

What is tuberculosis (TB)?

- Mycobacterium tuberculosis (MTB) is a type of bacterium or a “bug” that causes the disease TB
- TB is airborne and spreads when a person with active TB sneezes, coughs, talks, laughs, or sings
- Some people can be exposed to TB germs without becoming infected
- A person can be infected and not develop active disease — this is called latent TB infection (LTBI), and means the immune system can contain the infection and prevent active disease
- Active TB disease is when TB infection overwhelms the immune system and the bacteria begin multiplying and causing disease
- Symptoms of active TB disease include cough, fever, weight loss, and night sweats
- TB normally affects the lungs (pulmonary TB), but it can also affect other parts of the body (extrapulmonary TB)
- A person who has been treated for TB can be reinfected
- TB disease is preventable and curable but can be fatal if not treated properly

Drug Resistant TB

- When TB-causing bacteria replicate, some may naturally change (mutate) and become resistant to anti-TB drugs
- Treatment can kill off the non-mutated bacteria, leading to the survival of only the mutated, drug-resistant bugs
- Globally, about 480,000 people developed drug-resistant TB in 2013
- Drug-resistant TB often develops when treatment is irregular or interrupted
- People with drug-resistant TB must take second-line drugs, which may be more toxic, less effective, take longer to treat the disease, and are more expensive
- Drug-resistant TB can be transmitted from person to person and is difficult to treat

Multidrug-Resistant TB (MDR TB)

- MDR TB is resistant to at least isoniazid and rifampin, the two most potent TB drugs. These drugs are used to treat all persons with TB.
- Drug resistance is more common in people who:
 - Do not take their TB medicine regularly
 - Do not take all of their TB medicine as told by their doctor or nurse
 - Develop TB disease again, after having taken TB medicine in the past
 - Come from areas of the world where drug-resistant TB is common
 - Have spent time with someone known to have drug-resistant TB disease
- The spread of MDR TB can be prevented among household contacts with antibiotic treatment, called TB preventive therapy:
 - Take all medications exactly as prescribed by the doctor or nurse

What is HIV/AIDS?

- HIV, or human immunodeficiency virus, is the virus that causes AIDS
- HIV is primarily spread by having unprotected sex or sharing dirty needles with someone who is infected
- HIV attacks the immune system by destroying CD4 positive (CD4+) T cells, a type of white blood cell vital to fighting off infection
- Not all HIV infected people develop AIDS
- AIDS is diagnosed when someone has one or more opportunistic infections, such as pneumocystis pneumonia or active TB, or a very low number of CD4+ T cells (less than 200 cells per cubic millimeter of blood)
- HIV can be prevented through HIV testing, which is the only way to confirm HIV status; consistent and correct use of condoms; safer sex; testing and treatment for other sexually transmitted diseases; and biomedical options such as pre-exposure prophylaxis (PrEP)
- There is no cure for AIDS, but with treatment (antiretroviral therapy or ART) the virus can be controlled and decrease the risk of transmission; all people with HIV should consider ART

Global HIV Statistics

- In 2016, 36.7 million people globally were living with HIV
- 1.8 million people became newly infected in 2016
- 1 million people died in 2016 from AIDS-related causes
- As of June 2017, 20.9 million people were accessing ART

Global TB Statistics

- In 2016, 1/3 of people globally are infected with TB and have LTBI (2 billion people)
- There were 10.4 million new cases of active TB disease in 2015
- 6–15% of new cases of active TB occurred in children
- 1.7 million TB deaths were reported in 2016

TB and HIV

- Globally, TB is the leading cause of death in people with HIV
- 13% (1.1 million) of those who developed TB were also living with HIV
- TB accounts for about 1 out of 4 HIV-related deaths
- HIV infected people who have latent TB infection have a 1 in 10 chance of developing active TB disease *each year* compared to uninfected people with latent TB who have a 1 in 10 chance *over their lifetime*
- TB is more difficult to diagnose in people living with HIV; their sputum samples may not show infection (no MTB)
- People living with HIV are more likely to have TB outside of the lungs
- People with HIV and latent TB infection can take medicine to prevent progression to active TB disease
- Starting ART therapy early can prevent progression to active TB disease in people with HIV and LTBI Starting ART therapy early can prevent progression to active TB disease in people with HIV and LTBI
- Some TB drugs cannot be taken with HIV medications