

Guiding Tuberculosis Control Through the Healthy China Initiative 2019–2030

Hui Zhang¹; Xiaoqiu Liu¹; Caihong Xu¹; Dongmei Hu¹; Xue Li¹;
Tao Li¹; Yanlin Zhao¹; Mingting Chen¹; Jianjun Liu^{1,†}

Summary

Tuberculosis (TB) is a global public health problem, especially in China. China has the third largest TB burden in the world with nearly 0.9 million new TB cases emerging annually. Despite impressive achievements, China still faces many challenges in TB control that threaten further progress and the ability to meet the targets of the End TB strategy if not addressed. On July 15, 2019, the State Council of China issued Healthy China Initiative 2019–2030, which proposed 15 special campaigns including the Tuberculosis Control Action to guide the way for China's TB prevention and control. This article introduces the current status of TB in China, achievements reached so far, and challenges remaining and interprets the targets and strategies from the individual, society, and government level in the Tuberculosis Control Action.

proposed 15 special campaigns aiming to popularize health knowledge, participate in health actions, provide health services, and prolong life expectancy (3). The Tuberculosis Control Action is one of the prevention and control actions on infectious and endemic diseases in the Healthy China Initiative, which guides China's TB prevention and control for the coming ten years.

TB PREVENTION AND CONTROL

China was estimated to have the highest latent tuberculosis infection (LTBI) burden globally with approximately 350 million infections that are at risk for active TB disease (4). The estimated TB incidence rate was 58/100,000 population, and there were 833,000 new TB patients estimated to have occurred, accounting for 8.7% of the global incident cases in 2019 (1). In 2019, there were 775,764 pulmonary tuberculosis (PTB) cases reported in the National Notifiable Disease Reporting System (NNDRS), and the PTB reported incidence was 55.6/100,000, ranking second among Class A and Class B notifiable communicable diseases (5). Drug-resistant TB also continues to be a public health threat globally and in China. In 2019, China's multidrug-resistant or rifampicin-resistant TB (MDR/RR-TB) cases accounted for 14% of the global total cases. About 7.1% of new TB cases and 23% previously treated cases in China had MDR/RR-TB, which was greater than the global average (3.3% in new TB cases and 18% of previously treated cases) (1).

Over the past 30 years, due to strong leadership and support of the government, the country has scaled up China's Tuberculosis Prevention and Control Strategy based on the directly observed treatment, short-course (DOTS) strategy nationwide by providing basic services to 19.5 million TB patients, halving the prevalence and mortality of TB in 2010 as compared to 1990, and meeting the UN's Millennium Development Goals (MDGs, precursors to the SDGs) for TB five years ahead of the target date of 2015 (6–7)

BACKGROUND

Tuberculosis (TB) is an infectious disease that is one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent — ranking above HIV/AIDS (1). China has the third largest TB burden in the world (1). In 2014, the End TB Strategy was endorsed at the World Health Assembly and defined milestones (for 2020 and 2025) and targets (for 2030 and 2035) for reductions in TB incidence and deaths compared with levels in 2015 (2). The targets in 2030 also aligned with the United Nations (UN) Sustainable Development Goals (SDGs). In order to accelerate the countries' TB response and achieve the targets of the End TB Strategy, the first global ministerial conference on ending TB was held in Moscow in 2017, and the UN held its first-ever high-level meeting on TB in 2018. On July 15, 2019, the State Council of China issued the Healthy China Initiative 2019–2030, which

as the TB incidence rate fell 55.4% from 1990 (130/100,000) to 2019 (58/100,000) (1).

Despite impressive achievements, we still face challenges in TB control that if not addressed, threaten further progress in TB control. First, China still has a high burden of TB, especially the burden of MDR/RR-TB that poses the greatest challenge (1). Second, the TB control capacity is uneven between regions. In economically underdeveloped regions where the TB burden is high, the human resources, facility equipment, funding, and policies do not meet the needs of TB control (6,8). Third, the factors affecting the incidence of TB are becoming increasingly complex and include the population ageing and the increasing number of diabetes patients (8). Fourth, TB is an illness producing catastrophic expenditures. Despite increasing levels of coverage from government health insurance schemes, the out-of-pocket (OOP) expenditure for the diagnosis and treatment of patients with drug susceptible TB — especially MDRTB/RR-TB — is catastrophic (9). Finally, much of society lacks awareness on TB, and the participation of the whole society in TB control has not been fully realized (8).

TARGETS IN TUBERCULOSIS CONTROL ACTION

The incidence of PTB was set to be the indicator of the TB Control Action as it is the key indicator used to evaluate the effectiveness of the National TB Control Program (NTP) (10). The targets of incidence of PTB in the TB Control Action were set to reach less than 55/100,000 population with continuing decreases by 2022 and 2030 (3). So far, the TB incidence has never been directly measured at the national level because it

requires a long-term study that needs to enroll and follow up with thousands of people, which is prohibitively expensive (1,10). In China, new PTB notification data is being used to estimate the PTB incidence combined with the underreporting rate of the national Tuberculosis Information Management System (TBIMS). This indirect estimation method was recommended to estimate the incidence in countries with high-performance surveillance systems by World Health Organization (WHO) (10). In 2017, we conducted a retrospective cross-sectional survey to explore the underreporting rate of PTB notification in TBIMS, which was 8.2% in 2015 (11). Therefore, the estimated national PTB incidence rate was 61.2/100,000 in 2015.

STRATEGIES AND MEASURES IN TUBERCULOSIS CONTROL ACTION

TB control strategies are embodied at the individual level and the society and government level. The specific strategies and measures are shown in Table 1.

Individuals should be primarily responsible for their health. Therefore, at the individual level, the main strategy is universal health promotion through extensive mobilization and participation of the whole society, conducting different forms of health education activities and classified guidance for different groups, and improving the public's health knowledge and literacy to create positive knowledge, attitudes, and behavioral change for TB control. Core information includes the following: individuals should cover their mouths and noses with hands or tissues while coughing or sneezing; people experiencing coughs for two weeks or more with blood in the sputum should go to TB-designated hospitals promptly; TB patients should take

TABLE 1. Strategies and measures in the tuberculosis (TB) control action.

Level	Strategies	Measures
Individual	Universal health promotion	Extensive mobilization and participation of the whole society Health education Classified guidance for different groups
Society and government	A patient-centered approach to TB prevention and control	To intensify TB active screening in key areas and high-risk populations To implement standardized TB treatment To improve the diagnosis and treatment level To strengthen the whole process of health management services
	Government stewardship and commitment	Government input and multichannel financing funding mechanism Multisectoral collaboration mechanism To develop a comprehensive national TB strategic plan

medicine regularly throughout the course of treatment; appropriate isolation measures should be taken by family members when an infectious TB patient is identified; infectious TB patients should avoid going to public places, wear masks when unavoidable, and avoid boarding vehicles with poor ventilation; and individuals should wear masks when in contact with infectious TB patients in both areas at high risk of transmission and elsewhere.

At the society and government level, the TB control strategies are in line with the concept of Health in All policies, SDGs, and End TB Strategy (2–3). The first key strategy is a patient-centered approach to TB prevention and control, which focuses on providing universal access to TB care with greater attention to vulnerable and hard-to-reach populations. This includes improving early diagnosis of TB and systematic TB screening in key areas and high-risk populations such as students, the elderly, and the poor; increasing drug resistance screening to detect the TB patients on time; implementing standardized TB treatment; improving the diagnosis and treatment level; and strengthening the whole process of health management services for TB patients in primary health care institutions.

The second key strategy is government stewardship and commitment, which encompasses measures within and beyond the health sector that will enable effective transformation and strengthening of policies and systems to support TB prevention and control (2–3). This includes building a government input and multichannel financing funding mechanism to ensure sufficient funding for healthcare workers and facilities delivering public health and clinical TB services; building a multisectoral collaboration mechanism led by the NHC; encouraging action by the Ministry of Education, the Medical Insurance Bureau, and the Poverty Alleviation Office based on their respective responsibilities; and developing a comprehensive national TB strategic plan. The Action Plan to Stop TB from 2019 to 2022 was issued by the NHC together with National Development and Reform Commission, Ministry of Education, Ministry of Science and Technology, Ministry of Civil Affairs, Ministry of Finance, Poverty Alleviation Office of the State Council, and the National Healthcare Security Administration in 2019 (12).

TB is a public health problem that can affect anyone anywhere. In order to achieve the goals of ending TB, we should take strategy measures actively guided by the Tuberculosis Control Action to stop the TB epidemic, improve the health of the people, and build a healthy China.

doi: 10.46234/ccdcw2020.236

Corresponding author: Jianjun Liu, liujj@chinacdc.cn.

¹ National Center for Tuberculosis Control and Prevention, China CDC, Beijing, China.

Submitted: May 15, 2020; Accepted: October 28, 2020

REFERENCES

1. World Health Organization. Global tuberculosis report 2020. Geneva, Switzerland: WHO. 2020. https://www.who.int/tb/publications/global_report/en/. [2020-10-15].
2. World Health Organization. Implementing the end TB strategy: the essentials. https://www.who.int/tb/publications/2015/The_Essentials_to_End_TB/en/. [2020-4-8].
3. Healthy China initiative Promotion committee, Healthy China Initiative (2019–2030). <http://www.nhc.gov.cn/guihuaxxs/s3585u/201907/e9275fb95d5b4295be8308415d4cd1b2.shtml>. (In Chinese).
4. Houben RMGJ, Dodd PJ. The global burden of latent tuberculosis infection: a re-estimation using mathematical modelling. *PLoS Med* 2016;13(10):e1002152. <http://dx.doi.org/10.1371/journal.pmed.1002152>.
5. Chen W, Zhang H, Du X, Li T, Zhao YL. Characteristics and morbidity of the tuberculosis epidemic — China, 2019. *China CDC Wkly* 2020;2(12):181–4. <http://dx.doi.org/10.46234/ccdcw2020.048>.
6. Wang LX, Zhang H, Ruan YZ, Chin DP, Xia YY, Cheng SM, et al. Tuberculosis prevalence in China, 1990–2010; a longitudinal analysis of national survey data. *Lancet* 2014;383(9934):2057–64. [http://dx.doi.org/10.1016/S0140-6736\(13\)62639-2](http://dx.doi.org/10.1016/S0140-6736(13)62639-2).
7. Wang LX, Sun YN, Wang Y. China's contribution to the millennium development goals: achieving tuberculosis control targets ahead of deadline. *Global Health J* 2017;1(1):21–5. [http://dx.doi.org/10.1016/S2414-6447\(19\)30056-9](http://dx.doi.org/10.1016/S2414-6447(19)30056-9).
8. Zhang H, Liu JJ. The overview and prospect of tuberculosis control in China since the founding of the People's Republic of China. *Chin J Antituberc* 2019;41(9):913–6. <http://dx.doi.org/10.3969/j.issn.1000-6621.2019.09.001>. (In Chinese).
9. WHO. Eliminating the catastrophic economic burden of TB. https://www.who.int/tb/publications/UHC_SP_factsheet.pdf?ua=1.
10. World Health Organization. TB impact measurement policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control. Geneva, Switzerland: WHO. 2009. <https://www.who.int/tb/publications/2009/impactmeasurementpolicy/en/>. [2020-4-6].
11. Li T, Chen W, Zhao YL, Wang LX, Chen MT, Du X, et al. Preplanned studies: underreporting of notifiable pulmonary tuberculosis cases to the national tuberculosis information management system — China, 2015. *China CDC Wkly* 2020;2(12):185–9. <http://dx.doi.org/10.46234/ccdcw2020.049>.
12. Commission NH, Commission NDaR, Education Mo, et al. Action plan to stop TB (2019–2022). 2019. http://www.gov.cn/gongbao/content/2019/content_5437149.htm. [2019-5-31]. (In Chinese).