Tuberculosis

Key facts

- Tuberculosis (TB) is second only to HIV/AIDS as the greatest killer worldwide due to a single infectious agent.
- 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.
- In 2010, there were about 10 million orphan children as a result of TB deaths among parents.
- TB is a leading killer of people living with HIV causing one quarter of all deaths.
- Multi-drug resistant TB (MDR-TB) is present in virtually all countries surveyed.
- 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.

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 germs into the air. A person needs to inhale only a few of these germs to become infected.

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.

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.

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.

Who is most at risk?

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.

About half a million children (0-14 years) fell ill with TB, and 64 000 children died from the disease in 2011. Tobacco use greatly increases the risk of TB disease and death. More than 20% of TB cases worldwide are attributable to smoking.

Global impact of TB

TB occurs in every part of the world. In 2011, the largest number of new TB cases occurred in Asia, accounting for 60% of new cases globally. However, Sub-Saharan Africa carried the greatest proportion of new cases per population with over 260 cases per 100 000 population in 2011.

In 2011, about 80% of reported TB cases occurred in 22 countries. Some countries are experiencing a major decline in cases, while cases are dropping very slowly in others. Brazil and China for example, are among the 22 countries that showed a sustained decline in TB cases over the past 20 years. In the last decade, the TB prevalence in Cambodia fell by almost 45%.

Symptoms and diagnosis

Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

Many countries still rely on a long-used method called sputum smear microscopy to diagnose TB. Trained laboratory technicians look at sputum samples under a microscope to see if TB bacteria are present. With three such tests, diagnosis can be made within a day, but this test does not detect numerous cases of less infectious forms of TB.

Diagnosing MDR-TB (see Multidrug-resistant TB section below) and HIV-associated TB can be more complex. A new two-hour test that has proven highly effective in diagnosing TB and the presence of drug resistance is now being rolled-out in many countries.

Tuberculosis is particularly difficult to diagnose in children.

Treatment

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. Without such supervision and support, treatment adherence can be difficult and the disease can spread. The vast majority of TB cases can be cured when medicines are provided and taken properly.

Since 1995, over 51 million people have been successfully treated and an estimated 20 million lives saved through use of DOTS and the Stop TB Strategy recommended by WHO and described below.

TB and HIV

At least one-third of the 34 million people living with HIV worldwide are infected with TB bacteria, although not yet ill with active TB. People living with HIV and infected with TB are 21 to 34 times more likely to develop active TB disease than people without HIV.

HIV and TB form a lethal combination, each speeding the other's progress. Someone who is infected with HIV and TB is much more likely to become sick with active TB. In 2011 about 430 000 people died of HIV-associated TB. Almost 25% of deaths among people with HIV

are due to TB. In 2011 there were an estimated 1.1 million new cases of HIV-positive new TB cases, 79% of whom were living in Africa.

As noted below, WHO recommends a 12-component approach to integrated TB-HIV services, including actions for prevention and treatment of infection and disease, to reduce deaths. Through the implementation of this approach, an estimated 1.3 million lives were saved globally between 2005 and 2011.

Multidrug-resistant TB

Standard anti-TB drugs have been used for decades, and resistance to the medicines is growing. Disease strains that are resistant to a single anti-TB drug have been documented in every country surveyed.

Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to, at least, isoniazid and rifampicin, the two most powerful, first-line (or standard) anti-TB drugs.

The primary cause of MDR-TB is inappropriate treatment. Inappropriate or incorrect use of anti-TB drugs, or use of poor quality medicines, can all cause drug resistance.

Disease caused by resistant bacteria fails to respond to conventional, first-line treatment. MDR-TB is treatable and curable by using second-line drugs. However second-line treatment options are limited and recommended medicines are not always available. The extensive chemotherapy required (up to two years of treatment) is more costly and can produce severe adverse drug reactions in patients.

In some cases more severe drug resistance can develop. Extensively drug-resistant TB, XDR-TB, is a form of multi-drug resistant tuberculosis that responds to even fewer available medicines, including the most effective second-line anti-TB drugs.

There were about 310 000 cases of MDR-TB among notified TB patients with pulmonary TB in the world in 2011. Almost 60% of these cases were in India, China and the Russian Federation. It is estimated that about 9% of MDR-TB cases had XDR-TB.

Adapted from : WHO