



Global Attention on Tuberculosis: Summary of Global TB Report 2016

NOVEMBER, 2016

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Introduction

Tuberculosis (TB) is known to have existed for thousands of years and still remains a major global health problem. It causes ill-health in millions of people each year and in 2015 was one of the top 10 causes of death worldwide, ranking above HIV/AIDS as one of the leading causes of death from an infectious disease. It was estimated that there were 1.4 million TB deaths in 2015, and an additional 0.4 million deaths resulting from TB disease among HIV-positive people.

The United Nations had adopted the Sustainable Development Goals (SDGs) in 2015 which aimed to end the global TB epidemic by 2030. In 2014, the World Health Assembly had called for a 90% reduction in deaths occurring due to TB and 80% reduction in the incidence rate of TB by 2030 with respect to 2015. This global TB report provides an evaluation of the TB epidemic and the progress made in TB diagnosis, treatment and prevention efforts, as well as an overview of TB-specific financing and research. It talks about the broader agenda of the Universal Health Coverage, social protection and other SDGs that have an impact on health. It presents data for 202 countries and territories that account for over 99% of the world's TB cases.

The TB Burden

The TB epidemic is larger than it was projected previously. In 2015, there were an estimated 10.4 million new (incident) TB cases worldwide, of which 5.9 million (56%) were among men, 3.5 million (34%) were among women and 1.0 million (10%) were among children and people living with HIV accounted for 1.2 million (11%) of all TB cases. Six countries (India, Indonesia, China, Nigeria, Pakistan and South Africa) globally accounted for about 60% of the new TB cases. Global progress in TB epidemic depends on advancements in TB prevention in these countries. Worldwide, the rate of decline in TB incidence remained at only 1.5% from 2014 to 2015. In order to reach the first milestone of the End TB strategy, a 4-5% annual decline is required in TB incidence by 2020.

In 2015, there were an estimated 480,000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100,000 people with rifampicin-resistant TB (RR-TB) who were also newly eligible for MDR-TB treatment. India, China and the Russian Federation were found to account for 45% of the combined total of 580,000 cases. Although the number of TB deaths fell by 22% between 2000 and 2015, TB remains a serious concern worldwide.

Gaps in testing for TB and reporting new cases remains a major challenge. Of the estimated 10.4 million new cases, only 6.1 million were detected and officially notified in 2015, leaving a gap of 4.3 million. This gap is due to underreporting of TB cases especially in countries with large unregulated private sectors, and under-diagnosis in countries with major barriers to accessing care.

TB Prevention Services

TB treatment has prevented 49 million deaths globally between 2000 and 2015, however important diagnostic and treatment gaps still prevail. About 6.1 million new TB cases were notified to national authorities and reported to WHO in 2015. Notified TB cases increased from 2013-2015, this was mostly due to a 34% increase in notification in India alone. Moreover, globally there was a 4.3 million gap between incident and notified cases, with India, Indonesia and Nigeria accounting for almost half of this gap. Meanwhile, the crisis of MDR-TB detection and treatment continues. In 2015, out of the estimated 580 000 people newly eligible for MDR-TB treatment, only 125 000 (20%) were enrolled. Five countries accounted for more than 60% of the gap: India, China, the Russian Federation, Indonesia and Nigeria. Globally, the MDR-TB treatment success rate was 52% in 2013.

In 2015, 55% of notified TB patients had a documented HIV test result. The proportion of HIV-positive TB patients on Antiretroviral Therapy (ART) was 78%. Access to TB preventive treatment needs to be expanded. A total of 910 000 people living with HIV were started on such treatment in 2015, as well as 87 000 children under five (7% of those eligible) were started on treatment.

TB in South East Asia

Countries in the WHO South-East Asia (SEA) Region have made significant progress towards the Millennium Development Goals relating to tuberculosis (TB). The estimated incidence of all forms of TB, estimated prevalence of all forms of TB and estimated TB mortality all continue to show a downward trend. The treatment success rate among new smear-positive pulmonary TB cases has remained above 85% since 2005, and was 89% in 2010. But although there has been progress, TB control remains a huge challenge in the SEA Region. Approximately 40% of the estimated global number of cases 8.8 million occurs in the Region (based on current estimates) as well as more than a quarter of cases of multi-drug-resistant TB. The national TB and AIDS control programmes in seven countries are jointly extending a comprehensive package of interventions for those affected by both HIV and TB with a long-term goal is to eliminate TB as a public health problem.

Challenges in SEA Region

The major challenges in TB control and prevention in South East Asia region are mainly related to overreliance on donor funding; low notification rates of TB cases; persisting weakness in the health systems; insufficient management of co-morbidities; insufficient regulatory systems and mechanisms and absence of long-term strategies to address the underlying social determinants

Comparing TB related Statistics in Nepal and South Asia across 9 Indicators

Indicators	Countries/Region								
	South Asia	Afghanistan	Bhutan	Bangladesh	India	Maldives	Nepal	Pakistan	Sri Lanka
Total cases notified	2656560	37001	975	209438	1740435	153	34122	331809	9575
Total estimated TB incidence	4740000	61000	1200	362000	2840000	190	5200	510000	13000
Estimated MDR/RR-TB cases among notified pulmonary TB cases (000)	110000	1400	37	5100	79000	3	900	140000	43
Laboratory Confirmed DR TB cases	MDR=35953/ XDR=3099	MDR=81/ XDR=1	MDR=49/ XDR=0	MDR=954/ XDR=0	MDR=28876/ XDR=3048	MDR=1/ XDR=0	MDR=451/ XDR=7	MDR=3059/ XDR=99	MDR=15/ XDR=0
Patients started on Treatment	MDR=32648/ XDR=2171	MDR=81/ XDR=0	MDR=49/ XDR=0	MDR=880/ XDR=0	MDR=26966/ XDR=2130	MDR=0/ XDR=0	MDR=379/ XDR=7	MDR=2553/ XDR=68	MDR=13/ XDR=0
Total Mortality (TB and AIDS)	74000	170	24	230	37000	10	500	1600	11
TB case fatality ratio	0.17	0.21	0.12	0.21	0.2	0.1	0.14	0.09	0.09
TB Budget (US \$ Million)	578	13	<1	52	280	<1	20	62	13
TB Treatment Coverage	54%	58%	80%	57%	59%	80%	75%	63%	69%

TB scenario in Nepal

TB is a major public health problem in Nepal. Despite the remarkable progress made by NTP since 2006, the disease still remains a threat in Nepal. In the fiscal year 2015 a total of 34122 cases of TB were notified to the NTP. The total estimated TB incidence in Nepal was 5200 and the estimated MDR/RR-TB cases among notified pulmonary TB cases (in thousands) was 900. The NTP of Nepal had allocated a budget of 20 million US \$ for the prevention and control of the TB epidemic. Nepal had a total of 451 MDR and 7 XDR laboratory Confirmed DR TB cases and the number of patients started on treatment was 379 for MDR TB cases and 7 for XDR TB cases. The TB case fatality ratio was 0.14 i.e. a total of 14 deaths occurred per every 100 cases identified. Nepal had a high treatment coverage of 75 % for TB patients. The proportion of new cases with multidrug-resistant TB (MDR-TB) was 2.2% among new cases and 15.4% among retreatment cases. In 2015, a total of 379 MDR TB and 71 XDR TB were enrolled for treatment. The majority of TB cases and deaths occur among men, the burden of disease among women seems significantly lower in Nepal. The prevalence of HIV is raising in Nepal and effective control measures for AIDS as well as for TB is more important now than ever before.

Nepal has been showing progress in TB prevention and control than several other countries in South Asia. It has lower prevalence of TB compared to India, Pakistan, Bangladesh and Afghanistan. It has higher treatment coverage rate and lower mortality rate compared to India and Pakistan. However, Nepal falls slightly backward in TB related performance in comparison with other high performing countries in South Asia like Bhutan, Maldives and Sri Lanka. Nepal remains an average country in South Asia in the prevention and control of TB. Nepal has made a drastic progress in TB epidemic over the past decade however there it still has a long way to go before it can eradicate the problem of TB completely.

TB Financing, UHC and Social Protection

In some high TB burden countries, emerging health financing schemes, including national health insurance, could lead to major reductions in out-of-pocket expenditures in low income populations. Thailand and a range of countries in the Region of the Americas are good path finding examples. Building on established approaches to private engagement in TB care could help to address the escalating private sector in health-care delivery, especially in Asia. This includes a combination of provider incentives and regulation, and application of innovative institutional intermediaries and communications technologies. Such controls can help to assure the quality of services provided.

Social protection can be advanced through better models of care and social benefits. Many low- and middle income countries have financed social and economic support for TB patients, but these support packages need to be better documented and evaluated. For overall impact and sustainability, using national social protection platforms is a priority.

The BRICS countries (Brazil, the Russian Federation, India, China and South Africa), which collectively account for about 50% of the world's TB cases, rely mostly or exclusively (the exception is India) on domestic funding. In other countries with a high TB burden, international donor funding dominates, accounting for 75% of reported funding for NTPs in the group of 25 high TB burden countries outside BRICS, 87% of funding in low-income countries and 60% of funding in lower middle-income countries. The single largest source of international donor funding is the Global Fund to Fight AIDS, Tuberculosis and Malaria. International donor funding for TB falls far short of donor contributions for HIV and malaria. The latest data from the Organization for Economic Co-operation and Development (OECD) reporting system show totals of US\$ 5.4 billion for HIV/AIDS, US\$ 1.7 billion for malaria and US\$ 0.7 billion were invested for TB in 2014. The cost per patient treated is usually in the range of US\$ 100–1000 for drug-susceptible TB and US\$ 2000– 20 000 for MDR-TB

US\$ 6.6 billion was available for TB care and prevention in low and middle-income countries in 2016, of which 84% was from domestic sources. Nonetheless, national TB programmes (NTPs) in low-income countries continue to rely on international donors for almost 90% of their financing. Investments in low and middle-income countries fall almost US\$ 2 billion short of the US\$ 8.3 billion needed in 2016. This annual gap will widen to US\$ 6 billion in 2020 if current funding levels do not increase. Improvements are also needed in overall health financing. Government expenditures on health in 2014 were less than the WHO benchmark of at least 6% of gross domestic product (GDP) in 150 countries. Out-of-pocket expenditures exceeded 45% of total health expenditures in 46 countries, including 11 of the 30 high TB burden countries.

TB Research and Development

Despite some progress in the pipeline for new diagnostics, drugs and regimens, and vaccines, TB research and development remains severely underfunded. At least US\$2 billion per year is needed for TB research and development. Funding during the decade 2005–2014 never exceeded US\$ 0.7 billion per year. In 2016, four diagnostic tests were reviewed and recommended by WHO: the loop-mediated isothermal amplification test for TB (known as TB-LAMP), two line probe assays (LPAs) for the detection of resistance to the first line anti-TB drugs isoniazid and rifampicin, and an LPA for the detection of resistance to second-line anti-TB drugs. A next-generation cartridge called Xpert Ultra and a new diagnostic platform called GeneXpert Omni are in development; assessment of both by WHO is expected in 2017.

WHO has developed a Global Action Framework for TB Research, to foster high-quality research to end the TB epidemic at both country and global levels. In 2016, four diagnostic tests were reviewed and recommended by WHO: the loop-mediated isothermal amplification test for TB (known as TB-LAMP), two line probe assays (LPAs) for the detection of resistance to the first-line anti-TB drugs isoniazid and rifampicin, and an LPA for the detection of resistance to second-line anti-TB drugs. A next-generation cartridge

called Xpert Ultra, which may replace the Xpert MTB/RIF cartridge and could potentially replace conventional culture as the primary diagnostic tool for TB, will be assessed in 2017. The Xpert Ultra cartridge is designed to be used in existing GeneXpert instruments. A new diagnostic platform called the GeneXpert Omni is also in development. This is intended for point-of-care testing for TB and rifampicin-resistant TB using Xpert Ultra cartridges. Assessment of this new platform as an alternative to the GeneXpert instrument is expected in 2017.

The Way Forward

Prompt and accurate diagnosis of tuberculosis (TB), HIV associated TB and drug-resistant TB, followed by provision of treatment in line with international standards, prevents deaths and limits ill-health among people who develop the disease. It also prevents further transmission of infection to others. A well-equipped and staffed, quality-assured laboratory network with an efficient specimen referral system is an essential requirement for any NTP in the post-2015 era. Strengthening TB laboratories involves not only deploying modern diagnostics, but also ensuring widespread patient access with fast turnaround time and high-quality diagnosis.

Engagement of communities, nongovernmental and civil society organizations is at the heart of the End TB Strategy. Community-based TB activities cover a wide range of activities that contribute to the detection, referral and treatment of people with drug-susceptible, drug-resistant and HIV-associated TB. They are conducted outside the premises of formal health facilities (e.g. hospitals, health centers and clinics) in community-based structures (e.g. schools, places of worship, congregate settings and markets) and homesteads. Community health workers and community volunteers carry out community-based TB activities. There is a need to improve initiation, completion and reporting of TB preventive treatment for other at-risk populations, including clinical risk groups. BCG vaccination should be provided as part of national childhood immunization programmes according to a country's TB epidemiology. Development and expanded use of shorter regimens for TB preventive treatment, which require a smaller number of doses and are associated with fewer adverse events, will facilitate implementation at a larger scale. Innovative diagnostic tests with improved performance and higher value are needed to target individuals who will benefit most from TB preventive treatment.

Ending TB epidemic is not mere biomedical but a developmental challenge. The global, regional, national and local level response to ending TB epidemic must therefore be a part of an inclusive response designed to meet the overall development goals. The progress towards ending the TB epidemic will depend as much on achieving overall health improvements as it will on optimizing current strategies, developing new tools and technologies to diagnose, treat and prevent TB, and reaching them to all who need them. Ending the TB epidemic will require an expansion of the scope and reach of interventions for TB prevention, care and control.