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## NEWS & PERSPECTIVES

# External review of the National Tuberculosis Program and the development of strategy and targets post 2015 in Taiwan



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From 1997 to 2005, Taiwan was a middle-burden country with regard to tuberculosis (TB) with an incidence of 71/100,000 population in 1997 and 72/100,000 population in 2005.<sup>1,2</sup> In line with the target set by the World Health Organization to halve prevalence and mortality by 2015 compared with 1995,<sup>3</sup> the effort to control TB in Taiwan has been intensified since 2006, with the launch of the National Tuberculosis Program (NTP) “Halving TB in 10 Years” campaign for TB control and prevention.<sup>4</sup> The ambitious goal of the campaign was to halve TB incidence to 36/100,000 population by 2015 compared with 72/100,000 in 2005, which was a more challenging target compared with that of the World Health Organization. A directly observed treatment short-course program (DOTS) was also implemented for all identified TB patients, together with a scaling-up of laboratory diagnosis, contact investigation, and latent TB infection treatment.<sup>5,6</sup> By 2012, the patient numbers had decreased to 12,338 (53/100,000 population), which was in the right direction but with a slightly upward deviated slope. In February 2013, the Centers for Disease Control, Taiwan (TCDC) conducted an external review of the NTP. The external review was

aimed to evaluate not only the strategies of “Halving TB in 10 years”, but also the overall tactic of the NTP bridging to post 2015.

A panel composed of six international experts was invited to come to Taiwan to head the review. These expert panelists came from Japan, Singapore, the United Kingdom, and the United States. The external review began with a 2-day introductory presentation on 12 special topics understood to be necessary for an in-depth review of TB control. Following this introduction the panel of international experts proceeded to evaluate the implementation of the program in the field.<sup>7</sup> This evaluation covered a cohort of reviews conducted by public health centers at township level: team hospitals for TB and multi-drug-resistant TB care; active case finding and DOTS strategy in high-prevalence communities; and laboratory quality control. An external review report entitled “Halving TB in 10 Years Program in Taiwan, 2006 – 2015” was finalized and conveyed to domestic experts before the end of the review.<sup>7</sup> The report was divided into 11 parts. Observation findings and suggestions, of which there were 51 in total, were provided for each section. [Table 1](#) (executive summary) summarizes the overall view of the control of TB in Taiwan according to the review panelists and lists 10 key recommendations.

A new global strategy and new targets for TB prevention, care, and control after 2015 will be presented to member states in attendance at the 67<sup>th</sup> World Health Assembly in 2014.<sup>8</sup> Targets for 2035 are:

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**Table 1** The executive summary of the report of the external review on the National Tuberculosis Program in Taiwan in 2013.

Taiwan has a strong national program for the treatment, prevention, and control of tuberculosis (TB) which is still the number one infectious cause of death in Taiwan. Combined with economic and demographic changes in the population, the activities within the national TB program, including the "Halving TB in 10 Years Program, 2005–2016", are resulting in a sustained decrease in TB incidence in all parts of the Taiwanese population. A continuation of the present trends will not achieve the target of halving the TB incidence rates from 2005 to 2016, but the trends are coming quite close to achieving that target. Recommendations have been made, based on an external review by an independent international team, which will contribute to a further strengthening of the program and will also enable some increased efficiencies in the use of resources. The recommendations should be adapted to meet the needs of Taiwan: Taiwan's excellent data collection systems, surveillance activities, mycobacteriology laboratories, and epidemiologic research should be used to guide the customization and implementation of these recommendations. The key recommendations include:

- Strengthen adherence to national guidance on the treatment of TB.
- Increase the use of testing for latent TB infection, which includes the use of interferon- $\gamma$  release assays (IGRAs) for contacts of TB, with chest radiography reserved for those with positive results or symptoms in most circumstances.
- Reduce the use of routine chest radiographic screening, including in the follow up of patients who have completed treatment.
- Maintain the investment in laboratory systems to ensure a high level of service and contribution to the care of patients.
- Increase the age for the treatment of latent TB infection in conjunction with IGRA testing of contacts, to further reduce the incidence of TB.
- Screen students from high incidence countries for TB and include international migrant workers in the national TB statistics.
- Increase the use of intermittent treatment regimens in the treatment of TB disease and latent TB infection in order to reduce the work burden of direct observation.
- Strengthen systems for infection control for congregate settings which include residents who are at high risk of TB.
- Study the dynamics of TB transmission in the population and high-risk subgroups of the population by combining the results from genotyping and epidemiologic investigations.
- Increase the evaluation of the specific components of the "Halving TB" plan by using collated local and national data and operational research.

The approach to the treatment, prevention, and control of TB in Taiwan provides a model for other countries in the region. The combination of adequate resources, political will, and a strong national program, and an expert and enthusiastic workforce, are critical factors in the success of the national TB program. This combination must be sustained and strengthened to maintain progress in the control of TB.

- 95% reduction in TB deaths (compared with 2015);
- 90% reduction in TB incidence rate (<10/100,000);
- no affected families face catastrophic costs due to TB.

Milestones for 2025 are:

- 75% reduction in TB deaths (compared with 2015);
- 50% reduction in TB incidence rate (compared with 2015) (<55/100,000);
- no affected families face catastrophic costs due to TB.

In response to the external review and to global strategy and targets post 2015, the NTP has organized the Strategic and Technical Working Group for TB (STWG-TB) led by the director of the TCDC. The STWG-TB has evaluated the 51 suggestions put forward in the external review and has responded to each of them. The response was as follows: nine (17%) of the suggestions could be adopted immediately; 25 (49%) were already a part of ongoing projects; eight (16%) needed to undergo a cost-effectiveness analysis; seven (14%) could be funded through a 2014 study grant; and two (4%) of the suggestions were not considered a high priority at the time of evaluation. According to these decisions, the STWG-TB completed eight cost-benefit analyses in late February 2014. The analyses were mainly divided into two parts. First, the preferred utilization of a chest radiograph survey among high-risk populations should be justified. Second, a model for the endorsement of new diagnosis tools for TB patients and

latent TB infection patients should be established and its practicability assessed. The proposed strategy and targets for 2016–2025 will be presented to the Advisory Committee for TB by the STWG-TB before the end of March 2014, and will include an evaluation of any required resources. A detailed and comprehensive strategy will be completely settled upon by mid-2014, and the new plan for the NTP is expected to be approved by the Executive Yuan before the end of 2014. If approved, the TCDC can pursue further budgetary resources for new strategic goals and targets in relation to TB for 2016 and beyond in the calendar year 2015.

In conclusion to this article, as stated in the executive summary of the report of the external review, "the approach to the treatment, prevention, and control of TB in Taiwan provides a model for other countries in the region. The combination of adequate resources, political will, and a strong national program, and an expert and enthusiastic workforce, are critical factors in the success of the national TB program. This combination must be sustained and strengthened to maintain progress in the control of TB".<sup>7</sup>

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