

Introduction to Public Health

Module # 9

Re-emerging infectious diseases, HIV/AIDS, TB.

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OBJECTIVES OF THE LECTURE

By the end of this lecture you will be able to:

- *Conceptualize*
 - *HIV/AIDS, risky groups for getting HIV/AIDS*
 - *Mode of transmission & prevention*
 - *Current situation of HIV/AIDS in Bangladesh*
- *Understand the use of Anti-retroviral therapy in treating AIDS cases in Bangladesh.*

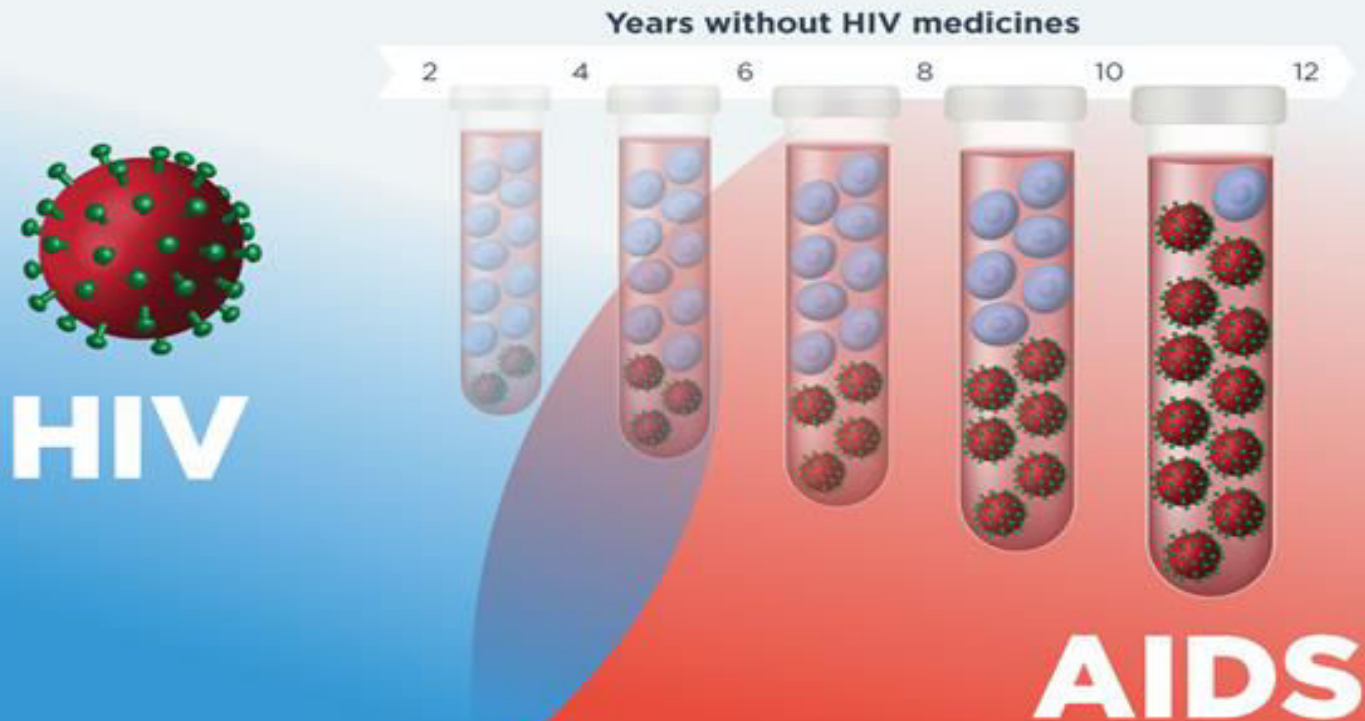
- HIV: Human Immunodeficiency Virus
 - Spread through contact with the blood, semen, pre-seminal fluid, rectal fluids, vaginal fluids, or breast milk of a person infected with HIV
- Symptoms
 - Flu-like symptoms, such as fever, headache, or rash
 - Symptoms may come and go for a month or two after infection
 - Severe symptoms: chronic diarrhea, rapid weight loss, and signs of opportunistic infections (infections and infection-related cancers that occur more frequently or are more severe in people with weakened immune systems)
- HIV transmission is possible at any stage of HIV infection—even if an HIV-infected person has no symptoms of HIV

AIDS

- AIDS: Acquired Immunodeficiency Syndrome
- Most advanced stage of HIV infection
- Time varies, may take 10 years or more
- How AIDS diagnosed:
 - CD4 count (white blood cell) < 200 cells/mm³
 - Normal CD4 count ranges 500- 1,600 cells/mm³.
AND/OR
 - The person has one or more opportunistic infections
(occur more frequently and are more severe in
individuals with weakened immune systems)

HIV & AIDS

HIV and AIDS



For more information, visit: aidsinfo.nih.gov

AIDSinfo

Some important terminologies

- **PrEP:** Pre-Exposure Prophylaxis is an HIV prevention option for people who don't have HIV but who are at high risk of becoming infected with HIV. PrEP involves taking a specific HIV medicine every day. PrEP should always be combined with other prevention options, such as condoms.
- **PEP:** Post-exposure prophylaxis involves taking antiretroviral (ARV) medicines very soon (within 3 days) after a possible exposure to HIV to prevent becoming infected with HIV.
- **ART:** antiretroviral therapy is the use of HIV medicines to treat HIV infection. ART involves taking a combination of HIV medicines every day. ART can't cure HIV infection, but it can help people infected with HIV live longer, healthier lives. HIV medicines can also reduce the risk of transmission of HIV.

Prevention of HIV

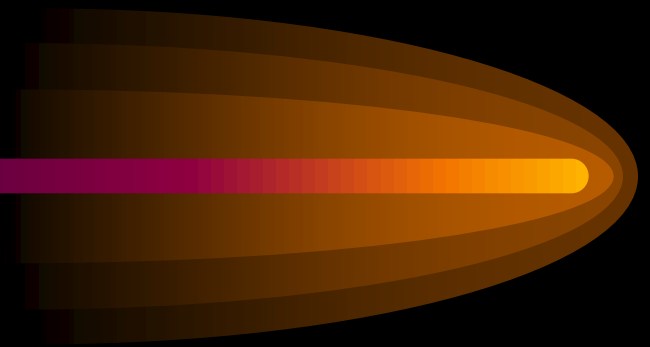
- Getting tested and know your partner's HIV status
- Having less risky sex
- Using condoms
- Limiting number of sexual partners
- Getting tested and treated for STDs
- Talking to health care provider about pre-exposure prophylaxis (PrEP)
- Not injecting drugs

HIV/AIDS in Bangladesh

- 1st case was detected in 1989
- Overall prevalence is less than 1%
- BUT high level among injecting drug users- 7% in one part of Dhaka city
- Limited access to voluntary counseling and testing services
- Extremely vulnerable on HIV epidemic due to:
 - Poverty
 - Over population
 - Gender inequality
 - Transactional sex

Risk factors

- Injecting drug users
 - 20,000-40,000 injects drugs
 - 57% borrow needles
 - 74% female injecting drug users
 - 57% injecting drug users are married
 - With an average of 2 partners
- Sex workers
 - Unprotected sex with wives and sex workers
 - Low condom use
 - Risky behavior
 - Lack of understanding about HIV is not limited to clients of sex workers



Risk factors (contd.)

- MSM
 - Largely hidden
 - Powerful stigma
 - Discrimination
 - Rarely use condoms
- Migrant workers
 - 250000 people leave each year
 - 47 out of 259 were infected migrants (icddr,b)
 - 57 out of 102 new cases were migrant (2004)


HIV and AIDS estimates in Bangladesh

- Number of people living with HIV 9600 [8400 - 11 000]
- Adults aged 15 to 49 prevalence rate <0.1% [<0.1% - <0.1%]
- Adults aged 15 and over living with HIV 9300 [8100 - 11 000]
- Women aged 15 and over living with HIV 3200 [2800 - 3600]
- Children aged 0 to 14 living with HIV <500 [<500 - <500]
- Deaths due to AIDS <1000 [<1000 - <1000]
- Orphans due to AIDS aged 0 to 17 5100 [4100 - 6200]

Tuberculosis (TB)

- Caused by bacteria
- Usually attack the lungs
- Can also attack any part of the body- kidney, spine, and brain
- Transmission
 - Through the air from one person to another
 - Coughs, sneezes, speaks, or sings
 - Nearby people may breathe in these bacteria and become infected

- Latent TB infection
 - People who are infected, but not sick
 - Do not feel sick, do not have any symptoms, and cannot spread TB to others
 - Some people with latent TB infection go on to get TB disease
- TB disease
 - Immune system can't stop TB bacteria from growing
 - The bacteria begin to multiply in the body and cause TB disease
 - The bacteria attack the body and destroy tissue . If this occurs in the lungs, the bacteria can actually create a hole in the lung

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- A decorative graphic consisting of a horizontal bar with a color gradient from dark purple to bright yellow, ending in a large, stylized, teardrop-shaped arrow pointing to the right. The bar and arrow have a slight 3D effect with shadows.
- Symptoms:
 - A bad cough that lasts 3 weeks or longer
 - Pain in the chest
 - Coughing up blood or sputum
 - Other symptoms
 - Weakness or fatigue
 - Weight loss
 - No appetite
 - Fever
 - Sweating at night

DOTS



- Directly Observed Treatment Short course (DOTS)
 - Meet with a health care worker every day or several times a week
 - Meet at a place you both agree on: TB clinic, your home or work, or any other convenient location
 - Take your medicines at this place while the health care worker watches
 - May need to take medicines only 2 or 3 times each week instead of every day

Importance of continuing medicine

- Treatment requires a multidrug regimen (a course of treatment) for at least 6 months to kill all the TB bacteria
- TB bacteria die very slowly
- Must continue to take medicines until all the TB bacteria are dead
- If don't continue taking medicines or not taking all medicines regularly, the TB bacteria will grow and will remain sick for a longer time
- The bacteria may also become resistant to the medicines (MDR)
- May need new, different medicines to kill the TB bacteria if the old medicines no longer work. These new medicines must be taken for a longer time and usually have more serious side effects

TB situation in Bangladesh

- Both a high TB and a high MDR-TB burden country in the South East Asian
- Epidemic of TB in Bangladesh estimated at 402 per 100,000 population
- 190,000 cases notified each year
- 1.4% of all new TB cases and 29% among retreatment cases are estimated to be drug resistant
- Each year around 70,000 people die of TB

Challenges in TB treatment in LMIC



- Role of the Private Sector
 - NTP does not always acknowledge the role of private sector
- Issues of Access and Community-Based Care
- Health Care Worker Shortage
- A Dangerous Duo: Poverty and Stigma

Treating Tuberculosis and HIV/AIDS Together

- Generally the priority is to initiate treatment for TB
- Depending on clinical indications, starting ART
 - after the initial phase of TB treatment is completed OR
 - after the entire course of TB treatment is completed
- If indicated, treatment for both HIV and TB can be started parallel, but careful management is needed
- When a patient with HIV-associated TB who has been started on ART and TB treatment simultaneously experiences a paradoxical worsening with exacerbation of symptoms, signs
- Paradoxical reaction occurs from
 - a reconstitution of the immune system and
 - may be accompanied by a high fever, expanding central nervous system lesions, and worsening of chest x-ray findings



- THANK YOU