

“Tuberculosis (TB) world's biggest killer among infectious diseases.”



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Tuberculosis (TB) remains the top infectious killer, ranking above HIV/AIDS, with 10.0 million cases and 1.4 million deaths. Tuberculosis [TB] has been a major cause of suffering and death since times immemorial. Thought to be one of the oldest human diseases, the history of TB is at least as old as the mankind. Over the years, not only the medical implications but also the social and economic impact of TB has been enormous. TB is multi system infectious disease caused by Mycobacterium Tuberculosis. About one-quarter of the world's population has a TB infection, which means people have been infected by TB bacteria but are not (yet) ill with the disease and cannot transmit it. People infected with TB bacteria have a 5–10% lifetime risk of falling ill with TB. Those with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, alcohol have a higher risk of falling ill.

Transmission of TB

Tuberculosis (TB) is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs. Tuberculosis is curable and preventable. TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB bacilli into the air. A person needs to inhale only a few of these bacilli to become infected. About one-quarter of the world's population has a TB infection, which means people have been infected by TB bacteria but are not (yet) ill with the disease and cannot transmit it.

When a person develops active TB disease, the symptoms (such as cough, fever, night sweats, or weight loss) may be mild for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People with active TB can infect 5–15 other people through close contact over the course of a year. Without proper treatment, 45% of HIV-negative people with TB on average and nearly all HIV-positive people with TB will die.

TB is NOT spread by shaking someone's hand, sharing food or drink, touching bed linens or toilet seats sharing toothbrushes, Kissing. When a person breathes in TB bacteria, the bacteria can settle in the lungs and begin to grow. From there, they can move through the blood to other parts of the body, such as the kidney, spine, and brain.

Risk Factors

Tuberculosis mostly affects adults in their most productive years. However, all age groups are at risk. People who are infected with HIV are 18 times more likely to develop active TB. The risk of active TB is also greater in persons suffering from other conditions that impair the immune system. People with under nutrition are 3 times more at risk. Globally in 2020, there were 1.9 million new TB cases that were attributable to under nutrition. Alcohol use disorder and tobacco smoking increase the risk of TB disease by a factor of 3.3 and 1.6, respectively. In 2020, 0.74 million new TB cases worldwide were attributable to alcohol use disorder and 0.73 million were attributable to smoking.

A total of 1.5 million people died from TB in 2020 (including 214 000 people with HIV). Worldwide, TB is the 13th leading cause of death and the second leading infectious killer after COVID-19 (above

HIV/AIDS). In 2020, an estimated 10 million people fell ill with tuberculosis (TB) worldwide. 5.6 million men, 3.3 million women and 1.1 million children. TB is present in all countries and age groups. But TB is curable and preventable.

Socio economic consequences.

TB primarily affects people in their productive age group; with important socio-economic consequences for the household. Almost 70% of TB patients are aged between 15 and 54 years. The disease is more common amongst the poorest and the marginalized sections of the community. Whilst two-thirds of cases are male, TB takes a disproportionately larger toll among young females, with more than 50% of cases occurring amongst females less than 34 years of age.

In addition, there is a devastating social cost with an estimate of more than 300,000 children forced to leave school because their parents have TB, and more than 100,000 women with TB rejected by their families. Previous studies suggest that on an average, 3-4 months of work-time is lost as a result of TB, resulting in an average potential loss of 20-30% of the annual household income. This leads to increased debt burden, particularly for the poor and marginalized sections (tribal, migrant and urban slums) of the population.

Pediatric TB

Children in the first five years of their life are likely to suffer from serious and fatal forms of TB, more so, if not vaccinated with BCG. Globally, it is estimated that about 10 lakh children become ill with TB every year, 52% under 5 years of age and 2,33,000 deaths occur annually due to TB among children. It is estimated that 67 million children are infected with TB and therefore at risk of developing disease in the future. Moreover, 25,000 children develop multi-drug resistant TB every year globally. Estimated 2.2 lakh children are affected with TB in India each year. Reliable data on the incidence and prevalence of the disease is not available due to the difficulties in diagnosis of pediatric TB under field conditions. Child and adolescent TB is often overlooked by health providers and can be difficult to diagnose and treat.

Multidrug-resistant TB (MDR-TB) remains a public health crisis and a health security threat. Only about one in three people with drug resistant TB accessed treatment in 2020. Globally, TB incidence is falling at about 2% per year and between 2015 and 2020 the cumulative reduction was 11%. This was over half way to the End TB Strategy milestone of 20% reduction between 2015 and 2020. An estimated 66 million lives were saved through TB diagnosis and treatment between 2000 and 2020.

Diagnosis:

Symptoms - Evening rise of temp (mild fever), Cough > 2wks initially dry & later productive, Loss of Appetite, Night sweat, Weight lost, Weakness (easy fatigue), Hemoptysis, Severe perspiration mostly in night, Past H/o of TB,

Microbiology-Lab Inv. Sputum (Genxpert., L.P.A., M.G.I.T., Smear),

Radiology (CXR., CT.),

Histopathology. Inaccurate Diagnosis is one of main challenge in TB control for 2 reason Outdated Techniques & Misuse of Tests (Serological test). This leads to delay in diagnosis, incorrect treatment & increased infection

WHO recommends the use of rapid molecular diagnostic tests as the initial diagnostic test in all persons with signs and symptoms of TB. They have high diagnostic accuracy and will lead to major improvements in the early detection of TB and drug-resistant TB. Rapid tests recommended by WHO are the Xpert MTB/RIF Ultra and Truenat assays.