemics determined by:

1. % of adult men visiting sex workers (5% in Hong Kong, 9% in China, 20% in Thailand and Cambodia)

2. Number of sex workers' clients per night

3. % of sex workers using condoms consistently

4. % of injecting drug users who are clients of sex workers

prevention

- Raising awareness
  - To be faithful to partner
  - Use of Condom
  - IDUs should be informed not to share needle and syringes.
  - Distribution of IEC materials.
  - Advertisement from different media or channels.

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- Prevention of blood borne HIV Transmission
- People in high-risk groups should be urged to refrain from donation of blood, body organs, sperm or other tissues.
- The donors blood should be screened for HIV 1 and HIV 2 before transfusion.
- Strict sterilization techniques should be applied to the hospitals and clinics.
- Avoid injections unless they are absolutely necessary.
- Rehabilitation of HIV/AIDS cases,

- HIV/AIDS – Global and Regional scenario

- **34 million** people living with HIV.
- **26 million** are eligible for antiretroviral therapy, under WHO 2013 consolidated ARV guidelines.
- At the end of 2012, about **10 million** people had access to ARV therapy.

- HIV claimed more than 25 million lives over the past three decades.
- Sub-Saharan Africa is the most affected region, with nearly 1 in every 20 adults living with HIV.
- 69% per cent of all people living with HIV are living in this region.

WHO

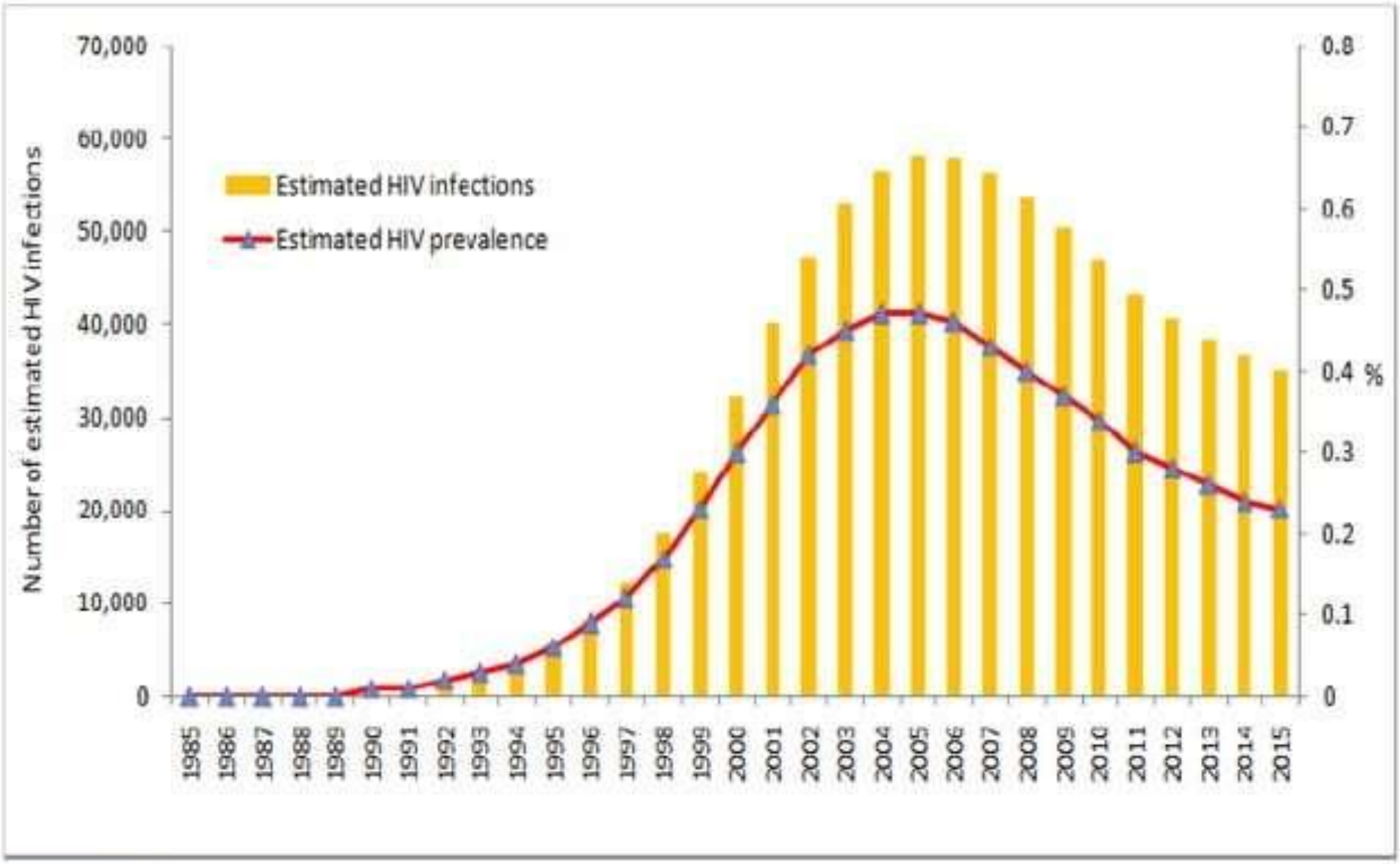
HIV situation in Nepal

- In Nepal, first case of HIV/AIDS was diagnosed in 1988.
- The prevalence of HIV/AIDS is 0.3/1000 among general population NCASC 2012).
- Nepal succeed in decreasing new HIV infections by more than 25% in last one decade: **UNAIDS report on the global AIDS epidemic.**

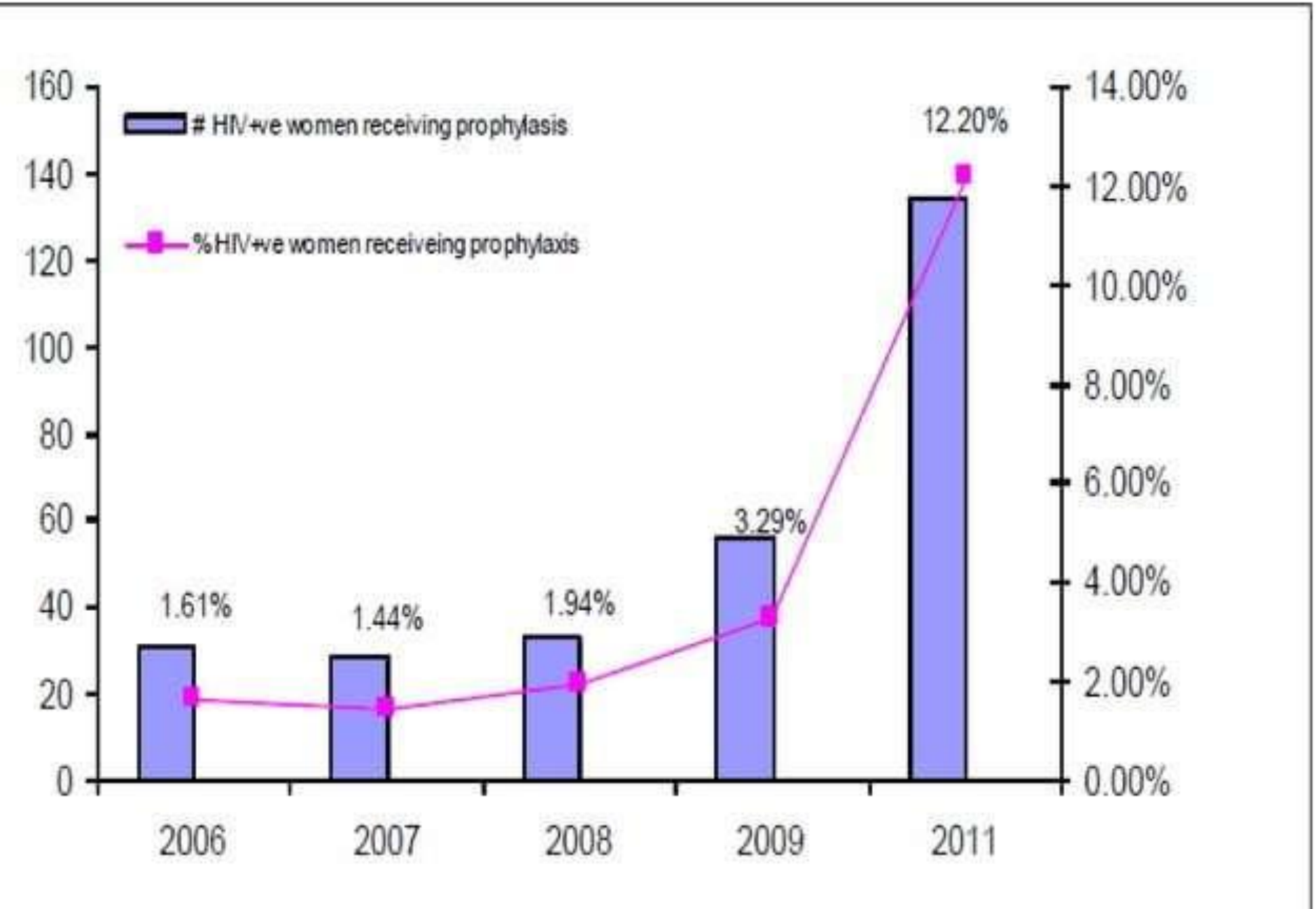
HIV cases in Nepal

HIV Cases as of 15-Dec-2012			
Male	Female	TG	Total
13,718	7,817	16	21,551

Figure 4: Declining HIV prevalence among the adult (15–49) population group in Nepal: 1985–2015 (NCASC, 2011)



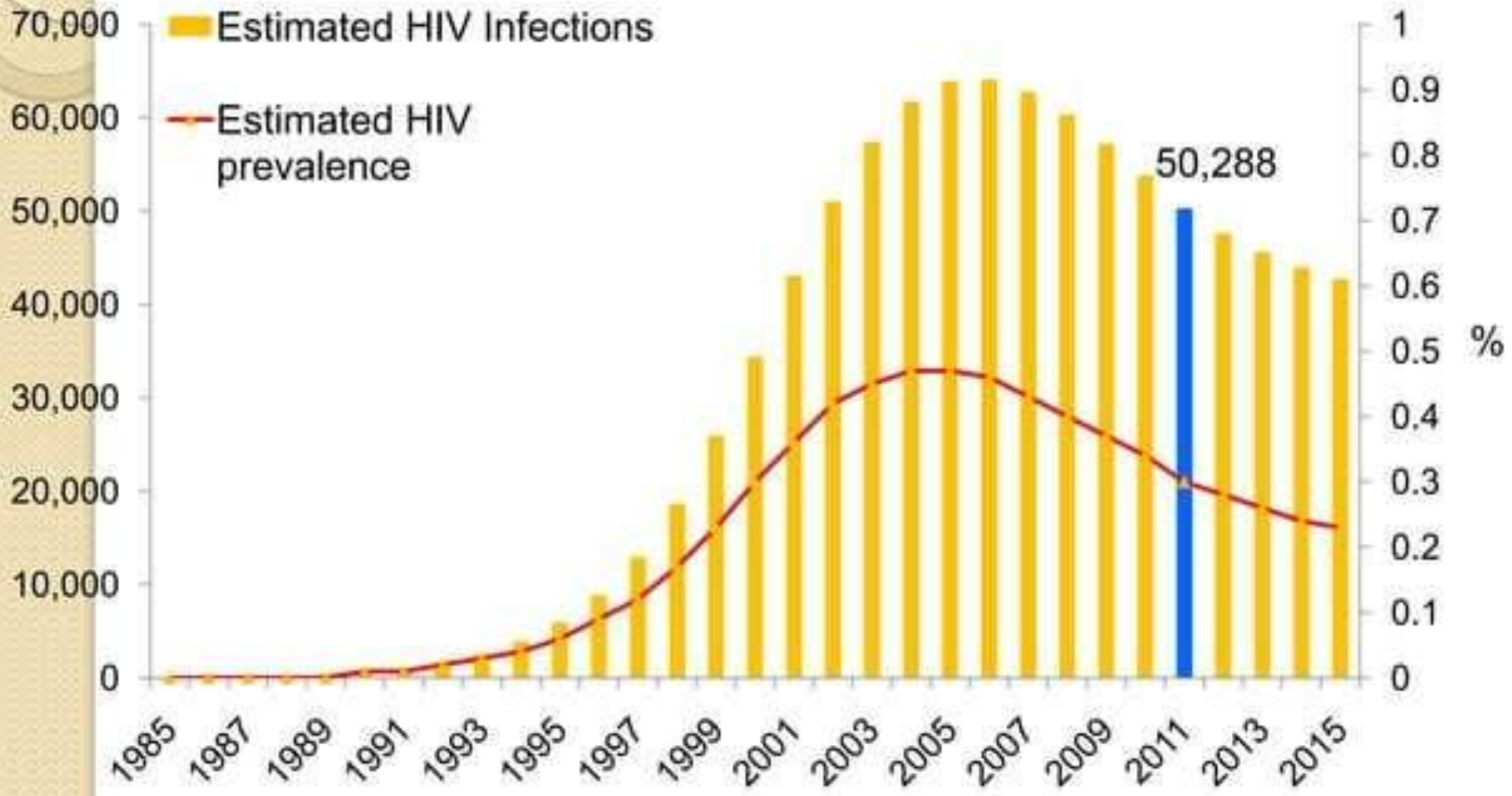
gure 7: Scaling-up of PMTCT Services in Nepal: 2006-2011



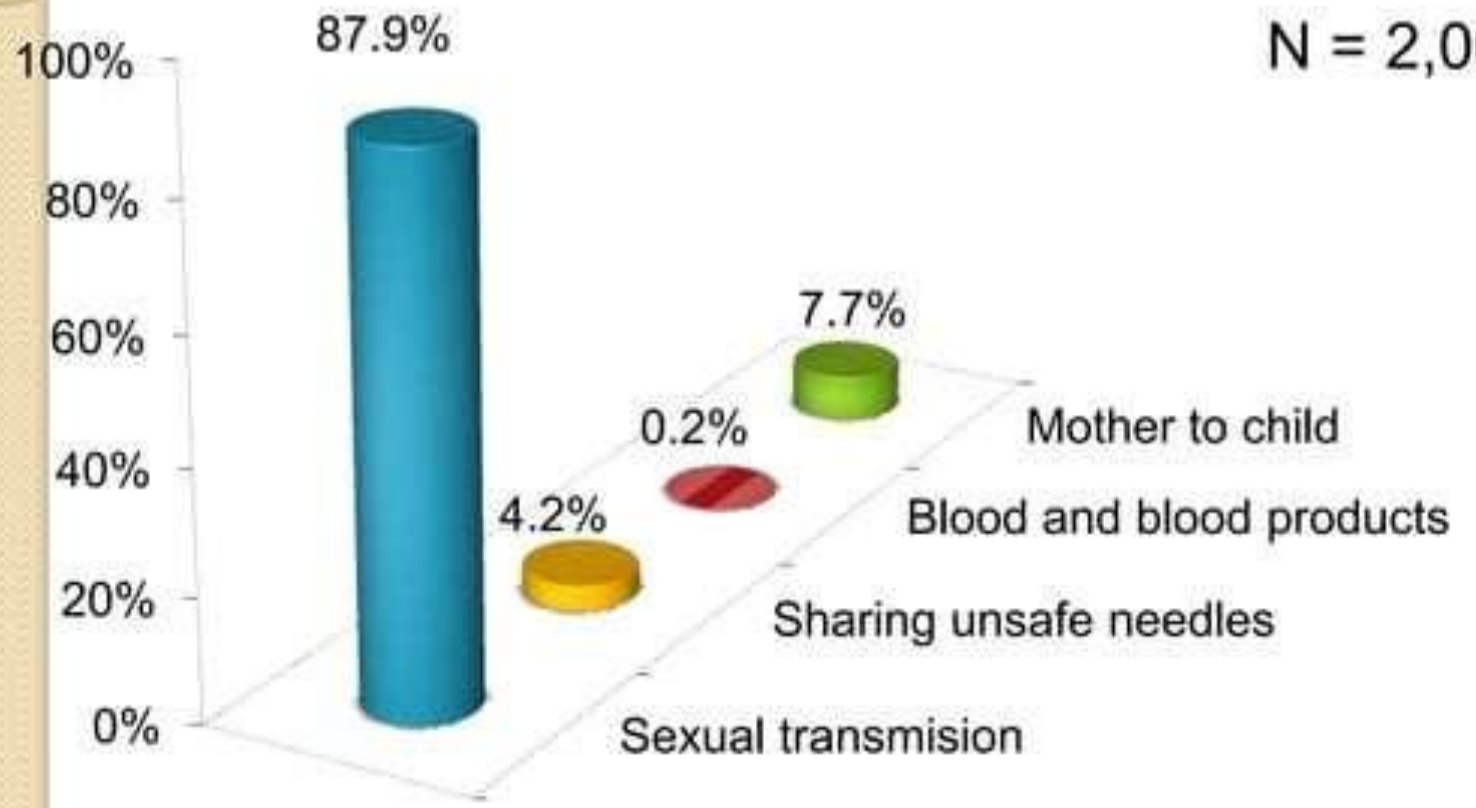
Nepal 2011 HIV Infections Estimates

Population Groups	Estimated HIV Infections (15-49 years)	Proportion (%)
People who Inject Drugs (PWIDs)	939	2.2
MSW, TG and Clients	3,099	7.2
Other MSM who do not sell and/or buy sex	6,245	14.4
Female Sex Workers (FSWs)	647	1.5
Clients of FSWs	1,915	4.4
Male Labour Migrants	11,672	27.0
Remaining Male Population	6,914	16.0
Remaining Female Population	11,808	27.3
Total	**43,239**	**100.0**

Estimated Number of HIV Infections and HIV Prevalence among Adults : 1985-2015



Routes of Transmission among Reported HIV cases, 2011



Why is Nepal vulnerable?
(Determinants of HIV/AIDS in Nepal)

- **Poverty**
- **Low education**
- **Gender inequalities**
- **Stigma and Discrimination**
- **Lack of adequate health care delivery**
- **Insurgency and insecurity**
- **Migration (Push and Pull factors)**
- **Alcoholism and drug abuse**
- **Women trafficking/child abuse**
- **Social traditions**

Plan and policy implementation

1988	Launched the first National AIDS Prevention and Control Program (short term)
1990-1992	First Medium Term Plan
1993-1997	Second Medium Term Plan
1993	National Policy on Blood safety
1995	Adopted National Policy on HIV/AIDS
1997–2001	Strategic Plan for HIV/AIDS Prevention
2002–2006	National HIV/AIDS Strategic Plan
2003-2007	National HIV/AIDS Operational Plan
2006	National HIV/AIDS Strategic Plan (2006-11)
2010	National policy on HIV and STI 2010

Vision and Goal of National policy on HIV and STI 2010

- Vision: To establish Nepal free of HIV, AIDS and STIs society

- Goal: To ensure the people's rights to health by reducing impact of HIV among people by reducing HIV incidence

Key Policy Points

- Policy making and planning
- Prevention, treatment, care and support
- Harm reduction
- Rights and confidentiality
- Rehabilitation and social integration
- Bi- and multi-lateral approach
- Structural arrangement
- Research
- Community based programme
- Financial management
- Monitoring and evaluation

Key Challenges

- HIV and AIDS " is still seen as 'health' issue not a social issue.
- Multi-sectoral partnership needs to be further strengthened
- Prevailing Stigma and Discrimination (SWs, MSM, IDUs)
- 'Not my problem!' Attitude among high level decision makers or programmers.

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- Gap in knowledge and behaviour change.
- Legal implications on IDUs.
- Access to STI, HIV and AIDS and OIs-sevices.
- Scaling up of program including ART, PMTCT.
- Community and home based care and support for infected and affected needs to be addressed.

PMTCT in Nepal

- Comprehensive PMTCT service started in Nepal from February 2005.
- Government provides free ARV drugs and testing for the babies free of cost from 18 months.
- There are 21 PMTCT sites, of which 20 sites offer Pediatric ART. There are 2 (Accham and Sunsari) districts implementing CB PMTCT programme.

Antiretroviral Treatment

1. **Nucleoside analogue**

- Introduced in 1987
- Zidovudine (AZT), didanosine ‘ddI’(*Videx*), zalcitabine ‘ddc’(*Hivid*), stavudine etc.
- These are not effective if used alone.
- These drugs slow HIV growth.
- Also prevents transmission of HIV from an infected mother to her newborn.

2. protease inhibitors

- More powerful than previous, producing dramatic decreases in HIV levels in the blood.
- This reduced viral load, in turn, enables CD4 cell levels to skyrocket.
- Ritonavir (*Norvir*), indinavir (*Crixivan*), nelfinavir (*Viracept*), amprenavir (*Agenerase*), etc.

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3. Non-nucleoside reverse transcriptase inhibitors (NNRTIs):

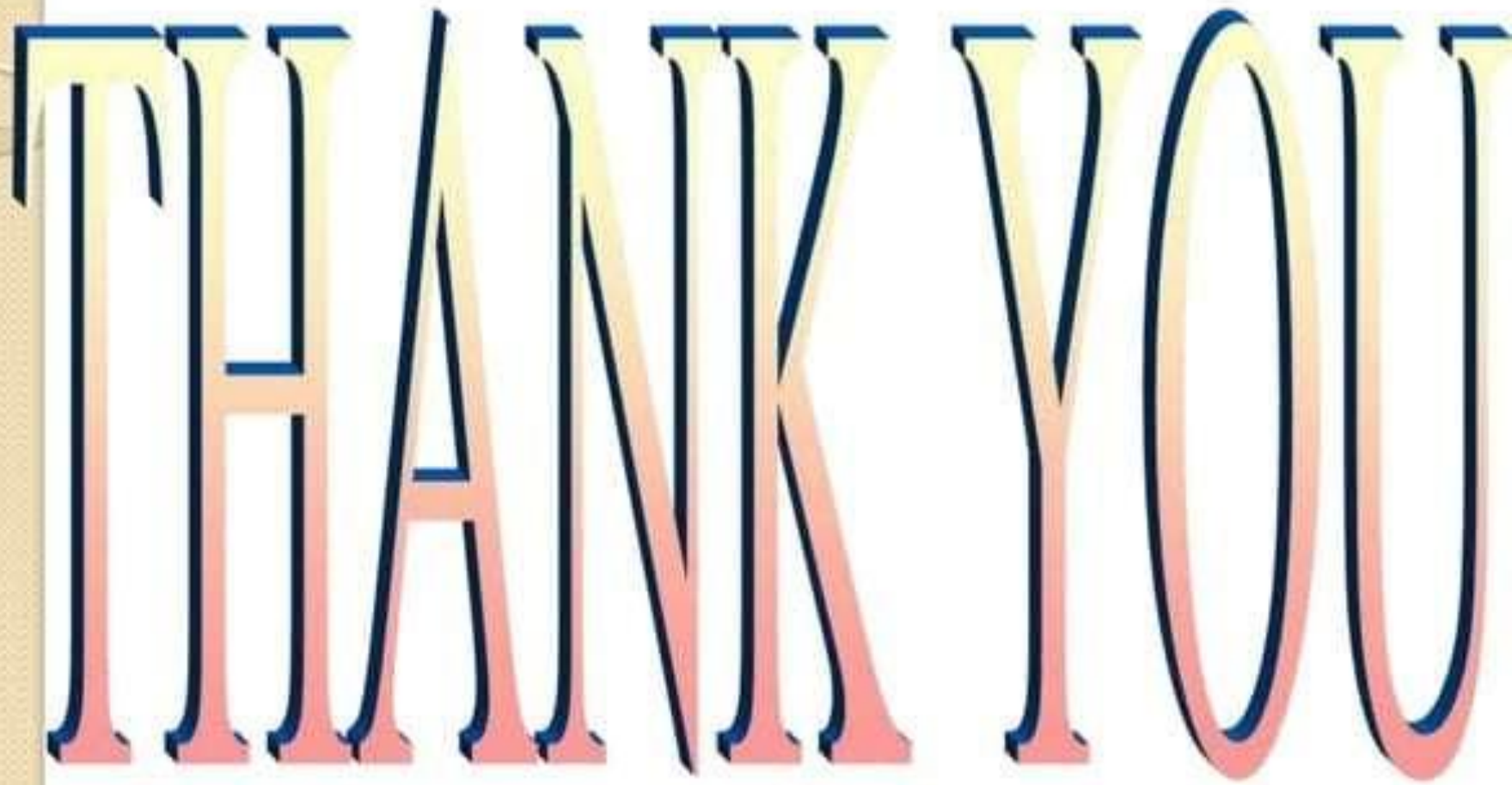
- Introduced in 1996
- Three NNRTIs are available: nevirapine (*Viramune*), delavirdine (*Rescriptor*), and efavirenz (*Sustiva*).
- These drugs bind directly to reverse transcriptase, preventing the enzyme from converting RNA to DNA.
- NNRTIs work best when used in combination with nucleoside analogues.

Atripla

- A new combined drug, introduced in July 2006.
- Combination of Sustiva (the NNRTI efavirenz) and Truvada (the NRTIs emtricitabine and tenofovir) in a special formulation.

Post exposure prophylactics treatment

- PEP should be started within hours.
- Its for accidental niddle exposure to HIV among health care workers.
- It decrease the chances of being infected by nearly 80%.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