

## Understanding Tuberculosis

### What is TB?

Tuberculosis (TB) is an infectious disease caused by bacteria that often attacks the lungs. Over 2 billion people are currently infected with TB bacteria, equaling one-third of the world's population. In 2012 TB killed 1.3 million people,<sup>1</sup> but TB has claimed victims throughout much of known human history.

### How is it spread?

The disease is spread from person to person through the air when an infected person coughs, sneezes, or talks.

### What happens when you get infected?

Not everyone who is exposed to TB will get sick, as most healthy people are able to fight off the bacteria. This **latent TB** cannot be spread from person to person. When infected individuals are unable to fight the bacteria, they multiply in the body and cause the person to become sick with **active TB**.

People with latent TB have a 10% chance of developing active TB in their lifetime. However, people with compromised immune systems – such as people who are undernourished, have diabetes, or are living with HIV – have a much higher risk of developing active TB.<sup>1</sup>

TB usually attacks the lungs, which is called **pulmonary TB**, but the bacteria can also affect other parts of the body including the brain, kidneys, or spine, which is called **extra pulmonary TB**.

### What are signs & symptoms? (Sidebar)

The most common signs and symptoms of active TB are:

- Coughing for 3 weeks or longer (pulmonary TB only)
- Unexplained weight loss
- Night sweats
- Fever
- Fatigue

### How do you get diagnosed?

A **skin test** can detect latent TB. A small amount of fluid is injected under the skin of the forearm and is examined 48-72 hours later to determine the result. A positive TB test will show a painless raised and red bump.<sup>2</sup>

There are multiple ways to test for active TB of the lungs, but the most common is called **microscopy**, where a person coughs up mucus which is then examined under a microscope to identify the presence of TB bacteria. Although the mucus could be collected anywhere, the test itself must be completed in a laboratory and can be time consuming. Additionally, this method

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<sup>1</sup> <http://www.who.int/mediacentre/factsheets/fs104/en/>

<sup>2</sup> <http://www.lung.org/lung-disease/tuberculosis/symptoms-diagnosis.html>

is more than 130 years old and fails to detect the disease in many women, children, and people living with HIV/AIDS. A **chest x-ray** may therefore be required for accurate diagnosis.

Another way to diagnose TB of the lungs is through **GeneXpert**, a new test that uses DNA technology to detect TB in a person's mucus sample. This test, which was endorsed by the World Health Organization in 2010, delivers results in less than two hours and is more successful in detecting TB among women, children, and people living with HIV/AIDS. Additionally, GeneXpert can identify possible cases of drug-resistant TB, enabling treatment to be tailored to fight infection properly.<sup>3</sup>

A variety of tests are used to diagnose TB in other areas of the body including biopsies, x-rays, and CT scans.

### **Is TB curable?**

TB is treatable and curable. People with latent TB are typically given an antibiotic called **Isoniazid** to prevent them from developing active disease.

People with active TB are treated using a combination of antibiotics, usually for 6 months. After beginning their antibiotics, most people tend to feel better within a few weeks. In some cases, people do not respond to treatment because they have a strain of TB that is resistant to the antibiotics they were given. When TB is resistant to two or more of the most powerful anti-TB drugs, it is considered **multi drug-resistant** (MDR) TB. When TB is resistant to four or more of the most powerful anti-TB drugs, it is considered **extensively drug-resistant** (XDR) TB.<sup>4</sup> Drug resistance develops when people fail to complete treatment. Once a drug-resistant strain has developed, it can be transmitted directly to others just like active TB.<sup>5</sup>

### **How do you prevent TB?**

- **BCG Vaccine:** is typically given to small children in countries where TB is common<sup>6</sup>. The vaccine, however, can wear off over time and does not protect against TB of the lungs, which is the most common form of TB.
- **Intensified case finding:** is the process of screening for TB among all people living with HIV/AIDS, their household contacts, and those at high risk of HIV.
- **Isoniazid preventative therapy:** is an antibiotic that should be given to people living with HIV/AIDS to prevent active TB from developing.
- **Infection control:** are measures that can be as simple as opening windows to improve ventilation, and using masks for personal protection to prevent the spread of TB.
- **Early initiation of ART for people living with HIV/AIDS:** is recommended for all HIV-positive individuals to reduce the risk of transmission and to control disease

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<sup>3</sup> [http://who.int/tb/publications/Xpert\\_factsheet.pdf?ua=1](http://who.int/tb/publications/Xpert_factsheet.pdf?ua=1)

<sup>4</sup> <http://www.who.int/tb/challenges/xdr/faqs/en/>

<sup>5</sup> <http://www.tballiance.org/why/mdr-xdr.php>

<sup>6</sup> <http://www.cdc.gov/tb/publications/factsheets/prevention/bcg.htm>

progression. It is recommended that all HIV-infected TB patients should be started on ART regardless of their CD<sub>4</sub> count.

Incidence map:

[http://gamapserver.who.int/mapLibrary/Files/Maps/Global\\_TB\\_incidence\\_2011.png](http://gamapserver.who.int/mapLibrary/Files/Maps/Global_TB_incidence_2011.png)