



## TB, HIV/AIDS

### Summary

- The morbidity of tuberculosis (TB) in 2017 was 10 million people, and the mortality was about 1.6 million (in those, 300,000 people were co-infected with HIV). TB is the single most fatal infectious disease. TB is a leading cause of HIV-related death, and it accounted for one third of such death.
- Regarding TB control, JICA has cooperated on early detection and treatment through TB examinations, and development of information systems. As measures against HIV/AIDS, JICA has implemented awareness raising for prevention, improvement of examination skills, prevention of mother-to-child transmission, and outreach services to rural areas with poor access to medical services.
- Working towards the reduction of the infection and the mortality of TB, JICA continuously makes efforts to introduce new diagnostic methods and cross-cutting support on TB and other infectious diseases, as a part of strengthening community health services considering UHC.

## Overview

### [TB]

Approximately two thousands people die of TB every year in Japan, while worldwide 10 million people are newly infected and 1.6 million people lose their lives. TB is the single most fatal infectious disease. In addition, multidrug-resistant (MDR) TB, on which conventional medicine does not work, and co-infection with HIV have become serious issues. Since many TB patients are young people who have important roles as part of the workforce, it is a big social and economic loss. Forty five percent of TB patients are concentrated in the so-called BRICS (Brazil, Russia, India, China, South Africa) where remarkable economic development has been taking place since 2000, and drug-resistance/anti-microbial resistance (AMR), including drug resistant TB, are important issues of G20. Therefore, attention is focused on TB. While the progress of TB control is somewhat lacking compared to other diseases such as HIV / AIDS, the recognition that fundamental efforts are necessary for the ambitious goal of eradicating the epidemic of TB has increased. The END TB Strategy<sup>1</sup> was enacted in 2015 replacing the previous Stop TB Strategy 2006-2015 and it states approaches with the following points regarded more important than before.

- Raising awareness of patients' rights, providing support to patients, and measures for social factors such as strengthening social security and poverty alleviation
- Early diagnosis and treatment of TB through screening of contacts and high-risk groups
- Preventive treatment of people at high risk
- Treatment of all people with TB including drug-resistant TB and those co-infected with HIV

VISION	A World free of tuberculosis - zero deaths,disease and suffering due to tuberculosis			
	End the global tuberculosis epidemic			
GOAL	MILESTONES		TARGETS	
	2020	2025	SDG 2030	END TB 2035
INDICATORS				
Reduction in Number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in Number of TB incidence rate compared with 2015 (%)	20% (<85/100 100>)	50% (<55/100 100>)	80% (<20/100 100>)	80% (<20/100 100>)
TB-affected families facing catastrophic costs due to TB (%)	Zero	Zero	Zero	Zero

Figure 1 : The END TB Strategy  
(On the Road Ending TB, WHO, 2015)

### [HIV/AIDS]

Through 15 years of effort, since 2000, the number of annual new infections decreased from 3.1 million to 2 million, and the number of infected children per year decreased by 58%. Half of newly infected people are concentrated in eastern and southern Africa. On the other hand, in the Middle East, North Africa, Asia, North America, and Western Europe, etc., there are some countries where the number of infected people is increasing, mainly among homosexuals, drug users, and sex workers. In response to this, UNAIDS set "Fast-Track-Ending the AIDS epidemic by 2030" as a future strategy, aiming at achieving "90-90-90 treatment target" until 2020 (90% of people infected with HIV know their infection, 90% of HIV confirmed patients have antiretroviral therapy (ART), and 90% of infected individuals who receive ART reduce the viral load). The following targets to be achieved by 2020 are set with emphasis on intervention in socially vulnerable groups, and high risk groups.

- Reduce the number of new HIV-infected people to less than 500,000
- Eliminate stigma against HIV

1: The END TB Strategy: In 2015, the end of the TB epidemic by 2035 was announced. One of the pillars is Universal Health Coverage (UHC), and it is mentioned that securing access to treatment and reducing the self-burden of the treatment (cost of out-of-pocket) are essential for removing social and economic factors of TB infection.

# Cooperation Policy

**[TB]** Current international prioritized areas are: 1) drug resistant TB control, 2) TB/HIV co-infections, 3) early detection/treatment and prevention by screening high-risk groups and contacted persons, 4) strengthening social welfare including patient' s rights. JICA has cooperated through early detection and treatment by TB examinations and the development of information systems. There is an increasing need for strengthening testing abilities such as culture and drug susceptibility tests, and new diagnostic techniques including various genetic diagnosis methods, which is indispensable for drug-resistant TB control. There is also a growing need for chest X-ray diagnostic techniques for the diagnosis of TB patients who are not spreading bacteria, and cases in children. Thus, JICA' s cooperation will focus on the above mentioned techniques. Targeting the countries with high TB burden and with experience of cooperation with Japan, JICA supports 1) introduction of new diagnostic methods and development of chest X-ray technology, and 2) strengthening health systems in the areas including not only for TB control but also for other infectious disease control in consideration for the achievement of UHC.

**[HIV/AIDS]** JICA has implemented awareness raising for prevention, improvement of examination skills, prevention of mother-to-child transmission, logistics support of medicines and inspection, and outreach treatment services to rural areas with poor access to medical services. JICA applies those experiences to other disease control programs with a view to enhancing community health and health systems strengthening. Approaches considering knowledge, attitude and practice (KAP) of target people and countermeasures for sexual minorities are central in the current global trend, and it is necessary to remove stigma through intensive support for these people. Civil Society Organizations (CSO) such as NGOs have advantage in these areas for support, and JICA considers collaboration with those organizations.

## Cases

### **[TB Training Courses in Japan and The Research Institute of Tuberculosis (1963-ongoing)]**

Training in Japan related to TB has a long history. The TB control course (for administrators) started in 1963, and the TB bacteria test course (for laboratory technicians) in 1975. A total of 2,366 participants<sup>2</sup> completed the training courses as of May 2018. In the course “Ending TB in the Era of Universal Health Coverage,” the participants learned knowledge about UHC and End TB Strategy. The purpose is to acquire the ability to strengthen TB control in their own countries. There is also a course, “Quality Laboratory Management for Tuberculosis in UHC — Applied for Global Threatening Disease Control,” and the purpose is for senior laboratory technicians who belongs to state level laboratories or above (equivalent to Japanese prefectures) to acquire examination skills that can respond to general TB and drug-resistant TB, and laboratory management skills with a view of UHC. In the 50 years since the start of the TB training, the participants who completed the courses have been successful in leading TB control in their countries.

### **[The Project for Integrative Application of Human and Pathogen Genomic Information for Tuberculosis Control (Thailand, 2015-2019)]**

Thailand has still high TB prevalence, with approximately 70,000 new TB cases reported each year, and about 13,000 TB deaths. This project began in April 2015 as SATREPS<sup>3</sup>, which is technical cooperation through collaborative research. Laboratory of Molecular Genetics, The Institute of Medical Science, The University of Tokyo, RIKEN, and The Research Institute of Tuberculosis, in collaboration with the Ministry of Public Health in Thailand and Mahidol University, are conducting research for new TB control measures utilizing genomic information. By analyzing the genome information of human and tubercle bacilli, the project has identified human genes susceptible to TB and the species with a high mortality. The project is also developing new diagnosis methods for TB using genome analysis, diagnosis of multidrug resistant TB and a prediction system for the appearance of side effects of anti-TB drugs. Along with the remarkable progress of genome analysis technology, the analysis cost has become drastically more reasonable, and the measures against TB using genome analysis are becoming realistic. By introducing new genome-related technologies and systems into countermeasures to control TB, it is expected to raise the success rate of early diagnosis and treatment of TB, and to prevent the spread of TB more effectively.



Trainees cultivating mycobacterium TB



Group discussion

2: Source: Distribution map of international training courses, The Research Institute of Tuberculosis, Japan Anti-tuberculosis Association

3: SATREPS: Technical Cooperation of JICA in collaboration with AMED/JST to promote international joint research by both Japanese research institutions and those of recipient countries with a view to resolving global issues such as infectious diseases.