

Frequently asked questions about Tuberculosis and HIV

What is tuberculosis (TB)?

Tuberculosis is a bacterial disease caused by *Mycobacterium tuberculosis*. TB disease usually attacks the lungs, however it can also affect almost any part of the body.

One third of the world's population is infected with *Mycobacterium tuberculosis* but very few of these people actually develop tuberculosis disease. Tuberculous infection occurs when a person breathes in the tubercle bacilli and it lives dormant in the lung. People with tuberculous infection do not usually feel ill as a result of their infection—and such cases are known as silent or latent infections. When TB infection becomes active, usually as a result of something that weakens the body's immune system, such as malnutrition, HIV or excessive alcohol consumption, the symptoms can be a cough that lasts for more than two or three weeks, weight loss, loss of appetite, fever, night sweats and coughing up blood. *Mycobacterium tuberculosis* is also known as tubercle bacilli (because they cause lesions called tubercles).

How is TB spread?

TB is spread from an infectious person who is coughing, to another person through the air. Like the common cold, TB is spread through aerosolized droplets after infected people cough, sneeze or even speak. People nearby, if exposed long enough, may breathe in bacteria in the droplets and become infected. People with TB disease of the lungs are most likely to spread bacteria to those with whom they spend time every day—including family members, friends and colleagues.

After a person with a healthy immune system breathes in TB bacteria, he or she will have 10% lifetime chance of developing TB (compared to a person living with HIV who has a 10% chance of developing TB each year). If a person's immune system is compromised or becomes compromised, however, the bacteria will begin to multiply. From the lungs, bacteria can move through the blood to other parts of the body, such as the kidney, spine and brain.

Is TB treatable?

Yes. TB can be cured, including in people living with HIV. The treatment uses a combination of powerful antibiotics over a long period (at least six months) to attack the bacteria and ensure their eradication. It is important that people who have the disease are identified at the earliest possible stage, so that they can receive proper treatment, contacts can be traced for investigation of TB, and measures can be taken to minimize the risk to others. It is very important that the complete course of all prescribed medicines is completed otherwise there is a risk that the TB bacteria become resistant to the drugs.

Some strains of TB bacteria have now acquired resistance to one or more of the antibiotics commonly used to treat them; these are known as drug-resistant strains. Treatment for these infections is much longer and much more expensive.

What can be done to combat the spread of TB?

The most important way to control TB is to find all cases of active TB disease and make sure that these are treated properly. Five basic elements are needed: political commitment to increased and sustained TB control; access to high quality laboratory testing for TB; easy access to standard TB treatment, with support to patients to stay on their treatment; an uninterrupted supply of drugs; and standardized recording and reporting systems that allow monitoring of treatment of all patients. These are the basic elements of the DOTS strategy for TB control, which form the basis of the Stop TB strategy <http://www.who.int/tb/strategy/en/>. The Stop TB strategy includes the five components of DOTS and has been expanded to focus on a number of additional needs: addressing the interaction between TB and HIV, drug resistant TB, and other challenges; contributing to health systems' strengthening; engaging all care providers; empowering people with tuberculosis and communities; and enabling and promoting research.

How much of a threat is TB?

About a third of the world's population, 2 billion people, carries the TB bacteria, but most never develops the active disease. Every year 8–10 million people develop the disease and 2 million die from it. Around 10% of people infected with TB actually develop the disease in their lifetimes, but this proportion is changing as HIV severely weakens the human immune system and makes people much more vulnerable (about 10% develop TB each year).

What is the status of TB transmission in the world?

Despite the above bleak statistics, until recently, TB prevalence and mortality rates were decreasing almost everywhere. Estimates of TB infection rates continue to decline in everywhere, except Africa, where they are rising steadily. This is explained by the insufficient capacity of health systems to deal with the detection and treatment of tuberculosis. It is also explained by the spread of HIV. As people with HIV infection get ill, they become particularly susceptible to TB. Since 1990, therefore, TB infection rates have increased by a factor of four in countries that are heavily affected by HIV.

Is TB a growing concern for people working in the HIV field?

Yes. It is estimated that one-third of people living with HIV worldwide are co-infected with TB. People with HIV are up to 50 times more likely to develop TB in a given year than HIV-negative people.

Another growing concern is the development of drug-resistant strains. These strains can be created by inconsistent and inadequate treatment practices that encourage bacteria to become tougher. The multidrug-resistant strains are much more difficult and costly to treat and multidrug-resistant TB (MDR-TB) is often fatal. Mortality rates of multidrug-resistant TB are comparable with those for TB in the days before the development of antibiotics. For more information on drug resistant TB see the section on extensively drug resistant TB (XDR-TB) at the end.

Where is multidrug-resistant TB most common?

It is present in virtually all of the 109 countries and geographic settings surveyed by WHO and its partners. Almost half a million MDR-TB cases are estimated to have

occurred in 2003, or about 5% of all TB cases. The highest rates of MDR-TB have been found in Russia, in countries of the former USSR, and in China. In some provinces in China, 8-10% of all new cases are not responding to standard TB treatment. Recent surveys suggest that multidrug-resistant TB is increasing in some African countries.

What are the links between HIV and TB?

HIV/AIDS and TB are so closely connected that they are often referred to as co-epidemics or dual epidemics. The intersecting epidemic is often denoted as TB/HIV or HIV/TB. HIV affects the immune system and increases the likelihood of people acquiring new TB infection. It also promotes both the progression of latent TB infection to active disease and relapse of the disease in previously treated patients. TB is one of the leading causes of illness and death in people infected with HIV, particularly in low-income countries.

How many people are co-infected with TB and HIV?

An estimated one-third of people living with HIV worldwide are co-infected with TB. The majority of people who are co-infected with both diseases live in sub-Saharan Africa. If TB disease develops in people living with HIV it progresses much faster than in people who are not infected and without rapid detection and effective treatment most people will die within weeks of developing disease.

What is the impact of co-infection with TB and HIV?

TB kills up to half of all AIDS patients worldwide. People who are HIV-positive and infected with TB are up to 50 times more likely to develop active TB in their lifetime than people who are HIV-negative.

HIV infection is the most potent risk factor for converting latent TB into active TB, while TB bacteria accelerate the progress of AIDS infection in the patient.

Many people living with HIV in developing countries develop TB as the first manifestation of AIDS. The two diseases represent a deadly combination, since they are more destructive together than either disease alone:

- TB is harder to diagnose in people who are HIV-positive;
- TB progresses faster in people who are HIV-positive;
- TB in people who are HIV-positive is almost certain to be rapidly fatal if undiagnosed or left untreated;
- TB can occur early in the course of HIV infection
- TB is still much more frequent in people living with HIV on ART than in someone who is not HIV infected.

Should TB and HIV screening be done simultaneously?

Yes. All HIV-positive people should be screened for active TB. If they do not have TB disease, they can be given prophylactic treatment to prevent development of the disease. If they have the disease they can be given curative drugs. In countries where both TB and HIV are common, TB patients should be systematically offered HIV

counselling and testing; indeed, research shows that TB patients are more likely to accept HIV counselling and testing than the general population. Through this TB programmes can make a major contribution to ensuring universal access to the full range of available HIV treatment and care services for people living with HIV.

Antenatal and family health clinics could also offer TB screening to women at the same time as providing counselling and testing for prevention of mother to child HIV transmission.

What progress has been made in recent years?

Policies and guidelines to deal with HIV-related TB have been developed. Countries and organizations working in both diseases have been mobilized to work on both diseases.

The emphasis is now placed on three activities:

- Offering HIV testing and counselling to all TB patients;
- Providing cotrimoxazole and antiretroviral treatment (ART) to TB patients found to be infected with HIV;
- Screening people living with HIV for TB disease and provision of TB preventive therapy once active disease is ruled out. Appropriate TB treatment should be provided if disease diagnosed.
- Expediting the diagnosis and treatment of TB in people living with HIV by using the revised diagnostic algorithms recommended by WHO in resource-constrained settings.

The strengthening of these activities requires reorganization of health systems at the central, intermediate and peripheral level as well as the training of health professionals and the organization of supplies and equipment.

What is the impact of TB/HIV on women?

Worldwide, women bear a disproportionate burden of poverty, ill-health, malnutrition and disease. TB causes more deaths among women than all causes of maternal mortality combined, and more than 900 million women are infected with TB worldwide. In 2006, 1 million women will die and 2.5 million will become sick from the disease, mainly women between the ages of 15 and 44.

Once infected with TB, women of reproductive age are more susceptible to developing TB disease than men of the same age. Women in this age group are also at greater risk of becoming infected with HIV. As a result, in certain regions, young women aged 15–24 with TB outnumber young men of the same age with the disease.

Why is more collaborative action on TB and HIV important?

AIDS is dramatically fuelling the TB epidemic in sub-Saharan Africa, where up to 80% of TB patients are co-infected with HIV in some countries. For many years efforts to tackle TB and HIV have been largely separate, despite the overlapping epidemiology. Improved collaboration between TB and HIV programmes will lead to more effective control of TB among people who are infected with HIV and to significant public health gains.

What does WHO recommend for treatment of TB and HIV?

WHO strongly recommends that people living with both TB and HIV begin treatment for both diseases without delay. Research indicates that about 20% of patients will die when HIV treatment is delayed until after TB treatment. Concerns regarding the simultaneous use of the TB medication rifampin and the HIV antiretrovirals such as nevirapine should not delay the initiation of HIV antiretrovirals. Patients on this sort of dual therapy should, however, be closely monitored. Efavirenz may be substituted for nevirapine, if available. WHO emphasizes, however, that there is not sufficient evidence to confirm that the combination of rifampin and antiretrovirals such as Nevirapine cause excessive liver damage. Equally, concerns about immune reconstitution syndrome should not cause the delay of HIV antiretroviral therapy in this co-infected population.

FACTSHEETS:

- Key TB and TB/HIV facts and figures <http://www.who.int/3by5/en/facts.pdf>
- Fact sheet on Tuberculosis (TB) <http://www.who.int/3by5/en/TBfactsheet.pdf>
- FAQ on TB and HIV: <http://www.who.int/tb/hiv/faq/en/>

PRESS RELEASES:

- TB cases and deaths linked to HIV at alarming levels in Africa; Rising rates contrast sharply with accelerated progress in other regions— <http://www.who.int/3by5/release/en/>
- 17 February 2005: TB/HIV combined approach at the core of Global Fund's round 5 <http://www.who.int/3by5/mediacentre/news41/en/>
- 21 September 2004: Combining TB treatment with HIV testing and treatment could save lives of up to 500 000 HIV-positive Africans every year; Joint call for action follows Mandela's plea at Bangkok International AIDS Conference to strengthen fight against tuberculosis— <http://www.who.int/mediacentre/news/releases/2004/pr66/en/>

RESOURCES/DOCUMENTS:

- Interim policy on collaborative TB/HIV activities, Geneva, WHO, 2004 http://whqlibdoc.who.int/hq/2004/WHO_HTM_TB_2004.330.pdf
- Africa is worst hit by dual epidemic , Bulletin of the World Health Organization, March 2005 www.who.int/entity/bulletin/volumes/83/3/feature0305/en/
- WHO's new Stop TB Strategy. Lancet 2006; 367, 952-954.
- Global Plan to Stop TB.(2006-2015). <http://www.stoptb.org/globalplan/>
- WHO Report 2006. Global tuberculosis control—surveillance, planning, financing. WHO/HTM/TB/2006.362 http://www.who.int/tb/publications/global_report/en/
- STOP TB Partnership web site <http://www.stoptb.org>
- Technical brief on entrypoints http://www.who.int/3by5/publications/briefs/entry_points/en/
- HIV and TB publications <http://www.who.int/hiv/pub/tb/en/>