



December 27, 2018

Global Trends: Tuberculosis

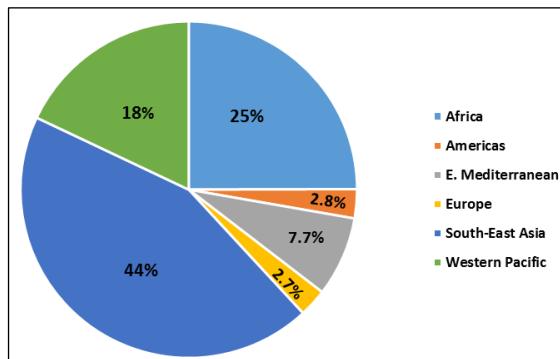
Tuberculosis (TB) remains a major, and evolving, health challenge in many parts of the world and a target by the international community for global eradication. The U.S. government is one of the largest donors to global TB control efforts. Data used in this In Focus derive primarily from the World Health Organization (WHO).

Tuberculosis

Transmission and Prevalence. Infectious diseases are estimated to cause over 25% of deaths globally, and TB is the leading cause of death from a single infectious agent. TB can be contracted from exposure to an infected person's coughs or sneezes. A latent TB infection occurs when an individual is infected with TB bacteria but does not have active TB. An estimated 23% of the global population is infected with TB bacteria, and about 10% of individuals infected with the TB bacteria will develop active TB. Latent TB becomes active and transmittable when a person's immune system is suppressed, for example due to pregnancy, chemotherapy, or HIV/AIDS. The latter represents a serious public health concern, as people with HIV are 20 to 30 times more likely to develop active TB than those without HIV.

TB is considered a disease of poverty, and the global disease burden is uneven. India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa account for two-thirds of TB cases worldwide (see **Figure 1**). In countries without comprehensive health care infrastructure, appropriate care and monitoring are especially difficult. The WHO estimates that annually health systems miss 3.6 million people with TB.

Figure 1. Burden of New TB Cases in 2017, by WHO Region

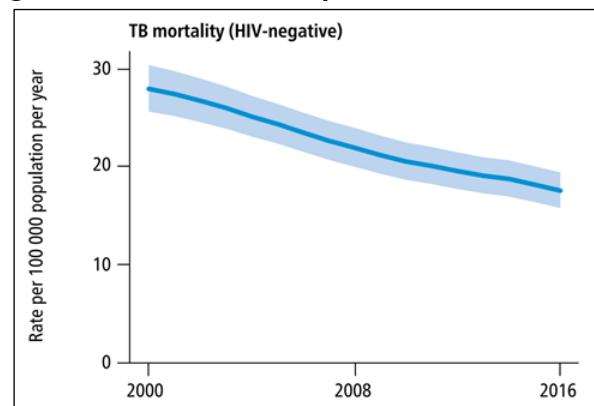


Source: CRS graphic created using WHO data, 2018.

Diagnosis and Treatment. TB is generally diagnosed using rapid molecular tests, sputum smear microscopy, and culture-based methods. Many countries rely on the second to diagnose TB, because it is the cheapest method.

However, that method detects only half of all TB cases and cannot detect Rifampicin Resistant-TB (known as RR-TB, which is resistance to the first-line TB drug Rifampicin) or Multi Drug Resistant (MDR)-TB. Active TB is treated by a six-month course of four antimicrobial drugs. The majority of cases are curable when medicines are available and patients adhere to treatment. Due to complicated treatment regimens, however, patients are unlikely to complete the full drug course in resource-limited settings without access to adequate information and supervision by a trained health worker.

Figure 2. Global TB Mortality Rate, 2000-2016



Source: WHO Global TB Report, 2017.

Global Developments

The international community has made significant strides in combating TB worldwide (see **Figure 2**). In 2018, reflecting a deepening global commitment to TB eradication, the WHO, the Stop TB Partnership, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) began a joint initiative to scale up access to TB prevention and care. The "End TB Strategy" focuses on 30 high-burden countries to diagnose, treat, and report an additional 40 million people with TB. The aim is a 95% reduction in TB deaths by 2030 and a 90% reduction in the TB incidence rate compared with 2015 levels. The strategy calls for bringing together critical interventions to ensure that all people with TB have equitable access to high-quality diagnosis, treatment, and prevention services, without facing catastrophic expenditures or social repercussions.

Key TB Facts (as of 2018)

- 10 million people developed TB disease, 90% of whom were adults. Of those adults, 64% were men.
- TB killed a person every 18 seconds, and killed 1.3 million people in 2018.
- 95% of TB cases and deaths occurred in developing countries.
- Incidence (new cases per 100,000 people per year) is decreasing by 2% per year.
- The TB mortality rate is decreasing by roughly 3% per year.
- From 1990 to 2015, TB prevalence decreased by 41%.
- Between 2000-2017, the Case Fatality Ratio (proportion of those who died from the disease) decreased from 23% to 16%.
- From 2000 to 2017, diagnosis and successful treatment of people with TB disease averted an estimated 54 million deaths.
- Among HIV-negative people, the absolute number of TB deaths has fallen by 29% since 2000.

TB and HIV-positive individuals. In 2017, nearly 1 million persons living with HIV contracted TB. In 2018, TB was the leading cause of death for HIV-positive people, killing 300,000. HIV/TB co-infection remains concentrated in Africa, which accounted for 84% of all deaths due to co-infection. Overall, TB deaths among HIV-positive individuals have decreased by 44% since 2000. In 2017, 84% of people living with an HIV/TB co-infection were receiving ART treatment, compared to 36% in 2005.

2013-2017: Regional Improvements. The fastest regional declines in the incidence of new cases were in the WHO European region (5% per year), and the African region (4% per year). The TB mortality rate fell by 11% per year in the WHO European region, and by 4% per year in the WHO South-East Asia region. During this period, the WHO reported notable mortality rate declines in high TB burden countries, including Russia (13% per year), Ethiopia (12%), Sierra Leone (10%), Kenya (8%), and Vietnam (8%).

Research & Development (R&D). 20 TB drugs and 12 TB vaccines were in clinical trials in 2018. According to experts, the first new TB vaccine in more than 100 years shows promising results in African clinical trials. Development of a vaccine is crucial to meeting WHO TB reduction targets; if it proves efficacious, it would be the first vaccine to prevent adults with TB infection from contracting TB disease.

Key Challenges

Multi-Drug Resistant-TB (MDR-TB)

MDR-TB, when TB does not respond to two powerful anti-TB drugs, is a top concern of many global health experts because MDR-TB carriers can transmit resistant forms of TB to others. In 2017, nearly 600,000 people developed RR-TB, compared to 425,000 cases in 2005. Overall, 4% of new TB cases were MDR- or RR-TB. Of those taking Rifampicin, 82% had MDR-TB. Globally, 3.5% of new TB cases are MDR-TB. Overall, 75% of MDR-TB cases go undetected by health systems.

Treatment success rates vary between first line and MDR-TB for reasons such as the amount of time one needs to be on treatment, the complexity of treating MDR-TB, and side effects (which are significantly more severe than for first-

line treatment). These issues may lead to patients interrupting treatment, which can lead to disease resistance.

Global Funding

Global TB-related funding to 119 Low- and Middle-Income Countries (LMICs) was \$6.9 billion in 2018, compared to \$3.3 billion in 2006, and 86% of the funding is from LMICs; however, this figure is skewed by domestic financing provided by Brazil, Russia, India, China, and South Africa (BRICS). In low-income countries, international donor contributions accounted for 57% of funding.

The WHO estimates that \$9.2 billion is required annually to treat and care for TB patients, and for global eradication efforts. The declaration adopted at the first ever U.N. General Assembly High Level Meeting on TB, in September 2018, set goals of treating 40 million affected people, mobilizing \$12 billion annually to fight TB, closing research funding gaps, and improving access to affordable treatments by 2022. A related funding concern is that existing TB treatments are becoming less effective, requiring more expensive treatments for MDR-TB.

U.S. Government Response

The United States supports international efforts to address TB through bilateral programs and multilateral institutions, including the Global Fund. Bilateral efforts are coordinated by the U.S. Agency for International Development and implemented with the U.S. Centers for Disease Control and Prevention, National Institutes of Health, the Department of State, and the Department of Defense.

Authorization and Funding. The 115th Congress expressed support for TB programs in several ways. In December 2018, Congress enacted, with the Administration's support, the PEPFAR (President's Emergency Plan for AIDS Relief) Extension Act of 2018, reauthorizing expired provisions of foreign assistance programs that combat TB, in addition to AIDS and malaria. Congress also allocated \$261 million in FY2018 within the Global Health Programs account for TB prevention and treatment programs, as well as a \$1.35 billion contribution to the Global Fund (P.L. 115-141). The Trump Administration proposed reducing bilateral TB funding to \$178.4 million for FY2019 (a 32% cut from FY2018) and proposed \$925 million for a U.S. Global Fund contribution. Congress has not yet enacted full-year FY2019 funding levels for foreign assistance.

Strategy. In 2015, the Obama Administration released the "U.S. Government Global Tuberculosis Strategy" to establish policy guidance and goals for 2015-2019. It aimed to treat 13 million new positive TB cases, maintain treatment success rates for 90% of individuals with TB, diagnose and begin treating 360,000 cases of MDR-TB, and provide treatment for 100% of people diagnosed with HIV/TB co-infection. To date, the Trump Administration has not proposed a continuation of this strategy.

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