

## Announcements

## The 25<sup>th</sup> World TB Day — March 24, 2020

World TB Day is observed on March 24 each year to raise public awareness about the devastating health, social, and economic consequences of tuberculosis (TB) and to step up efforts to end the global TB epidemic. March 24 is the day in 1882 when Dr. Robert Koch announced that he had discovered the bacterium that causes TB, which opened the way towards diagnosing and curing the disease.

TB remains the world's deadliest infectious killer. Each day, over 4,000 people lose their lives to TB and close to 30,000 people fall ill with this preventable and curable disease (1). Globally in 2018, an estimated 10.0 million (range: 9.0–11.1 million) people fell ill with TB, equivalent to 132 cases (range: 118–146) per 100,000 population. In China, an estimated 866,000 (range: 740,000–1,000,000) people fell ill with TB in 2018, equivalent to 61 cases (range: 52–70) per 100,000 population (2).

Under the theme of World TB Day 2020 “It's Time”, the spotlight this year is on urgently accelerating the TB response to save lives and end suffering by building on high-level commitments by Heads of State at the 2018 UN High-Level Meeting on TB and to accelerate the UN's 2030 target to end TB (3). In response to the theme of World TB Day 2020, the National Health Commission of China has announced China's 2020 national theme: “Working together to fight against COVID-19 and TB to promote our healthy breathing” (4).

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3. Stop TB Partnership. World TB day 2020. [http://www.stoptb.org/events/world\\_tb\\_day/](http://www.stoptb.org/events/world_tb_day/). [2020-03-05].
4. China Tuberculosis Network. The theme of world TB day 2020 was released. <http://tb.chinacdc.cn/>. [2020-03-05]. (In Chinese).

## Vital Surveillances

## Characteristics and Morbidity of the Tuberculosis Epidemic — China, 2019

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### Abstract

**Introduction:** The year 2019 was crucial for the implementation of China's National “13th 5-Year” Tuberculosis (TB) Control Plan. We conducted this study to evaluate the characteristics and progress towards controlling TB in China.

**Methods:** We collected and analyzed the pulmonary tuberculosis (PTB) data of China between January 1, 2015 and December 31, 2019 from the National Notifiable Disease Reporting System (NNDRS).

**Results:** In 2019, there were 775,764 PTB cases reported in NNDRS, of which 349,307 were bacteriologically-confirmed (Bac+) cases. The PTB case notification rate (CNR) was 55.55 per 100,000, and the Bac+ CNR was 25.01 per 100,000. From 2018 to 2019, the number of PTB cases fell by 6.3%, but the number of Bac+ cases increased by 25.9%. The annual decrease in the rate of reported PTB was 3.4% from 2015 to 2019.

The 5 provincial-level administrative divisions (PLADs) with the highest PTB CNR were as follows: Tibet (182.38 per 100,000), Xinjiang (169.05 per 100,000), Qinghai (134.53 per 100,000), Guizhou (102.51 per 100,000), and Hainan (90.22 per 100,000).

The rate of reported PTB was 74.84 per 100,000 for males and 35.40 per 100,000 for females. There were 8,116 cases (1.0%) among children aged 0–14 years, and 197,730 cases (25.5%) among adults aged 65 years and over. Of the reported cases, 470,932 were farmers, which was the most common occupation at 60.7%.

**Conclusions and Implications for Public Health Practice:** The TB epidemic has decreased dramatically year by year. Most PTB cases were in the central and western regions of China, and the high-risk groups were farmers and elderly people aged 65 years and over.

## Introduction

Tuberculosis (TB) is a top ten cause of death worldwide and the leading cause of death due to infectious disease in the world. TB is caused by *Mycobacterium tuberculosis* and is spread through the air from one person to another. China is one of the 30 high TB burden countries (HBCs) in the world with an estimated 0.87 million (0.74–1.00 million) TB cases in 2018. The incidence rate, however, was 61 per 100,000 population, below the world average of 132 per 100,000. China ranked 2 for new TB cases among 30 HBCs, but ranked 27 for TB incidence rate.

In 2018, the United Nations held its first ever high-level meeting on TB, discussing the status of the TB epidemic and how to end it (1). In order to end the TB epidemic, the National Health Commission of China constructed the Action Plan to End TB (2019–2022) in 2019 (2). The year was also important for China to implement the National “13th 5-Year” TB Control Plan. To understand the epidemic situation of TB in China, we collected and reported pulmonary TB (PTB) data from the National Notifiable Disease Reporting System (NNDRS) and systematically analyzed the epidemiological characteristics of TB and progress towards controlling TB in China.

## Methods

Data on reported PTB cases between January 1, 2015 and December 31, 2019 were downloaded from the NNRDS. We analyzed the characteristics and morbidity of the TB epidemic by year, provincial-level administrative divisions (PLADs), and population using Microsoft Excel (version 2007) and the spatial

distribution of the TB epidemic with ArcGIS (version 10.2; Esri Institute).

## Results

In 2019, there were 775,764 reported PTB cases in the NNDRS, of which 349,307 were bacteriologically-confirmed cases. The rate of reported PTB was 55.55 per 100,000, and the rate of reported bacteriologically-confirmed (Bac+) was 25.01 per 100,000. Compared with 2018, PTB cases fell by 6.3%, while the Bac+ cases increased by 25.9%. The annual rate of decrease of reported PTB was 3.4% during 2015–2019 (Table 1). The number of reported PTB cases was ranked 2 in Class A and Class B notifiable infectious diseases during 2015–2019, right behind hepatitis B.

In 2019, the five PLADs with the highest rate of reported PTB were: Tibet (182.38 per 100,000), Xinjiang (169.05 per 100,000), Qinghai (134.53 per 100,000), Guizhou (102.51 per 100,000), and Hainan (90.22 per 100,000 (Figure 1A); the five PLADs with highest number of reported PTB cases were:

TABLE 1. The number and case notification rate of reported pulmonary tuberculosis (PTB) in China, 2015–2019.

Year	Population (10,000)	No. of reported PTB		Rate of reported PTB (1/100,000)	
		PTB	Bac+*	PTB	Bac+*
2015	136,247	864,015	247,168	63.42	18.14
2016	137,343	836,236	237,942	61.00	17.36
2017	137,923	835,193	244,302	60.53	17.71
2018	138,910	823,342	277,439	59.27	19.97
2019	139,654	775,764	349,307	55.55	25.01

\* Bac+: bacteriologically confirmed.

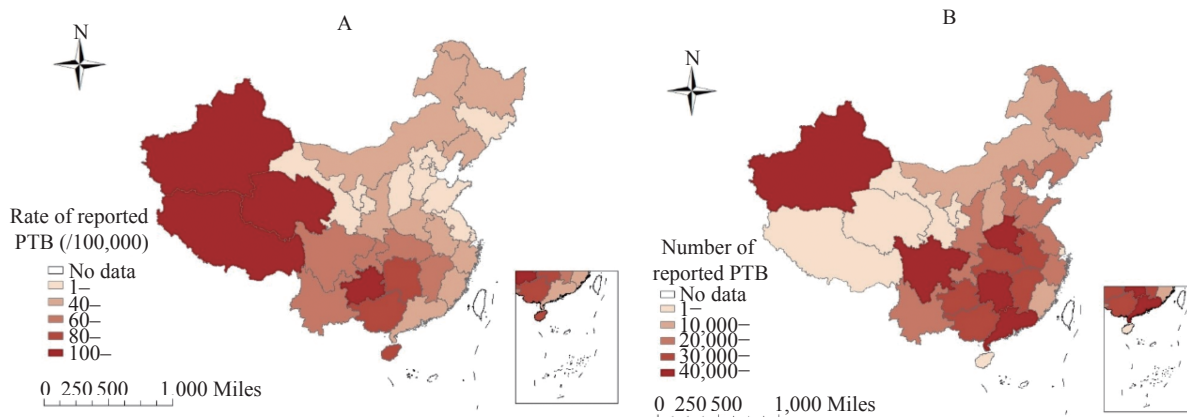


FIGURE 1. Geographical distribution of the reported pulmonary tuberculosis (PTB) in 31 PLADs of China, 2019. (A) Rate of reported PTB; (B) Number of reported PTB.

Guangdong (66,261), Hunan (56,620), Sichuan (50,337), Henan (49,753), and Xinjiang (42,043) (Figure 1B).

TB affects both males and females in all age groups. There were 533,981 reported male PTB cases with a case rate of 74.84 per 100,000 population and 241,783 reported female cases with a case rate of 35.40 per 100,000. There were 8,116 cases in children aged 0–14 years (1.0%), and 197,730 cases in the adults aged 65 years and over (25.5%). The case rate of reported PTB increased with age and was higher in older age groups (Table 2).

Of the reported cases, 470,932 were farmers (60.71%), the highest among all occupations, 111,006 were house workers (14.31%), 47,732 were students (6.15%), 41,324 were retirees (5.33%), and 34,094 were factory workers (4.39%) (Table 3).

## Discussion

TB is one of the major infectious diseases affecting public health in both China and the world. The TB epidemic in China is still severe. China is one of the highest 30 HBCs, and the number of new estimated TB cases is second only after India (3–6). Reported PTB cases ranked second in Class A and Class B notifiable infectious diseases in China from 2015 to 2019.

During the period of 13th 5-Year National Plan, the Central Government of China regarded TB as one of the priority infectious diseases to be controlled. Government at different levels, from the national level to the county level, have made political commitments on TB control. With such measures as optimizing the TB service provision systems and improving the quality

of case detection and treatment management, TB cases have decreased dramatically year by year. The annual decrease of the TB incidence rate in China was 3.4% during 2015–2019, which was higher than the global average (1.6%). Compared with 2018, the reported number of cases of PTB in 2019 decreased by 6.3% (3,4,6), while the number of Bac+ cases increased by 25.9%. This indicates that designated TB hospitals have attached importance to sputum collection and testing. As a result, the bacteriological confirmation rate has been improved remarkably.

The number of reported PTB cases and the case rates were higher in Xinjiang, Guizhou, Guangxi, Hunan and Jiangxi, which are located in the central and western part of China, the priority regions for TB control in the country. TB cases were mainly distributed in low-income and other high-risk groups, such as farmers in the central and western regions and elderly people aged 65 years and over. In addition, the case rate of students aged 15–25 years increased dramatically, so these groups of people will be the priority for TB control in the future (7–9).

This study is subject to some limitations. The reported number cases of PTB by the NNDRS was affected by the severity of the epidemic situation and the work of case detection, so considering these factors upon comparing the reported rate with different provinces is necessary to assess the level of the TB morbidity.

Although much progress has been made in TB control, TB still remains a major public health threat in China. Further progress in controlling the disease could be long, complex, and arduous. More funding and specialized human resources are needed for TB high burden areas, such as poor areas in the central and the western areas with a focus on some high risk

TABLE 2. The number and case notification rate of reported pulmonary tuberculosis (PTB) in different gender and age groups, 2019.

Age group (years)	Population (10,000)			No. of reported PTB			Rate of reported PTB		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0–	4,406	3,992	8,397	398	350	748	0.90	0.88	0.89
5–	8,272	7,032	15,303	3,558	3,810	7,368	4.30	5.42	4.81
15–	8,187	7,239	15,425	66,038	38,929	104,967	80.67	53.78	68.05
25–	11,834	11,293	23,127	70,973	41,444	112,417	59.97	36.70	48.61
35–	10,260	9,948	20,207	56,276	27,233	83,509	54.85	27.38	41.33
45–	12,248	11,923	24,171	98,033	35,739	133,772	80.04	29.98	55.35
55–	8,311	8,212	16,523	100,432	34,821	135,253	120.84	42.40	81.86
≥65	7,831	8,668	16,500	138,273	59,457	197,730	176.56	68.59	119.84
Total	71,348	68,305	139,654	533,981	241,783	775,764	74.84	35.40	55.55

TABLE 3. Reported pulmonary tuberculosis (PTB) cases by occupation, 2019.

Category	No. of reported PTB	Proportion (%)
Child	1,433	0.18
Student	47,732	6.15
Teacher	4,280	0.55
Service staff	16,087	2.07
Healthcare worker	4,018	0.52
Factory worker	34,094	4.39
Farmer	470,932	60.71
Government official	12,742	1.64
Retiree	41,324	5.33
House worker	111,006	14.31
Others	20,547	2.65
Not applicable	115,69	1.49
Total	775,764	100.00

groups, such as farmers, elderly people aged 65 years and over, and students aged 15–25 years (10–11). By implementing comprehensive control measures, we could decrease TB incidence and mortality dramatically in China. This will in turn contribute to achieving the goals of “Health China 2030” and “Poverty Alleviation in China” (12).

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## Conflicts of interest

All authors have completed and submitted the

ICMJE form. And no conflicts of interest were reported.

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