

Tuberculosis

Disease Definition: Tuberculosis, commonly referred to as TB, is a disease caused by a bacteria (*Mycobacterium tuberculosis*) spread through the air from person to person.

Disease Life Cycle: (World Health Organization)

TB often affects the lungs. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected.

- 1) About one-third of the world's population has latent TB, which means people have been infected by TB bacteria but are not (yet) ill with disease and cannot transmit the disease.
- 2) People infected with TB bacteria have a lifetime risk of falling ill with TB of 10%. However persons with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a much higher risk of falling ill.
- 3) When a person develops active TB (disease), the symptoms (cough, fever, night sweats, weight loss etc.) may be mild for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People ill with TB can infect up to 10-15 other people through close contact over the course of a year. Without proper treatment up to two thirds of people ill with TB will die.

Affected Groups: (World Health Organization)

- Tuberculosis mostly affects young adults, in their most productive years. However, all age groups are at risk. Over 95% of cases and deaths are in developing countries.
- People who are co-infected with HIV and TB are 21 to 34 times more likely to become sick with TB (see TB and HIV section). Risk of active TB is also greater in persons suffering from other conditions that impair the immune system.
- Of all TB cases in the world, 85 percent occur in 22 countries. Of these 22 countries, 9 are in sub-Saharan Africa and over 1.5 million cases of TB occur in Africa each year. (Global Health Org).
- Some countries are experiencing a major decline in cases, while cases are dropping very slowly in others.

Available Treatment/Prevention:

- TB is a treatable and curable disease.
- Active, drug-sensitive TB disease is treated with a standard six-month course of four antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer. (WHO)
- There are 10 drugs currently approved by the U.S. Food and Drug Administration (FDA) for treating TB. (CDC)
- Four regimens are approved for the treatment of latent TB infection. (CDC)
- Without such supervision and support, treatment adherence can be difficult and the disease can spread. (WHO)
- The vast majority of TB cases can be cured when medicines are provided and taken properly. (WHO)

Patient Inequalities:

- Over 95% of cases and deaths are in developing countries. (WHO)
- People who are co-infected with HIV and TB are 21 to 34 times more likely to become sick with TB. Risk of active TB is also greater in persons suffering from other conditions that impair the immune system.
- About half a million children (0-14 years) fell ill with TB, and 64 000 children died from the disease in 2011. (WHO)

- Tuberculosis is known to disproportionately affect the most economically disadvantaged strata of society. (BMC Public Health)

Key Inputs Needed:

- There are two kinds of tests that are used to detect TB bacteria in the body: the TB skin test (TST) and TB blood tests. A health care provider or the local health department can give these tests. (CDC)
- If you have a positive reaction to either of the tests, you will be given other tests to see if you have latent TB infection or TB disease. (CDC)
- Components of the Stop TB Strategy (World Health Organization)
 1. Pursue high-quality DOTS expansion and enhancement
 2. Address TB-HIV, MDR-TB, and the needs of poor and vulnerable populations
 3. Contribute to health system strengthening based on primary health care
 4. Engage all care providers
 - Involve all public, voluntary, corporate and private providers through Public-Private Mix (PPM) approaches
 - Promote use of the International Standards for Tuberculosis Care (ISTC)
 5. Empower people with TB, and communities through partnership
 - Pursue advocacy, communication and social mobilization
 - Foster community participation in TB care, prevention and health promotion
 - Promote use of the Patients' Charter for Tuberculosis Care
 6. Enable and promote research

Conclusion:

Tuberculosis is a treatable and curable disease. The issue when dealing with TB lies within providing education, prevention, and treatment within developing nations. In 2011, 8.7 million people fell ill with TB and 1.4 million died from TB. Over 95% of TB deaths occur in low- and middle-income countries, and it is among the top three causes of death for women aged 15 to 44. The estimated number of people falling ill with tuberculosis each year is declining, although very slowly, which means that the world is on track to achieve the Millennium Development Goal to reverse the spread of TB by 2015. The TB death rate dropped 41% between 1990 and 2011. (WHO)

There are critical funding gaps for TB care and control. Between 2013 and 2015 up to US\$ 8 billion per year is needed in low- and middle-income countries, with a funding gap of up to US\$ 3 billion per year. International donor funding is especially critical to sustain recent gains and make further progress in 35 low-income countries (25 in Africa), where donors provide more than 60% of current funding. There are also critical funding gaps for research and development. US\$ 2 billion per year is needed; the funding gap was US\$ 1.4 billion in 2010. (WHO 2012)

There has been major progress in preventing deaths of TB in the past two decades. The global burden is still way too high and currently, there is no vaccine for adults. National contributions provide the bulk of financing for TB care and control in Brazil, the Russian Federation, India, China and South Africa (BRICS). However, they remain insufficient for scaling up the diagnosis and treatment of MDR-TB; BRICS account for about 60% of the world's estimated cases of MDR-TB. The Global Fund provides almost 90% of international donor funding for TB. We have made strides, but the continued success will be dependent on the continuation of global funding, development of adult vaccine, and education.

References:

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<http://www.cdc.gov/tb/topic/basics/default.htm>
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