

TUBERCULOSIS



**GLOBAL TUBERCULOSIS
REPORT, 2017**

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The purpose of WHO's Global Tuberculosis Report is to provide a comprehensive and up-to-date assessment of the TB epidemic and of progress in care and prevention at global, regional and country levels.

TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV-negative people (down from 1.7 million in 2000) and an additional 374 000 deaths among HIV-positive people. An estimated 10.4 million people fell ill with TB in 2016: 90% were adults, 65% were male, 10% were people living with HIV (74% in Africa) and 56% were in five countries: India, Indonesia, China, the Philippines and Pakistan.

Most deaths from TB could be prevented with early diagnosis and appropriate treatment. Millions of people are diagnosed and successfully treated for TB each year, averting millions of deaths (53 million 2000-2016), but there are still large gaps in detection and treatment.

Specific targets set in the End TB Strategy include a 90% reduction in TB deaths and an 80% reduction in TB incidence (new cases per year) by 2030, compared with 2015. Achieving these targets requires provision of TB care and prevention within the broader context of universal health coverage, multisectoral action to address the social and economic determinants and consequences of TB, and technological breakthroughs by 2025 so that incidence can fall faster than rates achieved historically.

Hereby providing the gist of the report and status of India.

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Introduction

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can also affect other sites (extrapulmonary TB). The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, for example by coughing. Overall, a relatively small proportion (5-15%) of the estimated 1.7 billion people infected with *M. tuberculosis* will develop TB disease during their lifetime. However, the probability of developing TB disease is much higher among people infected with HIV, and also higher among people affected by risk factors such as under-nutrition, diabetes, smoking and alcohol consumption.

Diagnostic tests for TB disease include the following:

- **Rapid molecular tests** - The only rapid test for diagnosis of TB currently recommended by WHO is the Xpert® MTB/RIF assay (Cepheid, USA). It can provide results within 2 hours, and was initially recommended (in 2010) for diagnosis of pulmonary TB in adults. Since 2013, it has also been recommended for use in children and to diagnose specific forms of extrapulmonary TB. The test has much better accuracy than sputum smear microscopy;
- **Sputum smear microscopy** - Developed more than 100 years ago, this technique requires the examination of sputum samples using a microscope to determine the presence of bacteria. In the current case definitions recommended by WHO, one positive result is required for a diagnosis of smear-positive pulmonary TB;
- **Culture-based methods** - The current reference standard, they require more developed laboratory capacity and can take up to 12 weeks to provide results.

Zoonotic TB

Zoonotic TB is predominantly caused by *M. bovis*, which belongs to the *M. tuberculosis* complex. In humans, there were an estimated 147 000 new cases of zoonotic TB and 12 500 deaths due to the disease in 2016. This burden of disease cannot be reduced without improving standards of food safety and controlling bovine TB in the animal reservoir.

The organism is host-adapted to cattle, where it is referred to as bovine TB; it also causes TB in other animal species, including wildlife. Bovine TB has an important economic impact and threatens livelihoods.

In 2016-2017, a roadmap for zoonotic TB was developed by the tripartite of WHO, the World Organisation for Animal Health (OIE) and the Food and Agricultural Organization of the United Nations (FAO), together with the International Union Against Tuberculosis and Lung Disease. The roadmap calls for a multidisciplinary "One Health" approach that includes a more comprehensive analysis of risks, better coverage of interventions, more efficient use of resources, reduced costs and, ultimately, improved health of human and animal populations.

Drug-resistant TB

Drug-resistant TB threatens global TB care and prevention, and remains a major public health concern in many countries. Three major categories are used for global surveillance and treatment. MDR-TB is TB that is resistant to both rifampicin and isoniazid, the two most powerful anti-TB drugs; it requires treatment with a second-line regimen. RR-TB also requires treatment with second-line drugs.³ With increasing use of Xpert®

MTB/RIF for simultaneous detection of TB and resistance to rifampicin, a growing number of RR-TB cases (without further testing for isoniazid resistance) are being detected and notified.

About report

WHO has published a global TB report every year since 1997. The main aim of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic, and of progress in prevention, diagnosis and treatment, at global, regional and country levels. This is done in the context of recommended global TB strategies and associated targets, as well as broader development goals set by the United Nations (UN). For the period 2016-2035, these are the End TB Strategy and Sustainable Development Goals (SDGs).

The End TB Strategy was endorsed by WHO's 194 Member States during the 2014 World Health Assembly, and is for the period 2016-2035. The SDGs were adopted by UN Member States in September 2015, and are for the period 2016-2030. The SDGs and the End TB Strategy share a common aim: to end the global TB epidemic. Targets set in the End TB Strategy include a 90% reduction in TB deaths and an 80% reduction in TB incidence by 2030, compared with 2015

The End of TB strategy

The End TB Strategy at a glance				
VISION	A WORLD FREE OF TB — zero deaths, disease and suffering due to TB			
GOAL	END THE GLOBAL TB EPIDEMIC			
INDICATORS	MILESTONES		TARGETS	
	2020	2025	SDG 2030*	END TB 2035
Percentage reduction in the absolute number of TB deaths (compared with 2015 baseline)	35%	75%	90%	95%
Percentage reduction in the TB incidence rate (compared with 2015 baseline)	20%	50%	80%	90%
Percentage of TB-affected households experiencing catastrophic costs due to TB (level in 2015 unknown)	0%	0%	0%	0%

PRINCIPLES

1. Government stewardship and accountability, with monitoring and evaluation
2. Strong coalition with civil society organizations and communities
3. Protection and promotion of human rights, ethics and equity
4. Adaptation of the strategy and targets at country level, with global collaboration

PILLARS AND COMPONENTS

1. **INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION**
 - A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups
 - B. Treatment of all people with TB including drug-resistant TB, and patient support
 - C. Collaborative TB/HIV activities, and management of comorbidities
 - D. Preventive treatment of persons at high risk, and vaccination against TB
2. **BOLD POLICIES AND SUPPORTIVE SYSTEMS**
 - A. Political commitment with adequate resources for TB care and prevention
 - B. Engagement of communities, civil society organizations, and public and private care providers
 - C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control
 - D. Social protection, poverty alleviation and actions on other determinants of TB
3. **INTENSIFIED RESEARCH AND INNOVATION**
 - A. Discovery, development and rapid uptake of new tools, interventions and strategies
 - B. Research to optimize implementation and impact, and promote innovations

* Targets linked to the Sustainable Development Goals (SDGs).

Outcome of the report

Most of the estimated number of incident cases in 2016 occurred in the WHO South-East Asia Region (45%), the WHO African Region (25%) and the WHO Western Pacific Region (17%); smaller proportions of cases occurred in the WHO Eastern Mediterranean Region (7%), the WHO European Region (3%) and the WHO Region of the Americas (3%).

The top five countries, with 56% of estimated cases, were (in descending order) India, Indonesia, China, the Philippines and Pakistan. Globally, the TB mortality rate is falling at about 3% per year. TB incidence is falling at about 2% per year; this needs to improve to 4-5% per year by 2020 to reach the first milestones of the End TB Strategy.

Regionally, the fastest decline in TB incidence is in the WHO European Region (4.6% from 2015 to 2016). The decline since 2010 has exceeded 4% per year in several high TB burden countries, including Ethiopia, Kenya, Lesotho, Namibia, the Russian Federation, the United Republic of Tanzania, Zambia and Zimbabwe.

Regionally, the fastest declines in the TB mortality rate are in the WHO European Region and the WHO Western Pacific Region (6.0% and 4.6% per year, respectively, since 2010). High TB burden countries with rates of decline exceeding 6% per year since 2010 include Ethiopia, the Russian Federation, the United Republic of Tanzania, Viet Nam and Zimbabwe.

The WHO Global Task Force on TB Impact Measurement

Establishment and progress made, 2006-2015 The WHO Global Task Force on TB Impact Measurement (hereafter referred to as the Task Force) was established in 2006 and is convened by the TB Monitoring and Evaluation unit of WHO's Global TB Programme. Its original aim was to ensure that WHO's assessment of whether 2015 targets set in the context of the MDGs were achieved at global, regional and country levels was as rigorous, robust and consensus-based as possible. Three strategic areas of work were pursued:

- Strengthening routine surveillance of TB cases (via national notification systems) and deaths (via national VR systems) in all countries;
- Undertaking national TB prevalence surveys in 22 global focus countries; and
- Periodically reviewing methods used to produce TB disease burden estimates.

Work on strengthened surveillance included the following:

- Development of a TB surveillance checklist of standards and benchmarks (with 10 core and three supplementary standards). This checklist can be used to systematically assess the extent to which a surveillance system meets the standards required for notification and VR data, to provide a direct measurement of TB incidence and mortality, respectively. By the end of 2015, 38 countries including 16 high burden countries had used the checklist.
- Electronic recording and reporting. Case-based electronic databases are the reference standard for recording and reporting TB surveillance data. A guide was produced in 2012, and efforts to introduce such systems were supported.
- Development of a guide on inventory studies to measure underreporting of detected TB cases, and support such studies in priority countries. An inventory study can be used to quantify the number of cases that are detected but not reported to national surveillance systems, and can serve as a basis for improving estimates of TB incidence and addressing gaps in reporting.
- Expanded use of data from VR systems and mortality surveys to produce estimates of the number of TB deaths, and contributions to wider efforts to promote VR systems. By 2015, VR data were used to produce estimates of TB mortality in 127 countries, up from three in 2008.

Persistent gaps in care and financing

Tackling the epidemic requires action to close gaps in care and financing. It also requires progress in a particular subset of high TB burden countries.

- Underreporting and under-diagnosis of TB cases continues to be a challenge, especially in countries with large unregulated private sectors and weak health systems. Of the estimated 10.4 million new cases, only 6.3 million were detected and officially notified in 2016, leaving a gap of 4.1 million. India, Indonesia and Nigeria accounted for almost half of this global gap.
- Only one in five MDR-TB cases were started on treatment. India and China accounted for 39% of the global gap. Treatment success remains low, at 54% globally.
- Of the almost half a million reported cases of HIV-associated TB, 15% were not on antiretroviral therapy (ART) as recommended by WHO. Most of the gaps related to HIV-associated TB were in the WHO African Region.
- TB preventive treatment is expanding in two priority risk groups - people living with HIV and children under 5 years. However, most people eligible for TB preventive treatment are not accessing it.
- For TB care and prevention, investments in low- and middle-income countries fall almost US\$ 2.3 billion short of the US\$ 9.2 billion needed in 2017. In addition, at least an extra US\$ 1.2 billion per year is required to accelerate the development of new vaccines, diagnostics, and medicines.

Way forward

Ending TB by 2030 would require a 90% reduction in TB deaths and an 80% reduction in annual TB cases, yet since 2000 the mortality rate has only declined by 37%. TB remains the leading infectious killer in 2016, responsible for 1.3 million deaths among HIV-negative individuals (down from 1.7 million in 2000). A further 374,000 deaths were reported among people living with HIV, for whom the disease is still the leading killer.

People living with HIV have an estimated 26 to 31-fold greater risk of contracting TB, particularly when they are not on antiretroviral treatment (ART) as their immune systems are weakened making them more susceptible to co-infection. Yet thankfully, ART can reduce the risk of TB infection in people living with HIV by 65%.

But efforts to provide preventative TB treatment have so far been uneven and insufficient. In 2016, 18 of the 30 countries with the highest burden of HIV-associated TB offered no preventative TB treatment for patients diagnosed with HIV, despite WHO recommendations. As such, cases of HIV-associated TB have continued to rise, with 10% of the 10.4 million new TB cases among those living with HIV in 2016.

Positively, in the last six years to 2016, TB treatment has prevented an estimated 44 million deaths among HIV-negative people and an additional 9 million deaths when supported by ART in those living with HIV.

However, multi-drug resistant TB (MDR-TB) remains a serious threat. In 2016, there were 600,000 new cases with resistance to Rifampicin, the most effective first-line drug, and of these 490,000 cases were multi-drug resistant.

As it stands, new infections are falling by 2% each year while mortality rates are declining by 3%. To reach the 2030 targets these would each need to improve by 4% to 5%, effectively doubling the current rate of decline.

To kick-start these new initiatives, the WHO has planned two conferences. The first was a global ministerial conference taking place in Moscow from the 16th to the 17th of November. It will host leaders of UN

organisations, NGOs, civil society, academia and corporate sectors, hoping to gather commitment from across different sectors for the End TB strategy. In addition to this the United Nations will hold the first ever General Assembly on Tuberculosis in 2018. It will be the fifth general assembly to be held on a specific health issue, and will aim to build on the outcomes of the Moscow meeting, developing a coordinated global response to TB.

These events mark "a tremendous and unprecedented step forward by governments and all partners engaged in the fight against TB".

GS SCORE