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Global Trends: Tuberculosis

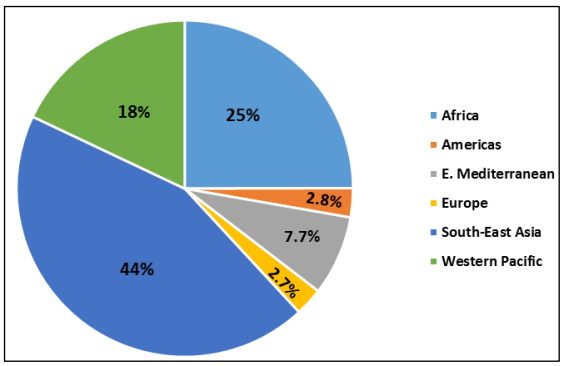
Tuberculosis (TB) remains a major, and evolving, health challenge in many parts of the world and a priority for the U.S. Congress and international community. The U.S. government is one of the largest donors to global TB control efforts. The 116th Congress may consider future funding needs for TB control, particularly for vaccine research and disease surveillance and detection through strengthening health care infrastructure.

Tuberculosis

Transmission and Prevalence. Infectious diseases cause over 25% of deaths globally, and TB is the leading cause of death from a single infectious agent. TB is spread through the air, such as when a person inhales germs from an infected person's cough or sneeze. 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, TB control is especially difficult. The WHO estimates that 3.6 million TB cases are undetected annually, primarily because of inadequate monitoring and surveillance capacity.

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

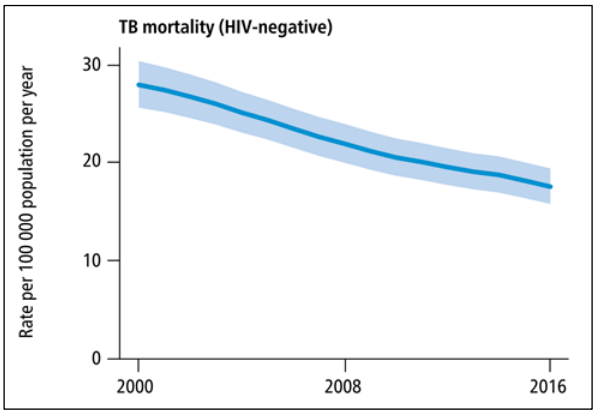


Source: CRS graphic created using WHO data, 2018.

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.

Drug-susceptible 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. On average, 85% of drug-susceptible TB cases were cured in 2017. If patients do not complete the treatment regiment, they can develop MDR-TB—when TB does not respond to at least two anti-TB drugs. MDR-TB is a top concern of many global health experts because MDR-TB carriers can transmit resistant forms of TB to others. Of those who contracted MDR-TB in 2017, 55% survived.

Figure 2. Global TB Mortality Rate, 2000-2016



Source: WHO Global TB Report, 2017.

Global Developments

The international community has made significant strides in curbing TB deaths worldwide (see **Figure 2**); however, the disease continues to spread, mostly unabated. The international community has adopted several multiyear plans to combat TB. 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) launched 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 2035 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 2017)

- In 2017,
  - 10 million people developed TB disease
  - TB killed 1.3 million people, about one person every 18 seconds
  - 95% of TB cases and deaths occurred in developing countries
  - Incidence (new cases per 100,000 people per year) fell by 2%
- From 1990 to 2015, TB prevalence decreased by 41%
- From 2000 to 2017, some 54 million deaths were averted through improved diagnosis and treatment adherence
- Among HIV-negative people, TB deaths fell by 29% since 2000

TB and HIV-positive individuals. In 2017, nearly 1 million persons living with HIV contracted TB. In 2017, 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 of new cases were in the WHO Europe region (5% per year), and the Africa 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%), Ethiopia (12%), Sierra Leone (10%), Kenya (8%), and Vietnam (8%).

Research & Development (R&D). Development of a vaccine is crucial to meeting WHO TB reduction targets, as an effective vaccine could protect adults from contracting TB. Twenty TB drugs and 12 TB vaccines were in clinical trials in 2018. Clinical trials conducted in Africa of the first new TB vaccine in 100 years has shown promising results.

Key Challenges

Multi-Drug Resistant-TB (MDR-TB)

MDR-TB is spreading worldwide. In 2017 nearly 600,000 people developed RR-TB compared to 425,000 cases in 2005. Overall, 75% of MDR-TB cases go undetected by health systems. Some experts indicate this reflects a need to focus on strengthening health systems to improve surveillance and detection of MDR-TB cases. The expense, complexity, and side effects of treating MDR-TB complicate treatment adherence. The development of improved treatments with shorter regiments and less severe side effects, some argue, could help control the spread of MDR-TB.

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. 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.

In 2015, the WHO estimated that $9.2 billion would be needed to control TB. At the 2018 United Nations (U.N.) General Assembly High Level Meeting on TB, U.N. Members agreed that TB control would cost an additional $3 billion, in part to address the rising costs of addressing MDR-TB. Members also set goals of treating 40 million affected people and improving access to affordable treatments by 2022.

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 (USAID) and co-implemented with the U.S. Centers for Disease Control and Prevention (CDC), National Institutes of Health, the Department of State, and the Department of Defense.

Authorization and Funding. In December 2018, Congress enacted the PEPFAR (President's Emergency Plan for AIDS Relief) Extension Act of 2018, authorizing support for programs that combat TB, HIV/AIDS and malaria. Through the FY2018 State and Foreign Operations (SFOPS) appropriations (P.L. 115-141), Congress provided $261 million for TB prevention and treatment programs, as well as $1.35 billion for a contribution to the Global Fund. The Trump Administration proposed reducing bilateral TB funding to $178.4 million for FY 2019 (a 32% cut from FY2018), and proposed $925 million for a U.S. Global Fund contribution. Congress has not enacted FY 2019 SFOPS appropriations.

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.

Sara M. Tharakan, Analyst in Global Health and International Development

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