

Tuberculosis in Japan: Annual Report 2022

TUBERCULOSIS IN JAPAN

ANNUAL REPORT - 2022

TUBERCULOSIS SURVEILLANCE CENTER

Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association

About the Tuberculosis Surveillance Center

The Tuberculosis Surveillance Center, located within the Department of Epidemiology and Clinical Research, the Research Institute of Tuberculosis, Japan, is committed to providing technical support for the national computerized tuberculosis surveillance system, as well as compiling annual TB report, analyzing surveillance data and disseminating findings to all those involved in TB control in Japan.

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Notes on the report

This report presents detailed data on TB case notifications made to the Japan TB Surveillance System to the end of 2021. It is largely based on the Book of TB Statistics, published by the Japan Anti-Tuberculosis Association, and available as a printed report in Japanese, however, several additional and original analyses are made for international readers.

All figures in this report are available for download as a separate slide set also at <https://jata-ekigaku.jp/english/tb-in-japan>.

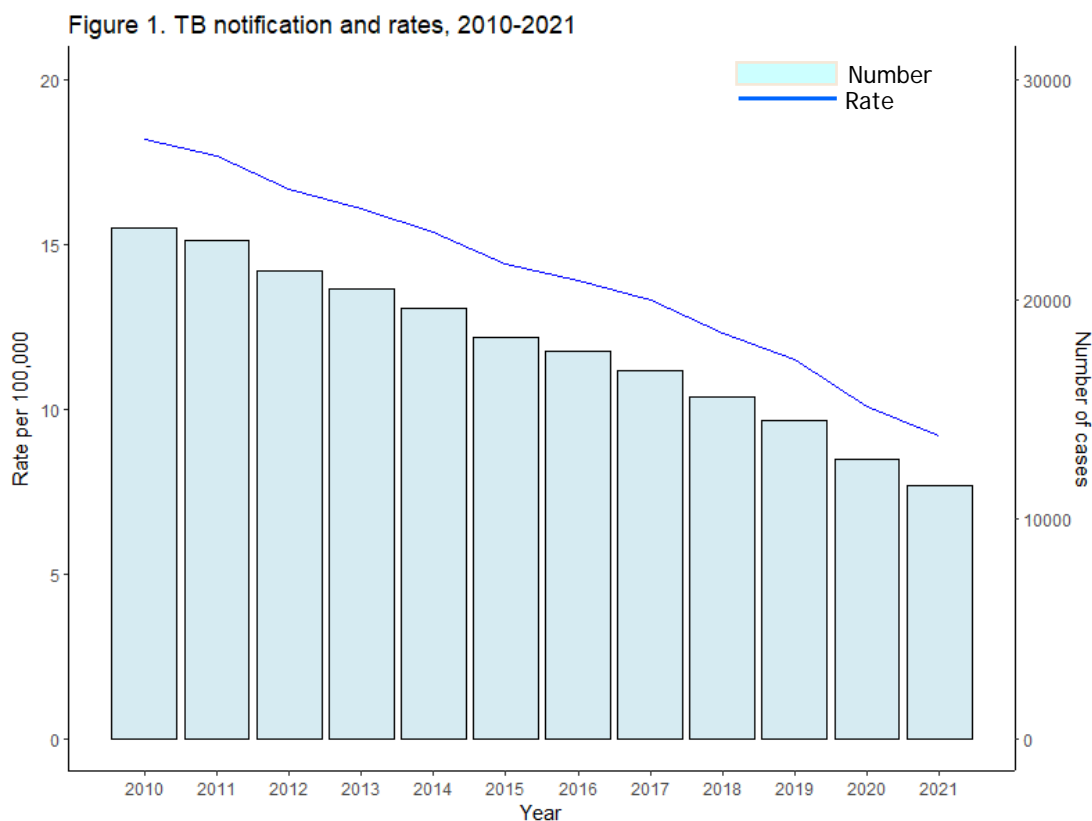
Chapter 1: Tuberculosis case report, 2010-2021

Overall numbers and rates:

In 2021, 11,519 cases of tuberculosis (TB) were newly notified, and the notification rate per 100,000 population was 9.2 for all TB. Of the 11,519 cases, pulmonary TB (PTB) accounted for 73.0% (n=8,413) and extrapulmonary TB (EPTB) cases, for 27.0% (n=3,106). Among the PTB patients, 49.1% (4,127 / 8,413) were sputum smear positive, 87.4% (7,350 / 8,413) were bacteriologically confirmed, and 12.6% (1,063 / 8,413) were clinically confirmed.

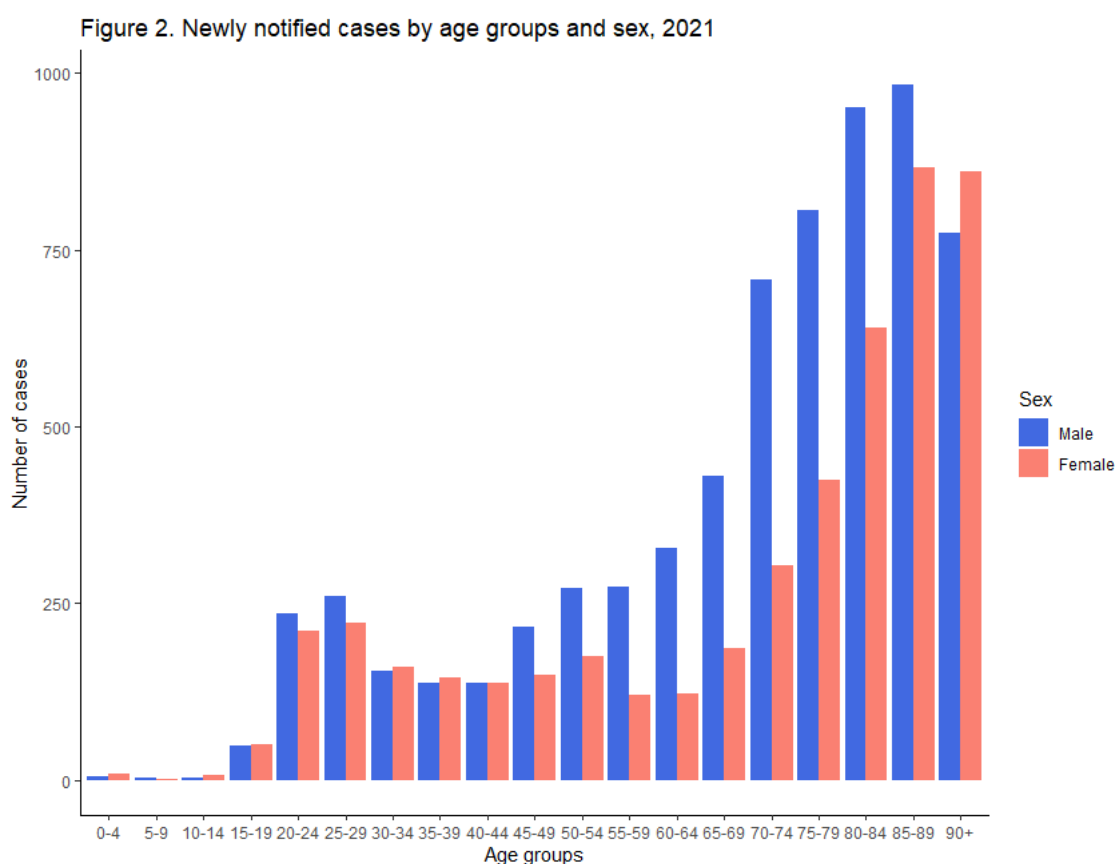
In addition, 5,140 latent tuberculosis infections (LTBI) requiring treatment were reported.

As shown in Figure 1, both the number of new cases and notification rates per 100,000 have continued to decline steadily, and this year reached the national target of below 10 per 100,000 (see also Table s1). The number of notifications for active TB decreased by 9.6%, or by 1,220 cases, from the previous year. The notification rate decreased by 8.9%.

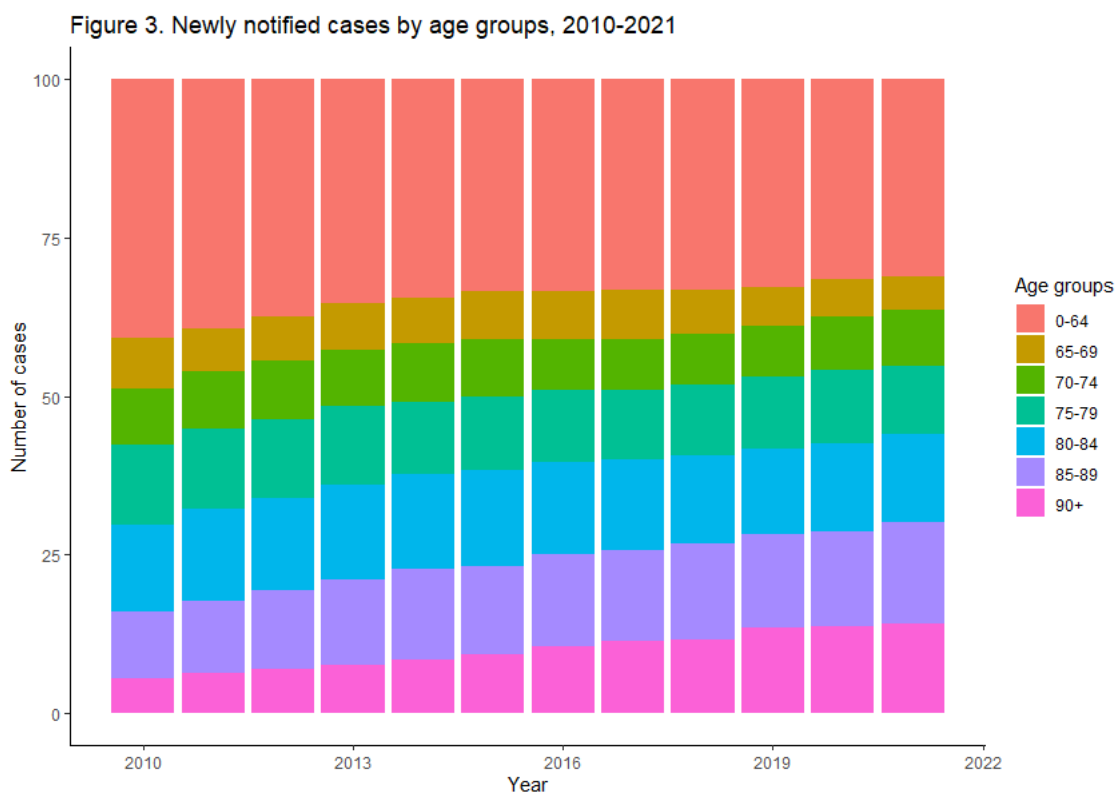


Age and sex:

In 2021, 58.4% of the notified cases were males (6,726 / 11,519) and 41.6% were females (4,793 / 11,519), with the number of males being 1.4 times higher than of females. The sex ratio increased after 45 years of age, and the number of males was 2 times greater or more, than of females in the age group 5 to 9, and 55 to 74 years. (Figure 2, see also Table s2). The average age of the notified cases was 69.5 years old (male; 69.4 years old, female; 69.7 years old), and the median was 77 years old (male; 76.0 years old, female; 79.0 years old).



The proportion of those aged 65 years and above among the total notified TB cases was 68.9% (7,932 / 11,519), and of those aged 80 years old and above was 44.0% (5,073 / 11,519). The proportion of those aged 65 years old had rapidly increased, from 48.3 in 2000 to 59.1% in 2010, and to 68.9% in 2021, due to the aging of the Japanese population and reactivation of past infection. The increase in the proportion of those aged 90 years old and above has been dramatic, which has increased from 2.4% in 2010 to 14.2% in 2021 (Figure 3, see also Table s3).



TB among children:

In 2021, 29 cases of TB were newly notified among children aged 14 years old and below. Of these, 23 were Japan-born and 6 were foreign-born. By age-group, 14 were aged 0 to 4 years old, 5 were aged 5 to 9 years old, and 10 were aged 10 to 14 years old. The number of newly registered pediatric TB cases has decreased rapidly from 44,180 in 1965 to 18,197 in 1970, 1,893 in 1980, 518 in 1990, 220 in 2000, and to 29 in 2021.

62.1% (18 / 29) had pulmonary diseases, and 37.9% (11 / 29) had extra-pulmonary disease only. One case of miliary TB were reported.

14 had history of BCG vaccination (12 Japan-born, 2 foreign-born), 4 did not (4 Japan-born), and 11 with unknown history or no data.

Regarding the source of infection, information was available for 15 of 29 childhood cases. 11 were infected by their parents and 3 by their grandparents, and 1 by “others”.

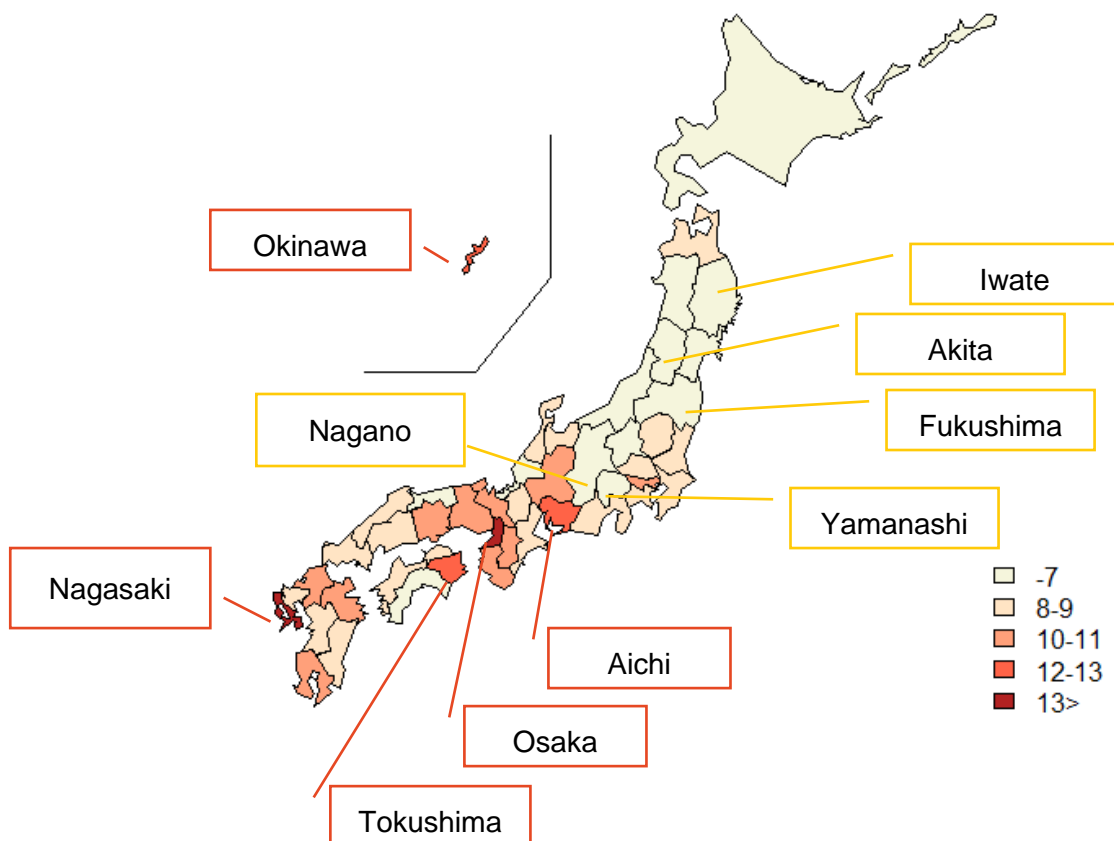
Chapter 2: Geographical distribution

Among the 47 prefectures and the 20 designated cities, the highest number of TB cases was notified from Tokyo (n=1,429), and the lowest from Yamanashi (n=35). The notification rate was the highest in Nagasaki, at 13.5 per 100,000, followed by Osaka (13.3), Tokushima (12.9), Okinawa (11.9) and Aichi (11.7). The notification rate was the lowest in Yamanashi, at 4.3 per 100,000, followed by Akita (4.9), Iwate and Nagano (5.1), and Fukushima (5.6).

Looking at the whole of Japan, the notification rates tended to be low in eastern and northeastern prefectures and high in the western prefectures.

In 37 out of 47 prefectures, the notification rate reached below 10 per 100,000 (see Map).

Map. Notification rate per 100,000 by prefectures, 2021



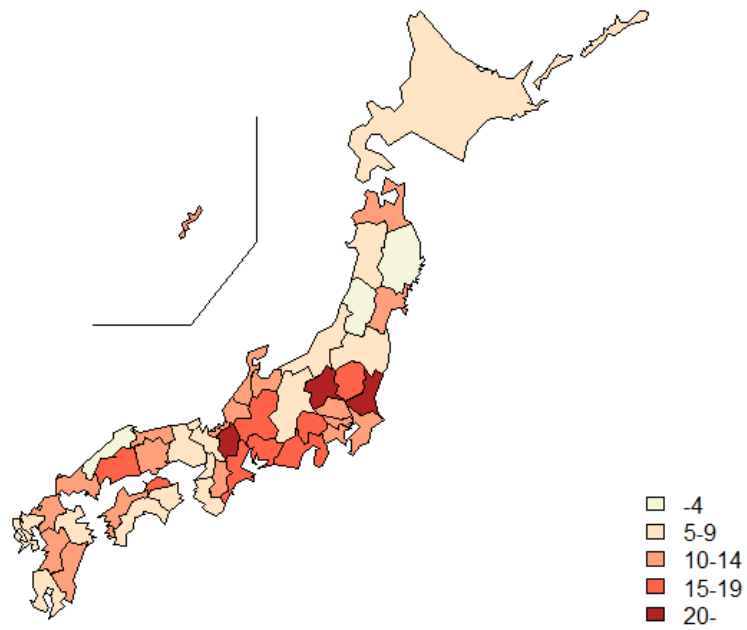
Geographical distribution of foreign-born cases:

In 2021, 1,313 foreign-born TB cases were notified (see Chapter 5 for details). Among them, the largest number of cases were notified from Tokyo (n=192), followed by Aichi (n=159), Osaka (n=84), Kanagawa (n=78) and Saitama (n=77). The proportion of foreign-born TB among all notified cases was the largest in Gunma (27.6%, n=34), followed by Shiga (22.2%, n=26), Ibaraki (20.8%, n=46), Aichi (18.1%, n=159) and Kagawa (18.1%, n=15), and tended to be higher in northern Kanto and Chubu regions. The proportion was the lowest in Shimane (1.9%, n=1) (see Map 2).

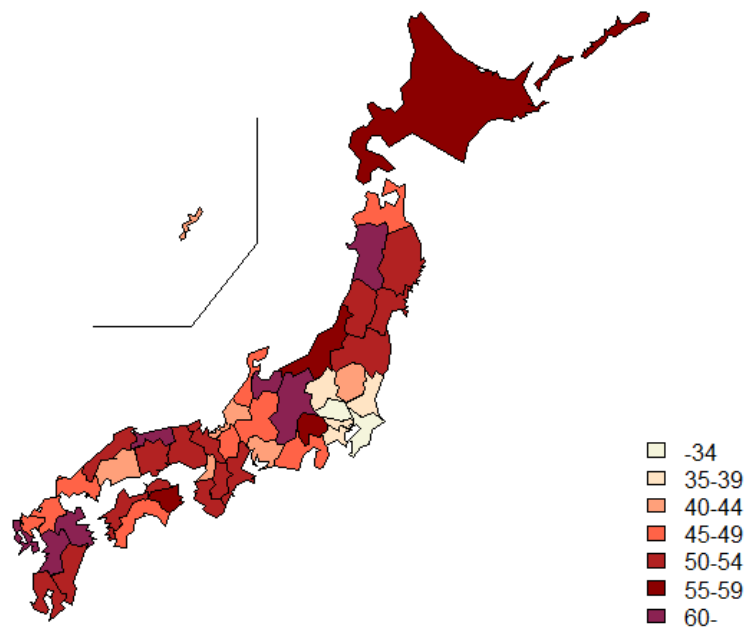
Geographical distribution of elderly cases:

Among the 47 prefectures, the proportion of those aged 80 years old and above among all notified cases was the highest in Toyama (75.0%, n=63), followed by Kumamoto (65.9%, n=83), Nagasaki (63.4%, n=111), Tottori (63.2%, n=24) and Akita (63.0%, n=29). The proportion was the lowest in Saitama (30.5%, n=188), followed by Chiba (33.3%, n=184), Tokyo (34.1%, n=488), Ibaraki (36.2%, n=80) and Kanagawa (36.6%, n=274). The proportions tended to be higher in large urban cities, such as Tokyo and Osaka (see Map3).

Map 2. Proportions of foreign-born TB cases by prefectures, 2021



Map 3. Proportions of elderly TB cases by prefectures, 2021



Chapter 3: Clinical background

Extrapulmonary disease by site¹:

In 2021, of the 11,519 cases, 8,413 were diagnosed with PTB, either with or without concomitant extrapulmonary disease, and 3,106 were diagnosed exclusively as EPTB. A total of 4,683 cases of EPTB, including both those exclusively EPTB and concomitant with PTB, were reported. The 4,683 cases of EPTB by affected organ is shown in Table 1.

The largest number of EPTB was pleurisy (n=2,168), followed by tuberculosis of other lymph nodes (n=659) and miliary tuberculosis (n=573).

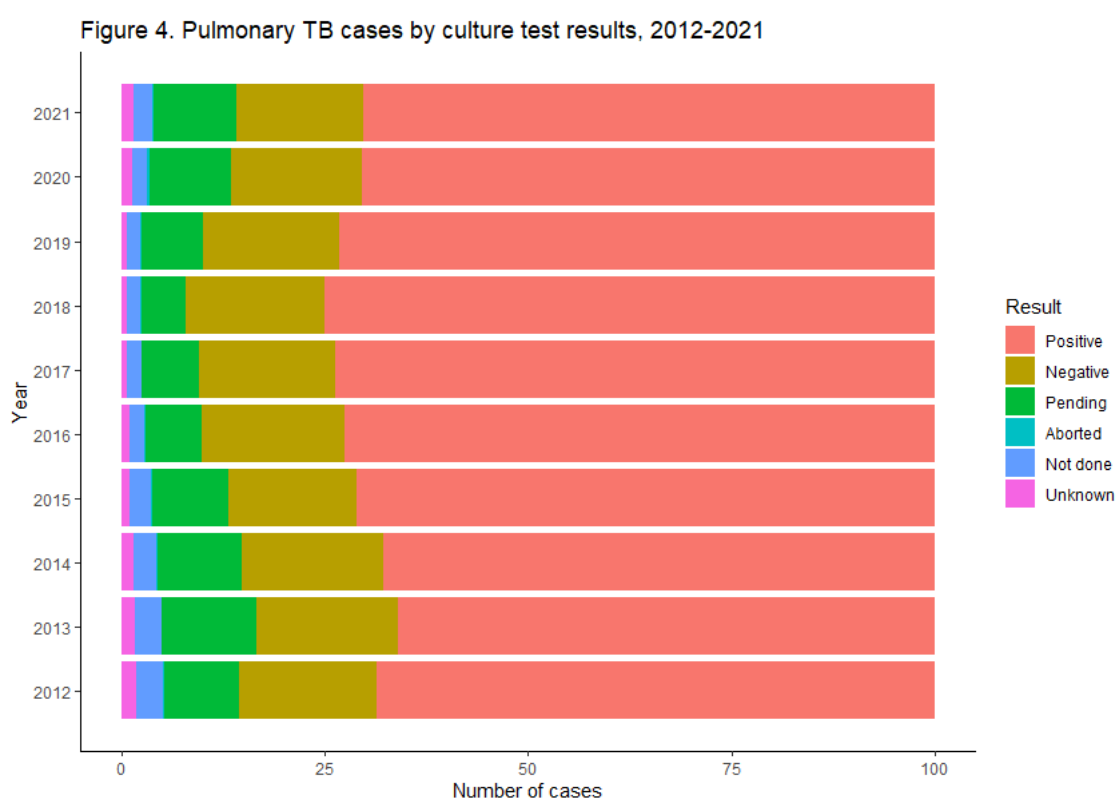
Table 1 Extrapulmonary cases by site, notified in 2021

| Site | n |
|------------------------------|--------------|
| Bronchial | 91 |
| Pharyngeal/Laryngeal | 28 |
| Miliary | 573 |
| Pleura | 2,168 |
| Empyema | 14 |
| Hilar/Mediastinal lymph node | 101 |
| Other lymph node | 659 |
| Meningeal | 100 |
| Intestinal | 186 |
| Vertebral | 145 |
| Other joint/ Bone | 103 |
| Renal/ Urinary tract | 53 |
| Genital | 13 |
| Cutaneous | 68 |
| Ocular | 30 |
| Auricular | 6 |
| Peritoneal | 142 |
| Pericardial | 57 |
| Others | 146 |
| Total | 4,683 |

¹ A patient diagnosed with bronchial tuberculosis is classified as a pulmonary tuberculosis under JTBS. However, it is also counted as "one case of extrapulmonary disease involving bronchi. Furthermore, when a patient is diagnosed with concomitant pulmonary and extrapulmonary disease, he or she is classified as a pulmonary tuberculosis, but each extrapulmonary site is counted.

Pulmonary TB - bacteriological confirmation:

Among the 8,413 PTB cases, results of sputum smear tests were known for 8,321 cases. Of these 54.0% (4,494 / 8,321) were sputum smear positive. Results of culture tests were known for 7,219 cases. Of these 81.8% (5,902 / 7,219) were culture positive. However, the proportion of those whose tests results were pending has gradually increased since 2019 (Figure 4, see also Table s4). Results of tests using nucleic acid amplification method was known for 7,370 cases, of whom 84.4% (6,223 / 7,370) were positive.



Tables 2.a-2.c summarize the cross tabulations of bacteriological test result of PTB cases notified in 2021. The proportions of culture positive among smear negative, of NAATs positive among smear negative, NAATs positive among culture negative and culture positive among NAATs negative were 60.8% (2,325 / 3,827), 55.3% (2,117 / 3,827), 32.3% (426 / 1,317) and 35.4% (406 / 1,147), respectively.

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Table 2a PTB cases, by smear and culture test results, 2021

| | Culture | | | | | Total |
|------------------------|--------------|--------------|------------|-----------|-------------------|--------------|
| | Positive | Negative | Pending | Aborted | Not done /unknown | |
| Smear positive | 3,562 | 201 | 544 | 4 | 183 | 4,494 |
| Smear negative | 2,325 | 1,113 | 311 | 7 | 71 | 3,827 |
| Smear not done/unknown | 15 | 3 | 8 | 0 | 66 | 92 |
| Total | 5,902 | 1,317 | 863 | 11 | 320 | 8,413 |

Table 2b. PTB cases, by smear and NAATs results, 2021

| | NAATs | | | Total |
|------------------------|--------------|--------------|------------------|--------------|
| | Positive | Negative | Not done/unknown | |
| Smear positive | 4,080 | 93 | 321 | 4,494 |
| Smear negative | 2,117 | 1,053 | 657 | 3,827 |
| Smear not done/unknown | 26 | 1 | 65 | 92 |
| Total | 6,223 | 1,147 | 1043 | 8,413 |

Table 2c. PTB cases, by culture and NAATs results, 2021

| | NAATs | | | Total |
|-----------------------|--------------|--------------|------------------|--------------|
| | Positive | Negative | Not done/unknown | |
| Culture positive | 4,950 | 406 | 546 | 5,902 |
| Culture negative | 426 | 643 | 248 | 1,317 |
| Results pending | 644 | 75 | 144 | 863 |
| Test aborted | 5 | 3 | 3 | 11 |
| Test not done/unknown | 198 | 20 | 102 | 320 |
| Total | 6,223 | 1,147 | 1,043 | 8,413 |

Infectious TB - cases with cavities and positive sputum smear:

The proportion of those with cavities was 28.6% (2,402 / 8,413) among all PTB, 31.9% (1,628 / 5,100) for males and 23.4% (774 / 3,313) for females. The proportion of cavities among PTB by sex and age group is shown in Figure 5 (see also Table s5). The proportion of those with cavities ranged between approximately 20-30% for females, and between 20-40% for males, aged 15 years old and above. The proportions of those with cavities was especially high at approximately 40% among males aged between 40 to 60 years old and declined with age. However, the proportions of those with cavities among adult females stayed stable throughout all age groups.

The proportion of those with sputum smear positive was 49.1% (4,127 / 8,413)

among all PTB, 49.6% (2,532 / 5,100) among males and 48.1% (1,595 / 3,313) among females. The proportion of positive smear among PTB by sex and age group is shown in Figure 6 (see also Table s6). The proportion of those with positive smear tended to increase with age for both sexes.

Of the 8,413 PTB cases, the proportion of those with cavity and positive sputum smear was 20.5% (1,727 / 8,413), of those with cavity and negative sputum smear was 8.0% (675 / 8,413), and those without cavity and positive sputum smear was 28.5% (2,400 / 8,413).

Figure 5. Proportion of those with cavity among PTB by age groups and sex, 2021

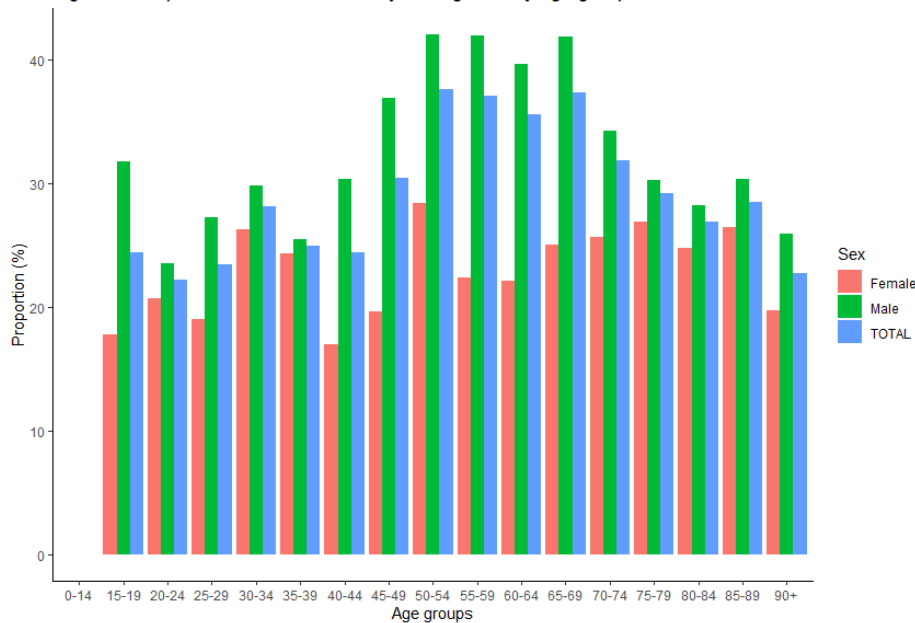
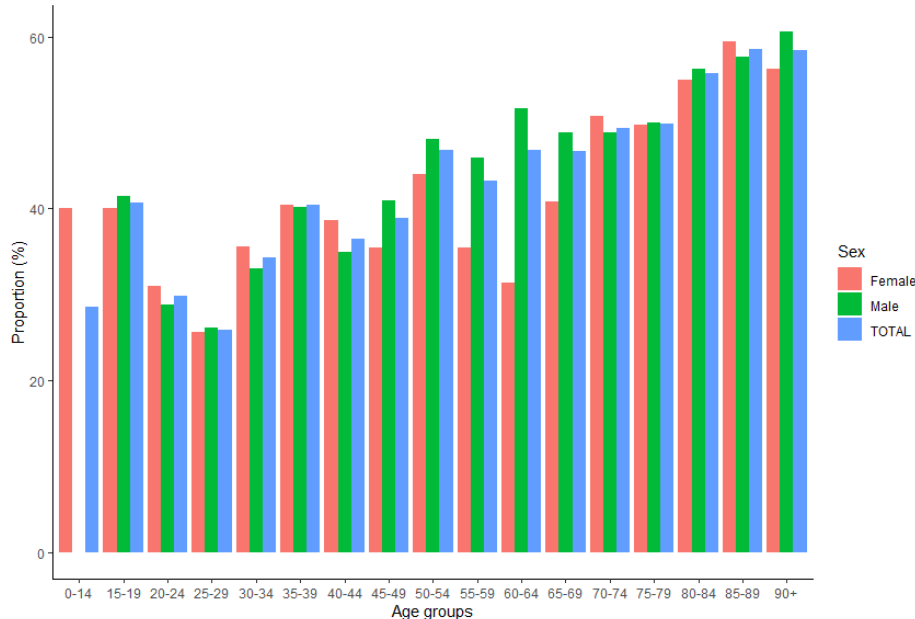


Figure 6. Proportion of those smear positive among PTB by age groups and sex, 2021



All TB, history of previous treatment:

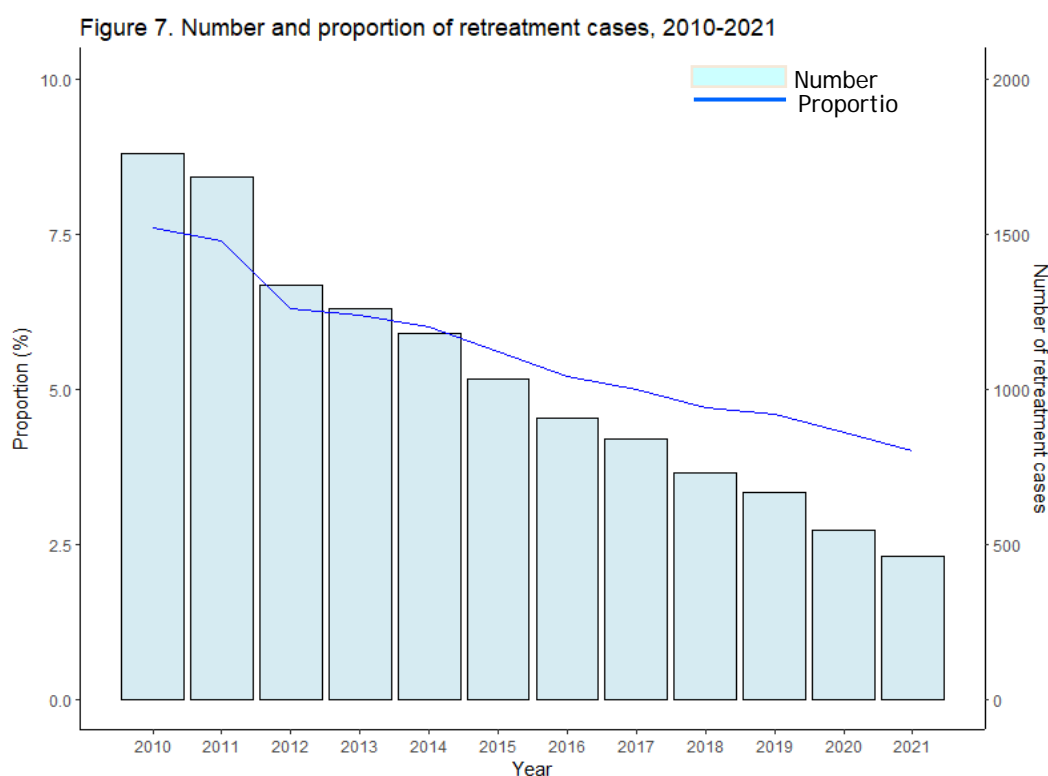
The number of retreatment cases notified in 2021 was 460. 32.0% (147 / 460) of the retreatment cases had started their previous treatment in or after 2019, and 43.3% (199 / 460) more than 10 years ago (i.e., in or prior to 2011). Information regarding the regimen of the previous treatment was known for 72.4% (333 / 460) of all retreatment cases, with the most frequent being “treatment including Pyrazinamide (Z)” (30.4%, 140/ 460), followed by “treatment including Isoniazid (I) and Rifampicin (R)” (16.5%, 76/ 460) (Table 3).

Table 3 Regimen of the previous treatment among the retreatment cases, 2021

| | n | % |
|----------------------|------------|--------------|
| Tx including Z | 140 | 30.4 |
| Tx including H and R | 76 | 16.5 |
| Other regimens | 44 | 9.6 |
| Tx for LTBI | 73 | 15.9 |
| Unknown | 127 | 27.6 |
| Total | 460 | 100.0 |

Tx: treatment, Z: Pyrazinamide, H: Isoniazid, R: Rifampicin, LTBI: latent tuberculosis infection

Figure 7 shows the changes in the proportion of retreatment cases. The proportion of retreatment cases has continued to decline, reaching 7.6% in 2010, and to 4.0% in 2021 (see also Table s7).



Co-morbidities; diabetes mellitus

Table 4 summarizes the newly notified TB cases by diabetes mellitus (DM) status. The definition of DM under the JTBS is solely dependent on the patient’s self-report. In 2021, the status of DM was known for 87.1% of the newly notified cases (10,032 / 11,519). Of those cases with known DM status, 1,775 had concomitant DM. Proportion of those with DM has continued to increase steadily.

Table 4: Newly notified cases by DM status, 2012-2021

| | With DM | Without DM | Unknown | Total |
|------|---------|------------|---------|--------|
| 2012 | 3,036 | 15,978 | 2,269 | 21,283 |
| 2013 | 2,964 | 15,010 | 2,521 | 20,495 |
| 2014 | 2,753 | 14,536 | 2,326 | 19,615 |
| 2015 | 2,686 | 13,472 | 2,122 | 18,280 |
| 2016 | 2,509 | 13,277 | 1,839 | 17,625 |
| 2017 | 2,368 | 12,576 | 1,845 | 16,789 |
| 2018 | 2,210 | 11,630 | 1,750 | 15,590 |
| 2019 | 2,105 | 10,680 | 1,675 | 14,460 |
| 2020 | 1,883 | 9,117 | 1,739 | 12,739 |
| 2021 | 1,775 | 8,257 | 1,487 | 11,519 |

DM: diabetes mellitus

Of the 1,775 cases with DM, 69 (3.9%) were foreign-born, and 1,649 (92.9%) were Japan-born. While 52.2% (36 / 69) of the foreign-born cases were aged between 35 and 54, 95.3% (1,572 / 1,649) of the Japan-born cases were aged 55 and above (Table 5).

Table 5: Characteristics of cases with DM by age groups, 2021 (n=1,775)

| Age groups (years) | Foreign-born | Japan-born | Unknown | Total |
|--------------------|--------------|------------|---------|-------|
| 0-24 | 0 | 0 | 0 | 0 |
| 25-34 | 7 | 5 | 0 | 12 |
| 35-54 | 36 | 72 | 1 | 109 |
| 55+ | 26 | 1,572 | 56 | 1,654 |
| Total | 69 | 1,649 | 57 | 1,775 |

Co-morbidities; HIV/AIDS

Table 6 summarizes the newly notified TB cases by HIV status. In 2021, HIV test results were known only for 7.4% (847 / 11,519), while unknown for 92.6% (10,672 / 11,519) of the newly notified cases. Of those cases with known test results, 3.5% (30 / 847) were HIV positive and 96.5% (817 / 847) were HIV negative.

Table 6: Newly notified cases by HIV test results, 2012-2021

| | HIV positive | HIV negative | HIV test not done | Unknown | Total |
|------|--------------|--------------|-------------------|---------|--------|
| 2012 | 62 | 3,266 | 4,601 | 13,354 | 21,283 |
| 2013 | 50 | 1,890 | 5,090 | 13,465 | 20,495 |
| 2014 | 45 | 1,627 | 4,970 | 12,973 | 19,615 |
| 2015 | 40 | 1,474 | 4,697 | 12,069 | 18,280 |
| 2016 | 44 | 1,556 | 4,933 | 11,092 | 17,625 |
| 2017 | 34 | 1,454 | 4,753 | 10,548 | 16,789 |
| 2018 | 44 | 1,251 | 4,757 | 9,538 | 15,590 |
| 2019 | 29 | 975 | 4,942 | 8,514 | 14,460 |
| 2020 | 31 | 846 | 4,292 | 7,570 | 12,739 |
| 2021 | 30 | 817 | 3,838 | 6,834 | 11,519 |

Of the 30 HIV positive TB cases, 50.0% (15 /30) were foreign-born and 46.7% (14 / 30) were Japan-born (Table 7).

Table 7: Characteristics of HIV positive TB patients, 2021 (n=30)

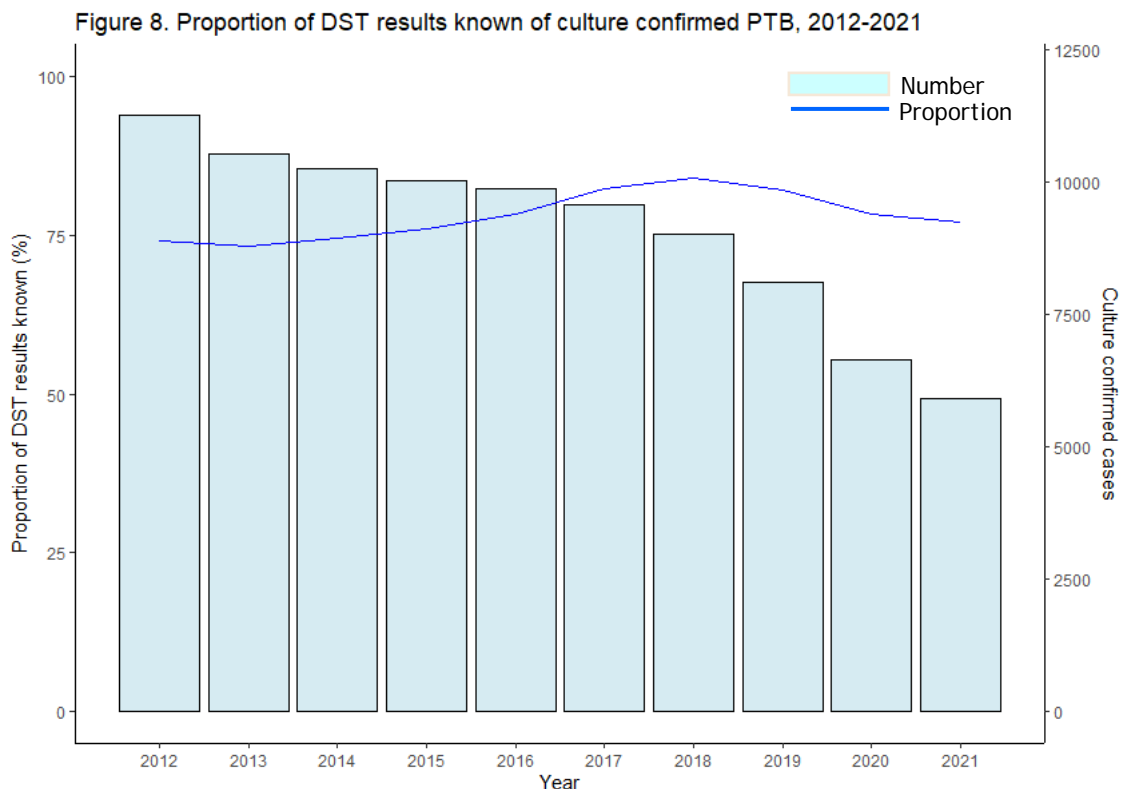
| | Foreign-born | Japan-born | Unknown | Total |
|--------|--------------|------------|---------|-------|
| Male | 10 | 12 | 1 | 23 |
| Female | 5 | 2 | 0 | 7 |
| Total | 15 | 14 | 1 | 30 |

Proportion of those who were not tested for HIV has increased, from 21.6% in 2012 (4,601 / 21,283) to 33.3% (3,838 / 11,519) in 2021.

Chapter 4: Drug-resistant TB

Drug susceptibility test for isoniazid and rifampicin:

Of the 5,902 culture confirmed pulmonary TB cases notified in 2021, drug susceptibility test (DST) results for both isoniazid (INH) and rifampicin (RFP) were known for 77.1% (4,551 / 5,902). The proportion of those with DST results for both isoniazid and rifampicin has been increasing, despite gradually, reaching a peak in 2018 at 84.0%. However, since then, it has declined continuously for the next two years (Figure 8, see also Table s8). It should also be noted that in Japan, currently, “drug susceptibility test results confirmed” is defined as those with DST results for INH and RFP. Those whose DST result for RFP was confirmed through Xpert MTB/RFP® but for INH is unknown, is recorded as “drug susceptibility test results unknown”.



Resistance to isoniazid and rifampicin by treatment history:

Of the 4,551 PTB cases with DST results known in 2021, 4.9% (221 / 4,551) were resistant to INH, 1.2% (56 / 4,551) were resistant to RFP, and 0.9% (41 / 4,551) were resistant to both INH and RFP (i.e., multi-drug resistant TB, MDR). Of the 221 that were resistant to INH, 180 were resistant solely to INH (i.e., INH mono-resistant). Of the 56 that were resistant to RFP, 15 were resistant solely to RFP (i.e., RFP mono-resistant).

Resistance to INH and RFP by treatment history among the 4,551 PTB cases with known DST results is summarized in Table 8. Proportions of those with resistance for both INH, RFP, and MDR were higher among retreatment than new cases.

Table 8. Resistance to INH and RFP by treatment history, 2021

| | INH resistant | Of which, INH mono-resistant | RFP resistant | Of which, RFP mono-resistant | MDR |
|---------------------------|---------------|------------------------------|---------------|------------------------------|------|
| New treatment | 205 | 169 | 48 | 12 | 36 |
| n=4,335 | 4.7% | 3.9% | 1.1% | 0.3% | 0.8% |
| Retreatment | 11 | 7 | 7 | 3 | 4 |
| n=166 | 6.6% | 4.2% | 4.2% | 1.8% | 2.4% |
| Treatment history unknown | 5 | 4 | 1 | 0 | 1 |
| n=50 | 10.0% | 8.0% | 2.0% | 0.0% | 2.0% |

INH: isoniazid, RFP: rifampicin, MDR: multidrug resistant

Figures 9a – 9b (see also Tables s9) show the trend in the proportions of those with drug resistance by treatment history.

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Figure 9a. Drug resistance among PTB, new cases, 2012-2021

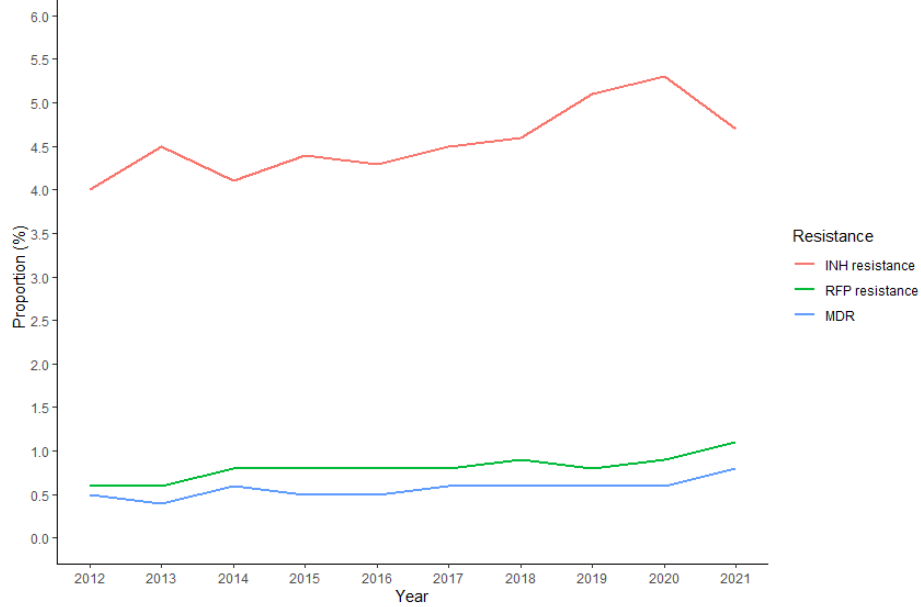
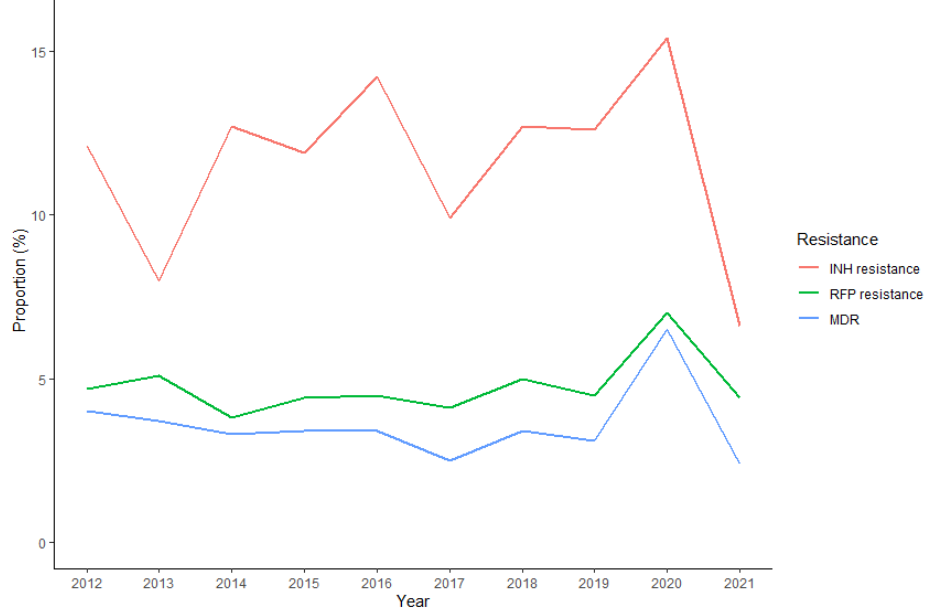


Figure 9b. Drug resistance among PTB, retreatment cases, 2012-2021



Resistance to isoniazid and rifampicin by country of birth, and age group:

Among the 5,902 culture confirmed pulmonary TB cases notified in 2021, 5,181 were Japan-born, 570 were foreign-born, and the country of birth was unknown for 151. Results of DST were known for 77.3% (4,004 / 5,181) for Japan-born, 82.1% (468 / 570) for foreign-born, and 52.3% (79 / 151) for those whose country of birth was unknown.

Table 9 summarizes resistance to INH, RFP and MDR by country of birth among the 5,181 PTB cases with known DST results.

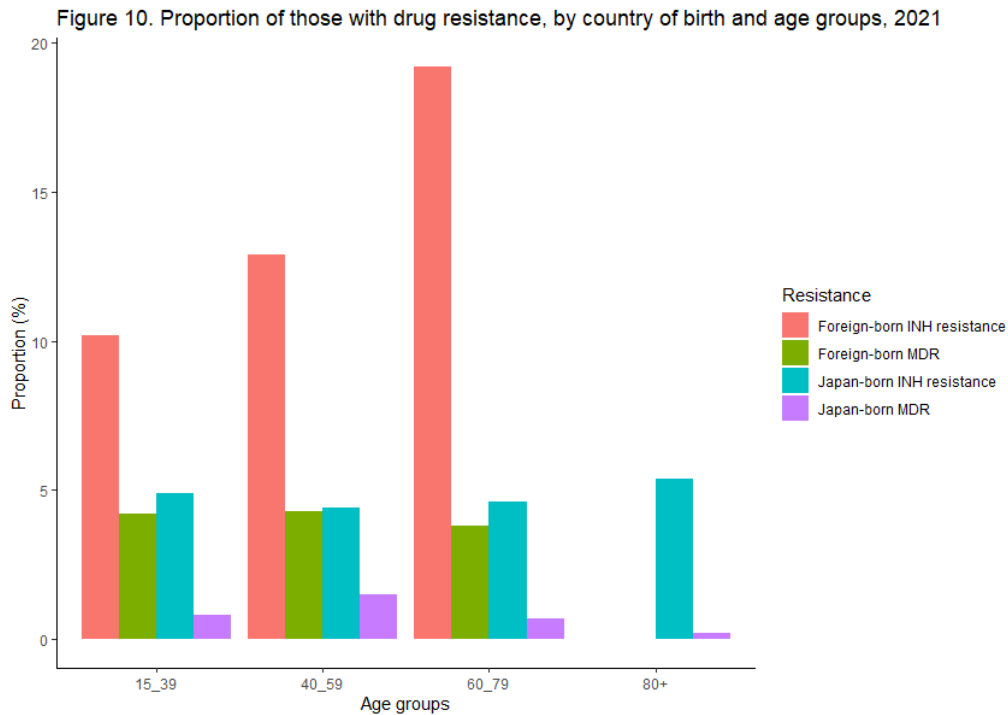
Table 9. Resistance to INH and RFP by country of birth, 2021

| | INH resistant | Of which, INH mono- resistant | RFP resistant | Of which, RFP mono- resistant | MDR |
|----------------------------------|---------------|-------------------------------------|---------------|-------------------------------------|------|
| Japan-born n=4,004 | 167 | 145 | 34 | 12 | 22 |
| | 4.2% | 3.6% | 0.8% | 0.3% | 0.5% |
| Foreign-born n=468 | 51 | 32 | 21 | 2 | 19 |
| | 10.9% | 6.8% | 4.5% | 0.4% | 4.1% |
| Country of birth unknown n=79 | 3 | 3 | 1 | 1 | 0 |
| | 3.8% | 3.8% | 1.3% | 1.3% | 0.0% |

INH: isoniazid, RFP: rifampicin, MDR: multidrug resistant

Proportions of those with resistance were significantly higher among foreign-born than Japan-born cases.

Figure 10 (see also Table s10) shows the proportions of those with drug resistance by age groups and country of birth.



Resistance to streptomycin and ethambutol

For streptomycin (SM), DST results were known for 4,300 of the 4,335 culture confirmed first treatment cases, whose DST results were known for both INH and RFP. Of the 4,300 cases, 6.3% were resistant to SM (270 / 4,300). DST results were also known for 165 of the 166 culture confirmed retreatment cases, whose DST results were known for both INH and RFP. Of the 165 cases, 4.9% were resistant to SM (8 / 165).

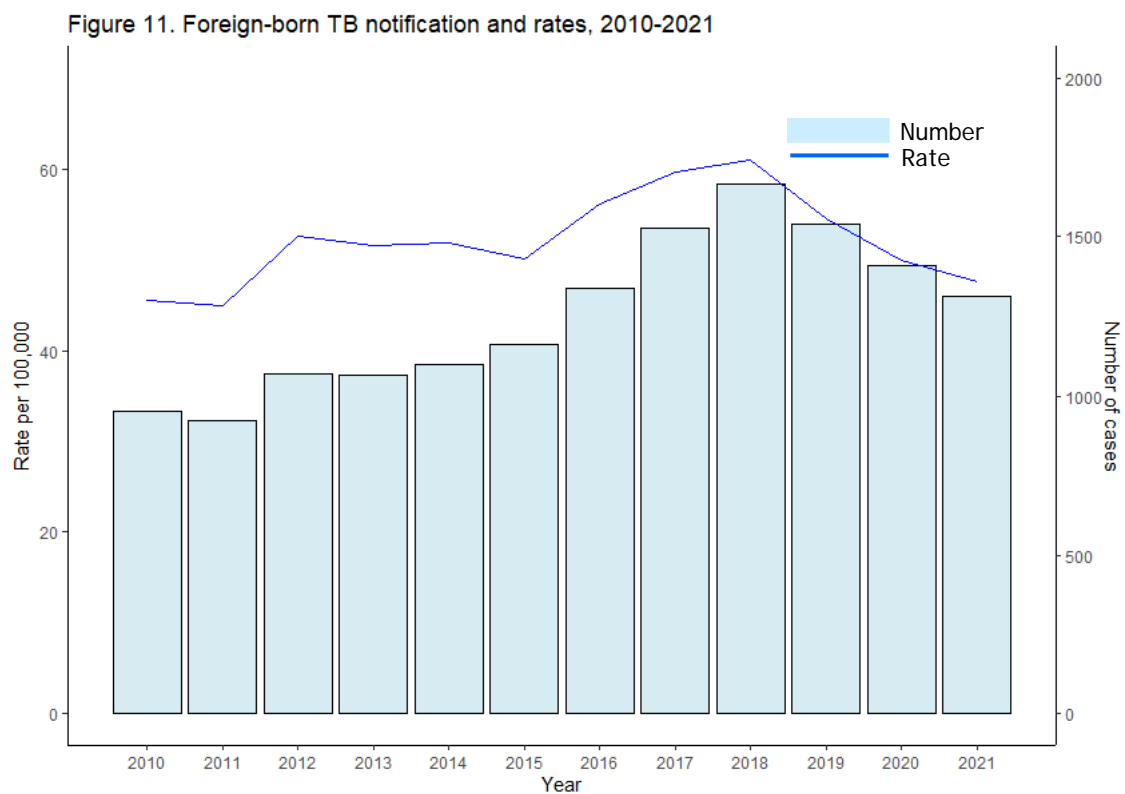
For ethambutol (EB), DST results were known for 4,326 of the 4,335 culture confirmed first treatment cases, whose DST results were known for both INH and RFP. Of the 4,326 cases, 1.6% were resistant to SM (71 / 4,326). DST results were also known for 166 of the 166 culture confirmed retreatment cases, whose DST results were known for both INH and RFP. Of the 166 cases, 3.6% were resistant to SM (6 / 166).

Chapter 5: Foreign-born TB, 2010-2021

Overall number and rates:

Information regarding place of birth (Japan-born/foreign-born) was known for 96.6% of the newly notified cases (11,122 / 11,519). Of those cases, 11.8% was born outside Japan (1,313 / 11,122). The number of foreign-born cases slightly decreased from 1,411 in the previous year to 1,313 and the rate per 100,000 similarly decreased from 48.9 in the previous year to 47.6

(Figure 11, see also Table s11). However, the proportion out of all cases continued to increase.



Age and sex:

In 2021, 49.9% of the foreign-born cases were males (655 / 1,313) and 50.1% were females (658 / 1,313). The largest number of cases were diagnosed

among those aged 25 to 34 (526 cases), followed by those aged 15 to 24 (368 cases). 80.8% (1,061 / 1,313) of foreign-born persons were aged between 15 and 44 (Table 10).

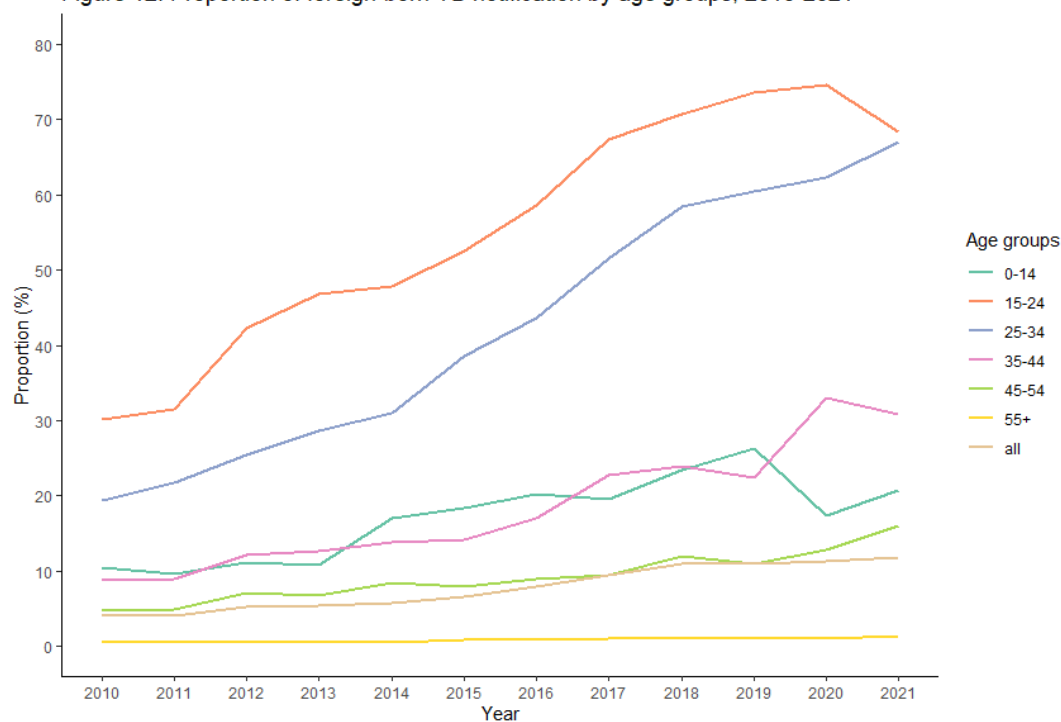
Table 10. Foreign-born TB cases* by sex and age groups, 2021

| Age groups (years) | Male | | Female | | Total | |
|--------------------|------|-------|--------|-------|-------|-------|
| | n | % | n | % | n | % |
| 0-4 | 0 | 0.0 | 1 | 0.2 | 1 | 0.1 |
| 5-14 | 3 | 0.5 | 2 | 0.3 | 5 | 0.4 |
| 15-24 | 200 | 30.5 | 168 | 25.5 | 368 | 28.0 |
| 25-34 | 278 | 42.4 | 248 | 37.7 | 526 | 40.1 |
| 35-44 | 69 | 10.5 | 98 | 14.9 | 167 | 12.7 |
| 45-54 | 46 | 7.0 | 81 | 12.3 | 127 | 9.7 |
| 55-64 | 24 | 3.7 | 30 | 4.6 | 54 | 4.1 |
| 65-74 | 17 | 2.6 | 7 | 1.1 | 24 | 1.8 |
| 75-84 | 12 | 1.8 | 11 | 1.7 | 23 | 1.8 |
| 85+ | 6 | 0.9 | 12 | 1.8 | 18 | 1.4 |
| Total | 655 | 100.0 | 658 | 100.0 | 1,313 | 100.0 |

*Note: exclude those whose country of birth is unknown

Looking at the trend, the proportion of foreign-born cases among the age group 15 to 34 years old has increased dramatically especially since 2011, while that among other age groups have increased steadily. (Figure 12, see also Table s12).

Figure 12. Proportion of foreign-born TB notification by age groups, 2010-2021



Diagnosis:

Out of the 1,313 foreign-born cases, 71.5% (939 / 1,313) were diagnosed with PTB, either with or without extrapulmonary disease. 28.5% (374 / 1,313) were diagnosed solely with extrapulmonary tuberculosis. Out of the 939 PTB cases, 77.2% (725 / 939) were bacteriologically confirmed, and 33.2% (312 / 939) were sputum smear positive. The proportion of those bacteriologically confirmed among the foreign-born cases was lower than that among the Japan-born cases by 11.5% (77.2% vs 88.7%).

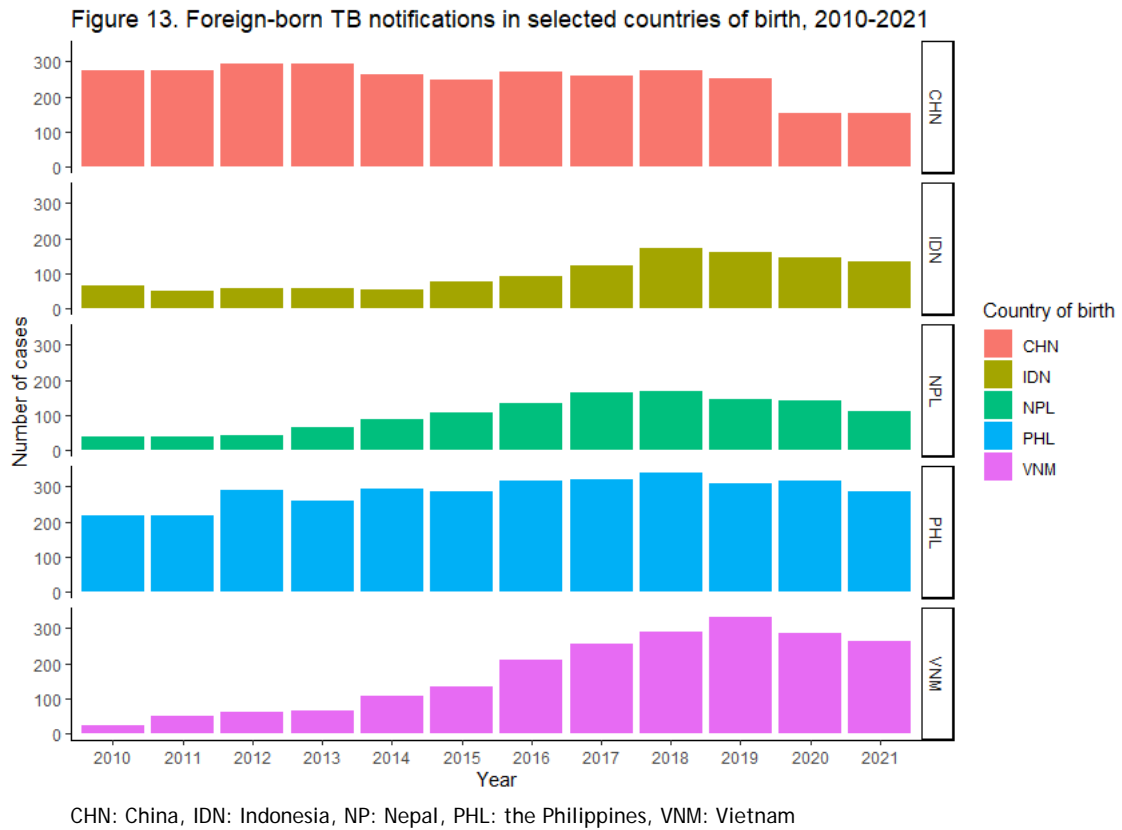
Country of birth and occupation:

Table 11 summarizes the foreign-born TB cases by major countries of birth. The Philippines was the most frequent country of birth for foreign-born cases notified in 2021 (21.6%, 284 / 1,313), followed by Vietnam (20.0%, 263 / 1,313) and China and (11.6%, 152 / 1,313). Six countries, the Philippines, Vietnam, China, Indonesia, Nepal and Myanmar accounted for 78.5% (1,031 / 1,313) of all foreign-born cases.

Table 11: Foreign-born TB cases by country of birth, 2021

| Country name | Cases | Proportion (%) |
|-----------------|-------|----------------|
| The Philippines | 284 | 21.6 |
| Vietnam | 263 | 20.0 |
| China | 152 | 11.6 |
| Indonesia | 134 | 10.2 |
| Nepal | 113 | 8.6 |
| Myanmar | 85 | 6.5 |
| Unknown | 75 | 5.7 |
| Others | 207 | 15.8 |
| Total | 1,313 | 100.0 |

Looking at the trend in the five most frequent countries of birth, the number of those from China has been relatively constant but declined steeply in 2020. Those from Nepal, Indonesia and Vietnam have been increasing, but those from Vietnam, Nepal and Indonesia slightly declined since 2019. Those from the Philippines have been constant (Figure 13, see also Table s13).



Regarding the job categories of foreign-born cases, the “full-time workers” (excluding healthcare workers, those working in the service industry and teachers) contributed to 41.0% (538 / 1,313), followed by “high-school and university students”, contributing to 15.3% (201 / 1,313) of all cases. However, the distribution of job categories differed considerably by country of birth (Table 12).

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Table 12. Job categories of foreign-born cases, and of selected countries, 2021

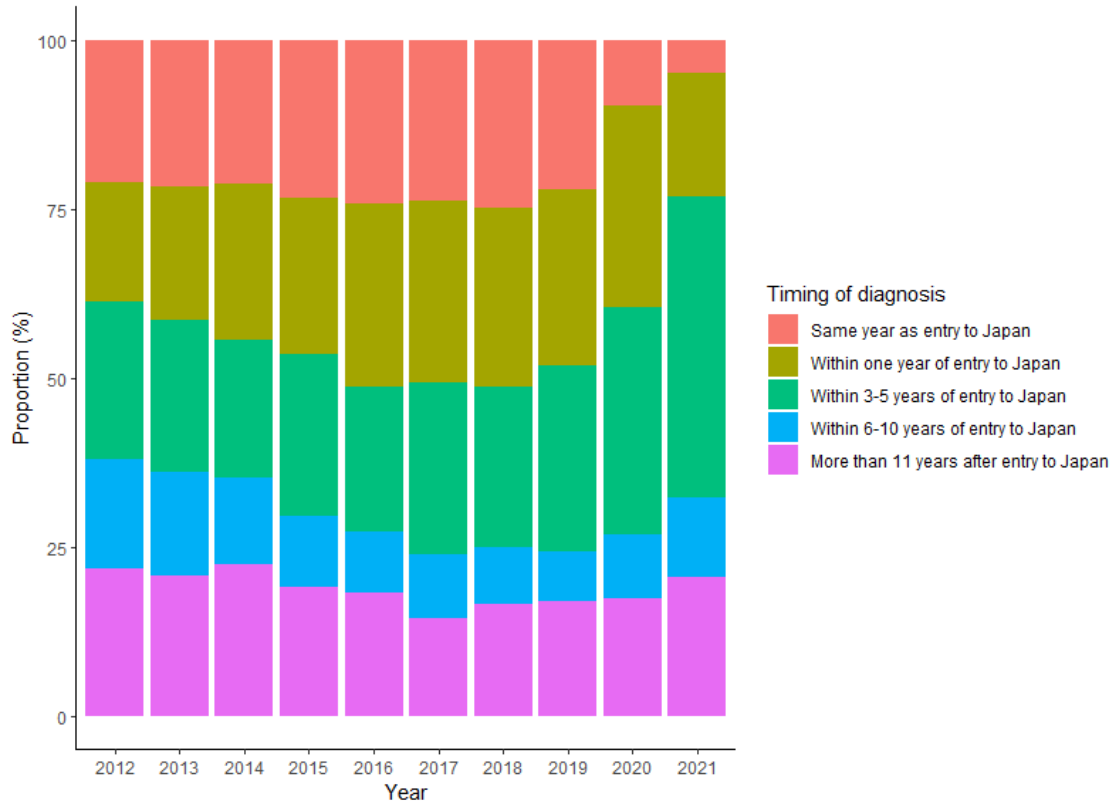
| | All | | Philippines | | Vietnam | | China | | Indonesia | |
|-----------------------------------|--------------|--------------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|
| | n | % | n | % | n | % | n | % | n | % |
| Full-time workers | 538 | 41.0 | 129 | 45.4 | 137 | 52.1 | 50 | 32.9 | 59 | 44.0 |
| High-school & university students | 201 | 15.3 | 8 | 2.8 | 44 | 16.7 | 46 | 30.3 | 17 | 12.7 |
| Unemployed | 170 | 12.9 | 56 | 19.7 | 15 | 5.7 | 24 | 15.8 | 6 | 4.5 |
| Unknown and others | 136 | 10.4 | 26 | 9.2 | 29 | 11.0 | 7 | 4.6 | 24 | 17.9 |
| Temporary workers | 109 | 8.3 | 25 | 8.8 | 26 | 9.9 | 4 | 2.6 | 10 | 7.5 |
| Service industry | 43 | 3.3 | 7 | 2.5 | 3 | 1.1 | 6 | 3.9 | 1 | 0.7 |
| Healthcare workers | 55 | 4.2 | 13 | 4.6 | 6 | 2.3 | 2 | 1.3 | 13 | 9.7 |
| Houseworkers | 18 | 1.4 | 6 | 2.1 | 0 | 0.0 | 6 | 3.9 | 2 | 1.5 |
| Self-employed | 27 | 2.1 | 4 | 1.4 | 3 | 1.1 | 7 | 4.6 | 1 | 0.7 |
| Other children* | 6 | 0.5 | 4 | 1.4 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 |
| Teachers | 10 | 0.8 | 6 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 1,313 | 100.0 | 284 | 100.0 | 263 | 100.0 | 152 | 100.0 | 134 | 100.0 |

*Other children: junior high school, primary school children and infants

Year of entry to Japan:

Year of entry to Japan has been collected under the JTBS since 2012. Of the 13,198 foreign-born cases notified in Japan between 2012 and 2021, year of entry was known for 64.8% (8,554 / 13,198). In 2021, of the 1,313 foreign-born cases notified, year of entry was known for 64.0% (840 / 1,313). Of which, 23.1% (194 / 840) of foreign-born cases were notified within 2 years of entering Japan (Figure 14, see also Table s14).

Fig 14. Timing of diagnosis among foreign-born TB patients, 2012-2021



Chapter 6: Socio-economic characteristics

Occupation:

Table 13 summarizes the job categories of all TB cases notified in 2021. Since a large majority of the patients are elderly, the largest proportion of job category was unemployed (64.9%, 7,477 / 11,519), followed by “full-time workers” (14.2%, 1,639 / 11,519). Among those aged 64 years old or below, the largest proportion of job category was “full-time workers” (39.6%, 1,421 / 3,587), followed by “unemployed” (16.0%, 575 / 3,587).

Table 13. Job categories of all TB cases, 2021

| All ages | n | % | Under 64 years old | n | % |
|---|--------|------|---|-------|-------|
| Unemployed | 7,477 | 64.9 | Full-time workers | 1,421 | 39.6 |
| Full-time workers | 1,639 | 14.2 | Unemployed | 575 | 16.0 |
| Self-employed | 430 | 3.7 | High school and university students | 291 | 8.1 |
| Temporary workers | 333 | 2.9 | Temporary workers | 219 | 6.1 |
| High school and university students | 292 | 2.5 | Service industry | 165 | 4.6 |
| Unknown | 350 | 3.0 | Self-employed | 174 | 4.9 |
| Service industry | 218 | 1.9 | Other HCWs | 186 | 5.2 |
| Others | 257 | 2.2 | Others | 155 | 4.3 |
| Other HCWs | 212 | 1.8 | Unknown | 152 | 4.2 |
| Nurses | 116 | 1.0 | Nurses | 108 | 3.0 |
| Houseworkers | 93 | 0.8 | Houseworkers | 55 | 1.5 |
| Teachers | 44 | 0.4 | Teachers | 37 | 1.0 |
| Physicians | 27 | 0.2 | Infants | 13 | 0.4 |
| Primary and junior high school students | 18 | 0.2 | Primary and junior high school students | 18 | 0.5 |
| Infants | 13 | 0.1 | Physicians | 18 | 0.5 |
| Total | 11,519 | 100 | Total | 3,587 | 100.0 |

HCW: healthcare workers

Social risk factors, 25-64 years old:

Social risk factors are defined as the following: those either currently homeless or with a history of being homeless within one year of diagnosis (“homeless”), those unemployed (“unemployed”), those receiving social welfare benefit upon diagnosis of TB (“social welfare”) and those newly applying for social welfare upon diagnosis, who include those not covered under any health insurance upon

diagnosis of TB (“newly applying for social welfare upon diagnosis”). “Homelessness”, “unemployed” and the two health insurance statuses are not mutually exclusive. The demographic characteristics of those with each social risk factor by sex, age groups and country of birth are summarized in Table 14.

Table 14. Characteristics of those with social risk factors, 2021

| | Homeless | | Unemployed | | On social welfare upon diagnosis | | Newly applying for social welfare upon diagnosis | |
|-------------------------|-----------|------------|------------|------------|----------------------------------|--------------|--|--------------|
| | n | % | n | % | n | % | n | % |
| Male | 47 | 88.7 | 321 | 59.3 | 137 | 83.5 | 22 | 100.0 |
| Female | 6 | 11.3 | 220 | 40.7 | 27 | 16.5 | 0 | 0.0 |
| Age group | | | | | | | | |
| 25-34 | 5 | 9.4 | 61 | 11.3 | 1 | 0.6 | 1 | 4.5 |
| 35-44 | 1 | 1.9 | 82 | 15.2 | 12 | 7.3 | 3 | 13.6 |
| 45-54 | 18 | 34.0 | 147 | 27.2 | 55 | 33.5 | 2 | 9.1 |
| 55-64 | 29 | 54.7 | 251 | 46.4 | 96 | 58.5 | 16 | 72.7 |
| Country of birth | | | | | | | | |
| Foreign-born | 4 | 7.5 | 100 | 18.5 | 13 | 7.9 | 0 | 0.0 |
| Japan-born | 44 | 83.0 | 428 | 79.1 | 143 | 87.2 | 22 | 100.0 |
| COB unknown | 5 | 9.4 | 13 | 2.4 | 8 | 4.9 | 0 | 0.0 |
| Total | 53 | 100 | 541 | 100 | 164 | 100.0 | 22 | 100.0 |

COB: country of birth

Chapter 7: Delay

Symptoms upon diagnosis:

Under JTBS, symptom upon diagnosis is asked for PTB cases. Of the 8,413 PTB cases notified in 2021, 24.1% (2,025 / 8,413) reported respiratory symptoms, 26.9% (2,264 / 8,413) reported both respiratory and non-respiratory symptoms, 21.0% (1,764 / 8,413) reported non-respiratory symptoms only, and 27.1% (2,279 / 8,413) did not report any symptoms. Information regarding symptoms were unknown for 81 cases.

Delay among symptomatic pulmonary TB:

Under the JTBS, a patient delay is defined as the time between onset of symptoms and initial doctor visit being longer than 2 months, a doctor delay as the time between initial doctor visit and diagnosis being longer than 1 month, and total delay as the time between onset of symptoms and TB diagnosis being longer than 3 months.

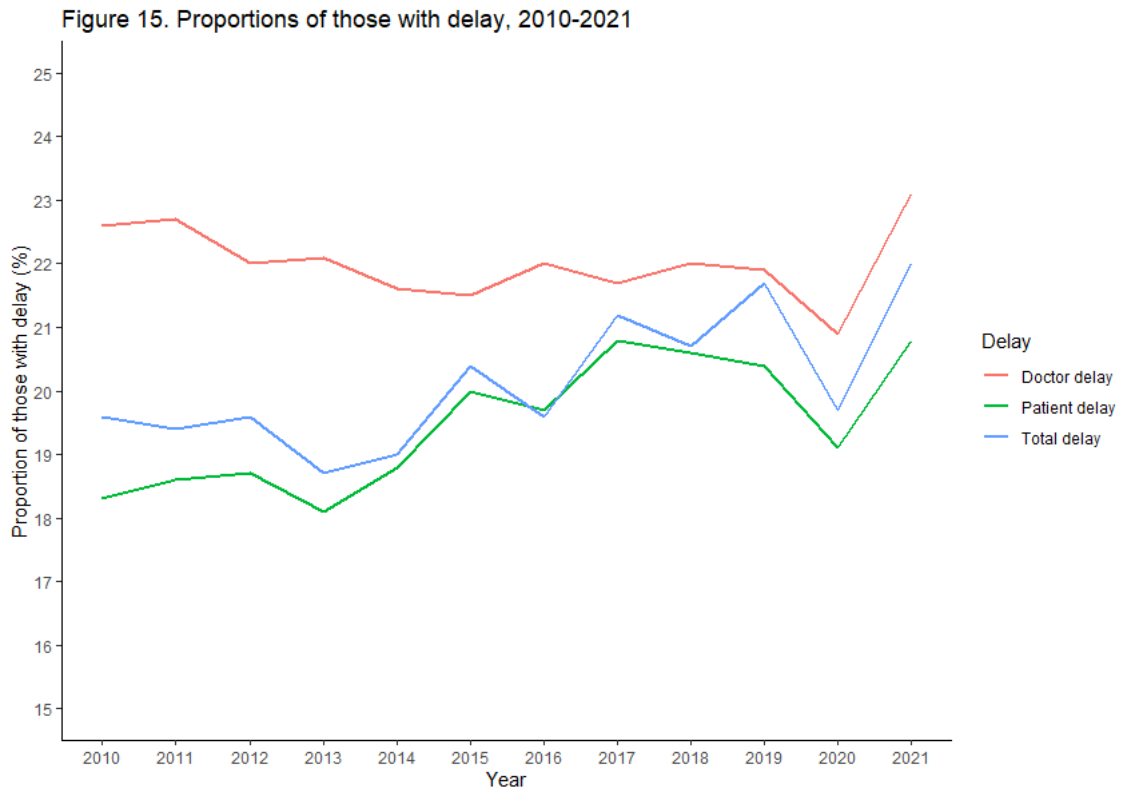
Of the 6,053 symptomatic pulmonary TB cases, information regarding patient delay was known for 63.6% (3,847 / 6,053), doctor delay for 86.9% (5,261 / 6,053), and total delay for 64.6% (3,912 / 6,053). Patient delay was observed in 20.8% (799 / 3,847), doctor delay in 23.1% (1,216 / 5,261) and total delay in 22.0% (861 / 3,912) (Table 15).

Table 15. Number and proportion of those with delay, 2021

| Type of delay | Total no. symptomatic PTB | Information on delay known | Delay | |
|---------------|---------------------------|----------------------------|-------|------|
| | | | n | % |
| Patient delay | 6,053 | 3,847 | 799 | 20.8 |
| Doctor delay | 6,053 | 5,261 | 1,216 | 23.1 |
| Total delay | 6,053 | 3,912 | 861 | 22.0 |

PTB: pulmonary tuberculosis

The proportions of those with delay has gradually been increasing, sharply increased in 2021. The proportion of those with doctor delay has constantly been higher than patient delay (Figure 15, see also Table s15).



Characteristics of those with delay:

Characteristics of symptomatic PTB patients by delay type are summarized in Table 16.

Table 16. Proportions of those with delay among selected characteristics, 2021

| | Patient delay | | | Doctor delay | | | Total delay | | |
|---------------------------|---------------|------------|------------------------------------|--------------|--------------|------------------------------------|--------------|------------|------------------------------------|
| | Total | With delay | Proportion of those with delay (%) | Total | With delay | Proportion of those with delay (%) | Total | With delay | Proportion of those with delay (%) |
| Sex | | | | | | | | | |
| Male | 2,325 | 506 | 21.8 | 3,154 | 712 | 22.6 | 2,367 | 526 | 22.2 |
| Female | 1,522 | 293 | 19.3 | 2,107 | 504 | 23.9 | 1,545 | 335 | 21.7 |
| Age group | | | | | | | | | |
| 0-14 | 7 | 2 | 28.6 | 7 | 1 | 14.3 | 7 | 1 | 14.3 |
| 15-24 | 161 | 40 | 24.8 | 223 | 50 | 22.4 | 164 | 47 | 28.7 |
| 25-34 | 228 | 60 | 26.3 | 312 | 75 | 24.0 | 229 | 62 | 27.1 |
| 35-44 | 151 | 49 | 32.5 | 208 | 59 | 28.4 | 154 | 60 | 39.0 |
| 45-54 | 253 | 84 | 33.2 | 342 | 85 | 24.9 | 256 | 85 | 33.2 |
| 55-64 | 277 | 86 | 31.0 | 378 | 86 | 22.8 | 282 | 87 | 30.9 |
| 65+ | 2,770 | 478 | 17.3 | 3,791 | 860 | 22.7 | 2,820 | 519 | 18.4 |
| COB all ages | | | | | | | | | |
| Foreign-born | 347 | 84 | 24.2 | 491 | 124 | 25.3 | 351 | 87 | 24.8 |
| Japan-born | 3,406 | 701 | 20.6 | 4,621 | 1,068 | 23.1 | 3,464 | 764 | 22.1 |
| COB unknown | 94 | 14 | 14.9 | 149 | 24 | 16.1 | 97 | 10 | 10.3 |
| COB 25-64 years | | | | | | | | | |
| Foreign-born | 223 | 55 | 24.7 | 316 | 81 | 25.6 | 224 | 57 | 25.4 |
| Japan-born | 669 | 221 | 33.0 | 895 | 217 | 24.2 | 679 | 234 | 34.5 |
| COB unknown | 17 | 3 | 17.6 | 29 | 7 | 24.1 | 18 | 3 | 16.7 |
| Social risk factor | | | | | | | | | |
| Homeless | 48 | 11 | 22.9 | 62 | 11 | 17.7 | 48 | 10 | 20.8 |
| Unemployed* | 190 | 57 | 30.0 | 272 | 71 | 26.1 | 193 | 61 | 31.6 |
| On social welfare | 308 | 59 | 19.2 | 406 | 81 | 20.0 | 309 | 64 | 20.7 |
| No insurance | 20 | 6 | 30.0 | 28 | 3 | 10.7 | 20 | 7 | 35.0 |
| Total | 3,847 | 799 | 20.8 | 5,261 | 1,216 | 23.1 | 3,912 | 861 | 22.0 |

COB :country of birth *Unemployed among those aged between 25 and 64

Modes of case detection:

Table 17 summarizes the modes of detection for all TB cases. Approximately half were detected at hospital setting, with symptoms.

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Table 17. Modes of detection, all TB, 2021

| | n | % |
|---------------------------------|--------|-------|
| Hospital, with symptoms | 6,320 | 54.9 |
| Hospital, with other disease(s) | 3,384 | 29.4 |
| Routine health check | 1,096 | 9.5 |
| Contact investigation | 282 | 2.4 |
| Individual health check | 195 | 1.7 |
| Others | 99 | 0.9 |
| During follow-up | 50 | 0.4 |
| Unknown | 60 | 0.5 |
| Mass screening | 33 | 0.3 |
| Total | 11,519 | 100.0 |

Chapter 8: Latent tuberculosis infection

Trend, by country of birth and age groups:

Notification of latent tuberculosis infection (LTBI) has been mandatory since 2006. In 2021, 5,140 cases of LTBI were newly notified. The number of new cases has reached a peak in 2011 and decreased over the next two years. It remained relatively stable since 2013, however, in 2020, the number decreased significantly compared with the previous year. Country of birth was known for 96.7% of all cases (4,972 / 5,140). The proportion of foreign-born among those cases with known country of birth has also been declining since 2018, and was 10.8% (538 / 4,972) in 2021 (Figure 16, see also Table s16).

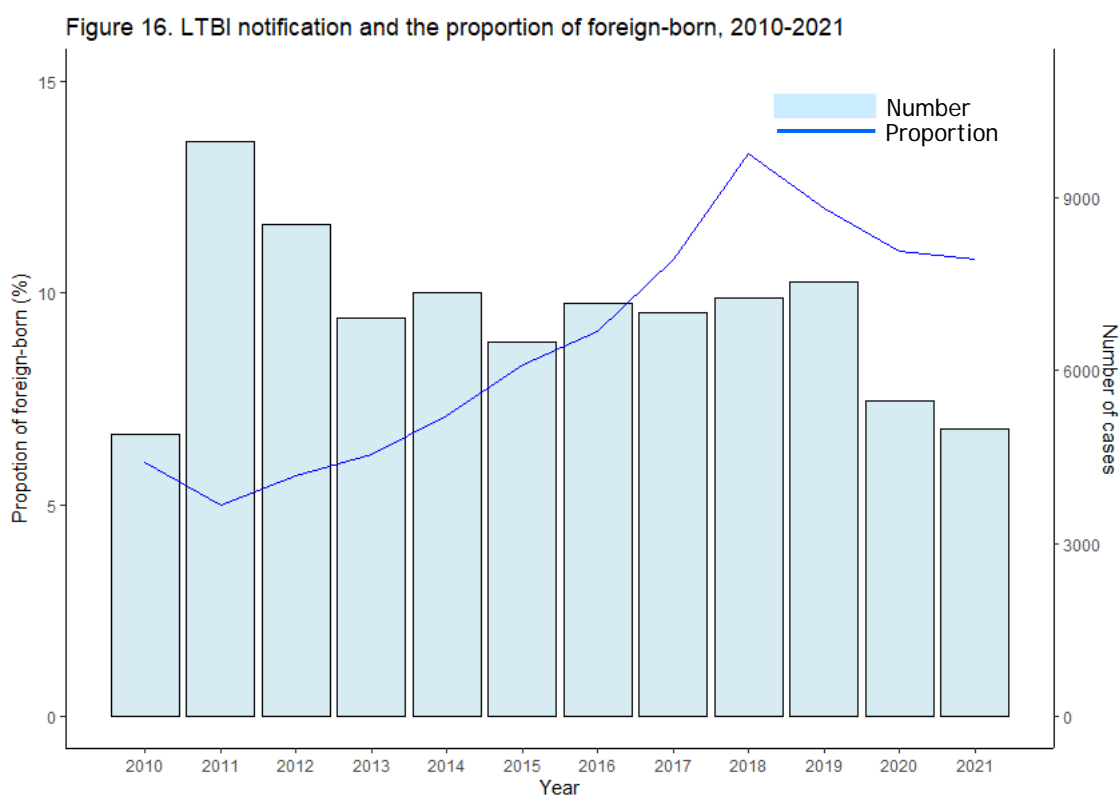


Figure 17 (see also Table s17) shows the trend of LTBI notification by age groups. The number of notifications among those aged 65 years old and above has constantly been increasing. It declined for the first time in 2020, however, it turned to increase again in 2021. For all other age groups, the notification has been declining since 2011.

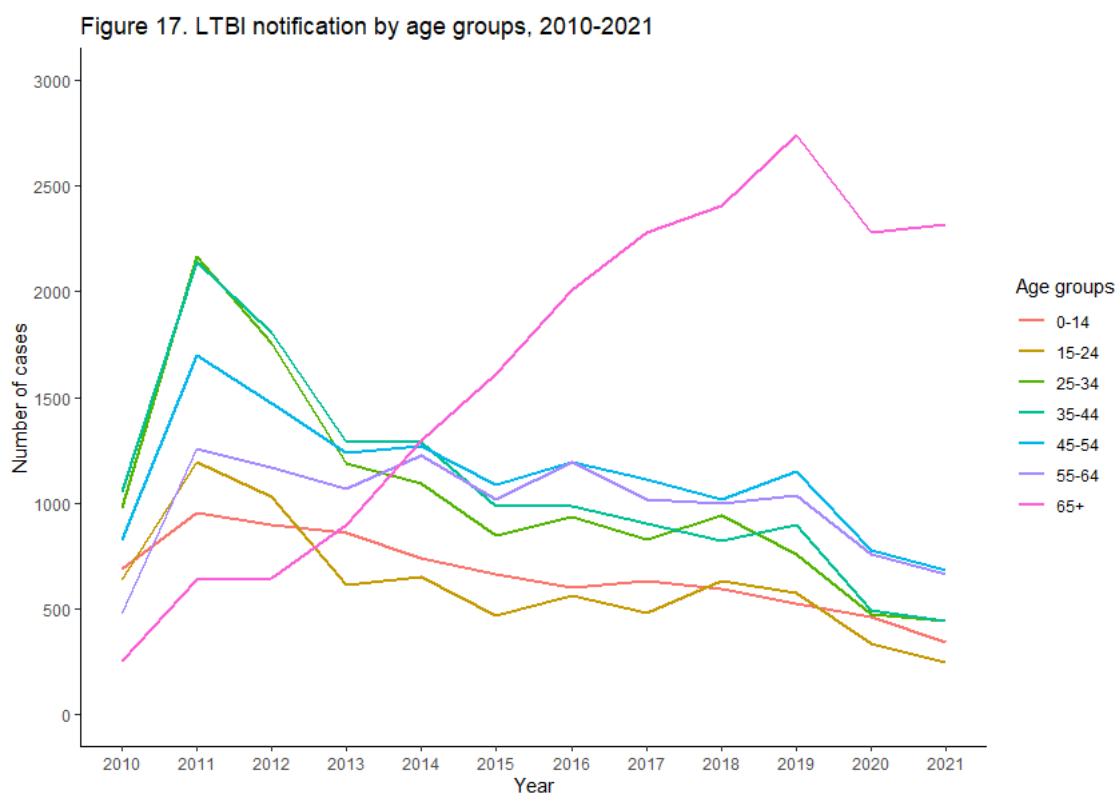


Table 18 summarizes the LTBI case notifications in 2021 by country of birth and age groups. Breaking down the cases by age groups, the largest number of cases were diagnosed among those aged 65 years and above (n= 2,320), followed by those aged 45 and 54 years old (n=681). However, while 49.5% (2,195 / 4,434) of LTBI cases among Japan-born were aged 65 years and above, 20.8% (112 / 538) and 36.4% (196 / 538) of LTBI cases among the foreign-born were aged between 15 and 24 years old, and 25 and 34 years old, respectively.

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Table 18. LTBI notification by age groups and country of birth, 2021

| Age groups (years) | Japan-born | | Foreign-born | | Country of birth unknown | | Total | |
|--------------------|--------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|
| | n | % | n | % | n | % | n | % |
| 0-14 | 332 | 7.5 | 12 | 2.2 | 0 | 0.0 | 344 | 6.7 |
| 15-24 | 129 | 2.9 | 112 | 20.8 | 7 | 4.2 | 248 | 4.8 |
| 25-34 | 239 | 5.4 | 196 | 36.4 | 10 | 6.0 | 445 | 8.7 |
| 35-44 | 331 | 7.5 | 95 | 17.7 | 15 | 8.9 | 441 | 8.6 |
| 45-54 | 600 | 13.5 | 62 | 11.5 | 19 | 11.3 | 681 | 13.2 |
| 55-64 | 608 | 13.7 | 42 | 7.8 | 11 | 6.5 | 661 | 12.9 |
| 65+ | 2,195 | 49.5 | 19 | 3.5 | 106 | 63.1 | 2,320 | 45.1 |
| Total | 4,434 | 100.0 | 538 | 100.0 | 168 | 100.0 | 5,140 | 100.0 |

Mode of detection:

44.6% (2,294 / 5,140) of the notified LTBI cases were detected upon contact investigation (Table 19). Contact investigation was the major mode of detection for both Japan-born and foreign-born LTBI cases. However, aside from the contact investigation, the proportion of those detected in hospital settings was significantly higher among the Japan-born cases, whereas the proportion of those detected via routine health check was higher among the foreign-born cases.

Table 19. LTBI notification by modes of detection and country of birth, 2021

| | Japan-born | | Foreign-born | | Country of birth unknown | | Total | |
|---------------------------------|--------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|
| | n | % | n | % | n | % | n | % |
| Contact investigation | 1852 | 41.8 | 377 | 70.1 | 65 | 38.7 | 2,294 | 44.6 |
| Hospital, with other disease(s) | 1540 | 34.7 | 59 | 11.0 | 73 | 43.5 | 1,672 | 32.5 |
| Hospital, with symptoms | 532 | 12.0 | 30 | 5.6 | 16 | 9.5 | 578 | 11.2 |
| Routine health check | 249 | 5.6 | 47 | 8.7 | 6 | 3.6 | 302 | 5.9 |
| Others | 143 | 3.2 | 5 | 0.9 | 2 | 1.2 | 150 | 2.9 |
| Individual health check | 68 | 1.5 | 13 | 2.4 | 2 | 1.2 | 83 | 1.6 |
| Mass screening | 25 | 0.6 | 6 | 1.1 | 3 | 1.8 | 34 | 0.7 |
| Unknown | 25 | 0.6 | 1 | 0.2 | 1 | 0.6 | 27 | 0.5 |
| Total | 4,434 | 100.0 | 538 | 100.0 | 168 | 100.0 | 5,140 | 100.0 |

Treatment outcome:

Of the 5,575 LTBI cases that were notified in 2020, treatment outcome was available for 5,524 cohort at the end of one year. Table 20 summarize the treatment outcome of the 5,524 LTBI cases, by country of birth. The proportion of treatment success (cured and completed) was higher among the Japan-born than foreign-born patients (84.2% vs 81.5%), largely due to the higher proportion of transferred out among the latter (0.7% vs 5.5%).

Table 20. Treatment outcome of LTBI cases notified in 2020

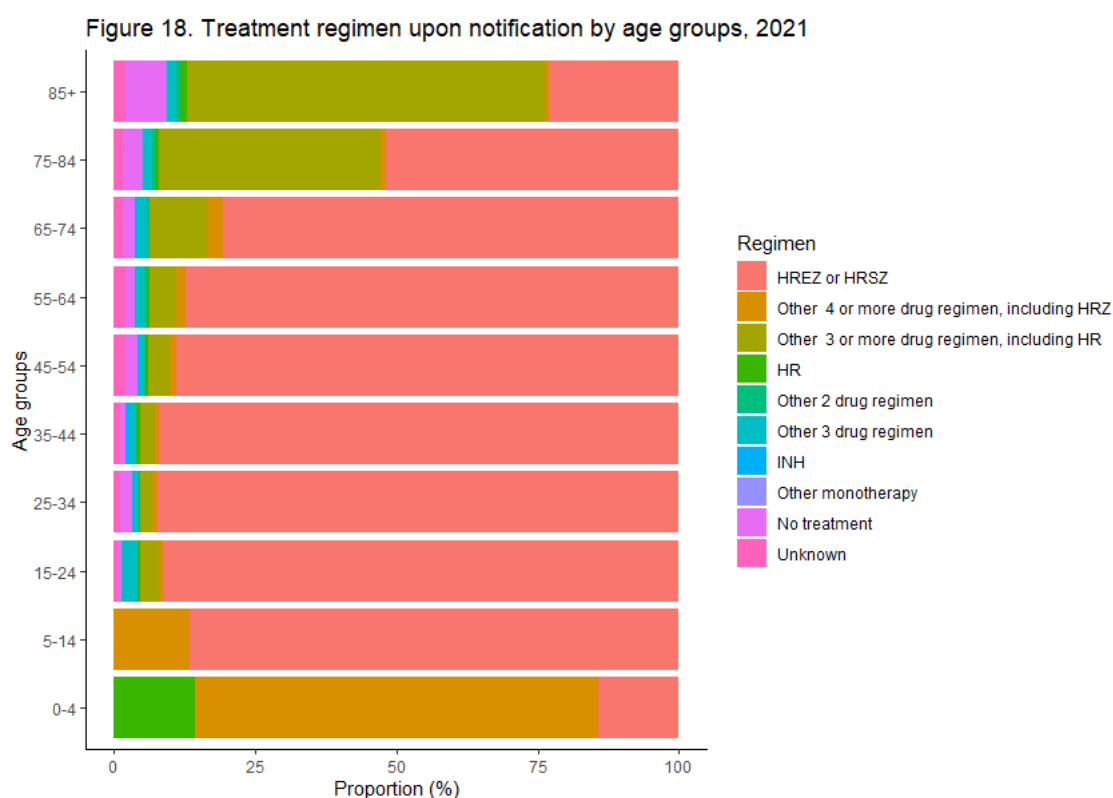
| | Japan-born | | Foreign-born | | Country of birth unknown | | Total | |
|---------------------|--------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|
| | n | % | n | % | n | % | n | % |
| Treatment completed | 4,056 | 84.2 | 489 | 81.5 | 88 | 82.2 | 4,633 | 83.9 |
| Died | 154 | 3.2 | 5 | 0.8 | 5 | 4.7 | 164 | 3.0 |
| LTFU | 367 | 7.6 | 30 | 5.0 | 5 | 4.7 | 402 | 7.3 |
| Transferred out | 34 | 0.7 | 33 | 5.5 | 1 | 0.9 | 68 | 1.2 |
| Still on treatment | 181 | 3.8 | 38 | 6.3 | 6 | 5.6 | 225 | 4.1 |
| Unknown | 25 | 0.5 | 5 | 0.8 | 2 | 1.9 | 32 | 0.6 |
| Total | 4,817 | 100.0 | 600 | 100.0 | 107 | 100.0 | 5,524 | 100.0 |

LTFU: lost to follow-up

Chapter 9: Treatment regimen and duration of hospitalization and treatment

TB regimen upon notification:

JTBS collects the regimen with which the treatment was started upon notification. In practice, the regimen could change at any time during the treatment period – however, such change is not reported to the JTBS. Figure 18 (see also Table s18) shows the regimen upon notification by age groups. Among all age groups, 59.0% of all notified TB cases (6,797 / 11,519) began treatment with INH, RFP, PZA and either EB or SM, 1.3% (153 / 11,519) with other 4 or more drug regimen including HRZ, and 31.2% (3,596 / 11,519) with other 3 or more drug regimen including HR.



The proportion of those receiving regimen with PZA tended to decrease with age, especially above those aged 75 years old.

Duration of hospitalization:

In Japan, sputum smear positive PTB cases must be hospitalized under the Infectious Diseases Control Law, until negative conversion. Among the 12,641 cases notified in 2020 and whose treatment outcome was known, data on duration of hospitalization in days was available for 5,644 cases. Table 21 summarizes the duration of hospitalization by patient category. Sputum smear PTB cases had the longest duration of hospitalization, followed by extrapulmonary TB cases. This is partially attributable to the fact that a larger proportion of EPTB is diagnosed among the elderly cases, who may require prolonged hospitalization.

Table 21. Duration of hospitalization by patient category, 2020 (n=5,644)

| | Median (days) | Mean (SD) (days) |
|---------------------------------------|------------------|---------------------|
| Sputum smear PTB, new | 63 | 73.8 (± 52.8) |
| Sputum smear PTB, retreatment | 64 | 74.1 (± 42.9) |
| Other bacteriologically confirmed PTB | 44 | 61.2 (± 57.0) |
| Clinically confirmed PTB | 30 | 48.0 (± 55.0) |
| EPTB | 45 | 64.2 (± 64.7) |

PTB: pulmonary tuberculosis, EPTB: extrapulmonary tuberculosis

Overall treatment duration:

Among the 12,641 cases notified in 2020 and whose treatment outcome was known, 2,564 and 5,676 cases had either “cured” or “completed treatment”, respectively. Among the 8,240 cases with treatment success, data on treatment duration was available for 8,051 cases. Table 22 summarizes the duration of hospitalization by patient category. Again, sputum smear PTB cases had the longest treatment duration, followed by EPTB cases.

Table 22. Treatment duration, by patient category (n=8,051)

| | Median (days) | Mean (SD) (days) |
|---------------------------------------|------------------|---------------------|
| Sputum smear PTB, new | 274 | 270.8 (± 86.2) |
| Sputum smear PTB, retreatment | 281 | 313.7 (± 108.1) |
| Other bacteriologically confirmed PTB | 246 | 253.3 (± 83.0) |
| Clinically confirmed PTB | 192 | 236.0 (± 80.8) |
| EPTB | 272 | 268.8 (± 88.6) |

PTB: pulmonary tuberculosis, EPTB: extrapulmonary tuberculosis

Chapter 10: Treatment outcome

Non-MDR cohort:

In 2020, a total of 12,693 non-MDR cases were reported. Treatment outcome at the end of 12 months was available for 99.2% (12,586 / 12,693) and is summarized in Table 23. The overall treatment success (“cured” and “completed”) was 65.4% (8,225 / 12,586), with slightly higher success rate among females compared with males (66.6% vs 64.4%).

Table 23. Treatment outcomes at 12 months for drug sensitive cases notified in 2020, by sex

| Tx outcome | Male | | Female | | Total | |
|-----------------|-------|-------|--------|-------|--------|-------|
| | n | % | n | % | n | % |
| Cured | 1,523 | 20.5 | 1,035 | 20.0 | 2,558 | 20.3 |
| Completed | 3,257 | 43.9 | 2,410 | 46.6 | 5,667 | 45.0 |
| Died | 1,864 | 25.1 | 1,149 | 22.2 | 3,013 | 23.9 |
| Failed | 6 | 0.1 | 8 | 0.2 | 14 | 0.1 |
| LTFU | 134 | 1.8 | 88 | 1.7 | 222 | 1.8 |
| Transferred-out | 155 | 2.1 | 121 | 2.3 | 276 | 2.2 |
| Still on tx | 453 | 6.1 | 356 | 6.9 | 809 | 6.4 |
| Not evaluated | 20 | 0.3 | 7 | 0.1 | 27 | 0.2 |
| Total | 7,412 | 100.0 | 5,174 | 100.0 | 12,586 | 100.0 |

Tx: treatment, LTFU: lost to follow-up

Treatment outcome by age groups is summarized in Table 24. While the treatment success rate among those aged 64 years old and younger has reached 82.6% (3,267 / 3,953), it declined sharply with age. The decline in the treatment success rate was largely attributable to the increase in the proportion of those who have died, which was as high as 53.9% (929 / 1,725) among those aged 90 years and above.

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Table 24. Treatment outcomes at 12 months for drug sensitive cases notified in 2020, by age groups

| Tx outcome | 0-64 | | 65-69 | | 70-74 | | 75-79 | | 80-84 | | 85-89 | | 90+ | |
|-----------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Cured | 934 | 23.6 | 180 | 24.1 | 249 | 23.5 | 333 | 22.8 | 315 | 17.9 | 317 | 16.9 | 230 | 13.3 |
| Completed | 2,333 | 59.0 | 393 | 52.7 | 540 | 51.0 | 660 | 45.1 | 715 | 40.6 | 619 | 32.9 | 407 | 23.6 |
| Died | 107 | 2.7 | 106 | 14.2 | 178 | 16.8 | 331 | 22.6 | 566 | 32.2 | 796 | 42.3 | 929 | 53.9 |
| Failed | 4 | 0.1 | 0 | 0.0 | 2 | 0.2 | 0 | 0.0 | 1 | 0.1 | 3 | 0.2 | 4 | 0.2 |
| LTFU | 68 | 1.7 | 17 | 2.3 | 25 | 2.4 | 27 | 1.8 | 35 | 2.0 | 23 | 1.2 | 27 | 1.6 |
| Transferred-out | 188 | 4.8 | 10 | 1.3 | 11 | 1.0 | 9 | 0.6 | 17 | 1.0 | 20 | 1.1 | 21 | 1.2 |
| Still on tx | 306 | 7.7 | 38 | 5.1 | 51 | 4.8 | 100 | 6.8 | 108 | 6.1 | 101 | 5.4 | 105 | 6.1 |
| Not evaluated | 13 | 0.3 | 2 | 0.3 | 3 | 0.3 | 3 | 0.2 | 2 | 0.1 | 2 | 0.1 | 2 | 0.1 |
| Total | 3,953 | 100.0 | 746 | 100.0 | 1,059 | 100.0 | 1,463 | 100.0 | 1,759 | 100.0 | 1,881 | 100.0 | 1,725 | 100.0 |

Tx: treatment, LTFU: lost to follow-up

Treatment outcome by country of birth is summarized in Table 25. Since the majority of the foreign-born cases are in the younger age groups, the comparison was made among those aged 64 years and below.

Table 25. Treatment outcomes at 12 months for drug sensitive cases notified in 2020, by country of birth

| Tx outcome | Japan-born | | Foreign-born | | Country of birth unknown | | Total | |
|-----------------|--------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|
| | n | % | n | % | n | % | n | % |
| Cured | 673 | 26.2 | 249 | 18.6 | 12 | 26.7 | 934 | 23.6 |
| Completed | 1,519 | 59.2 | 794 | 59.3 | 20 | 44.4 | 2,333 | 59.0 |
| Died | 100 | 3.9 | 5 | 0.4 | 2 | 4.4 | 107 | 2.7 |
| Failed | 3 | 0.1 | 1 | 0.1 | 0 | 0.0 | 4 | 0.1 |
| LTFU | 47 | 1.8 | 20 | 1.5 | 1 | 2.2 | 68 | 1.7 |
| Transferred-out | 52 | 2.0 | 133 | 9.9 | 3 | 6.7 | 188 | 4.8 |
| Still on tx | 169 | 6.6 | 130 | 9.7 | 7 | 15.6 | 306 | 7.7 |
| Not evaluated | 5 | 0.2 | 8 | 0.6 | 0 | 0.0 | 13 | 0.3 |
| Total | 2,568 | 100.0 | 1,340 | 100.0 | 45 | 100.0 | 3,953 | 100.0 |

Tx: treatment, LTFU: lost to follow-up

MDR cohort:

Treatment outcome of MDR-TB cases notified in 2018 is summarized in Table 26 (n=49). The overall treatment success rate was 57.1% (28 / 49).

Table 26. Treatment outcomes for MDR-TB cases notified in 2018

| Tx outcomes | n | % |
|-------------------|----|-------|
| Treatment success | 28 | 57.1 |
| Died | 10 | 20.4 |
| Failed | 0 | 0.0 |
| LTFU | 2 | 4.1 |
| Transferred-out | 6 | 12.2 |
| Still on tx | 1 | 2.0 |
| Not evaluated | 2 | 4.1 |
| Total | 49 | 100.0 |

Tx: treatment, LTFU: lost to follow-up

HIV positive cohort:

Treatment outcome of HIV positive cases notified in 2020 is summarized in Table 27 (n=31). The overall treatment success rate was 51.6% (16 / 31).

Table 27. Treatment outcomes at 12 months for HIV positive drug sensitive cases notified in 2020

| Tx outcomes | n | % |
|-----------------|----|-------|
| Cured | 5 | 16.1 |
| Completed | 11 | 35.5 |
| Died | 1 | 3.2 |
| Failed | 0 | 0.0 |
| LTFU | 1 | 3.2 |
| Transferred-out | 6 | 19.4 |
| Still on tx | 7 | 22.6 |
| Not evaluated | 0 | 0.0 |
| Total | 31 | 100.0 |

Tx: treatment, LTFU: lost to follow-up

Appendix I: Notes on TB surveillance system in Japan

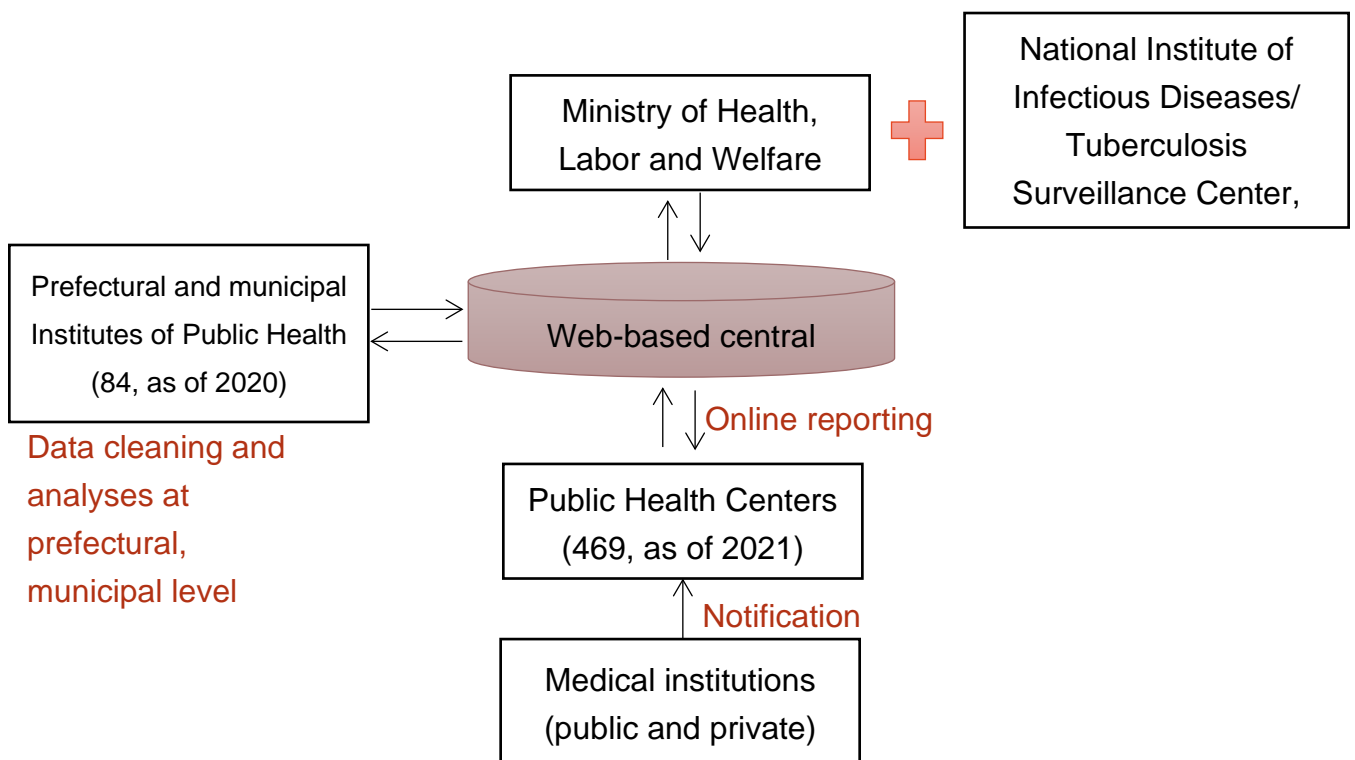
Both TB and LTBI (those diagnosed as being infected but not with active TB, and who were judged as requiring preventive therapy) are notifiable diseases under the Infectious Diseases Control Law. All physicians who diagnose TB or LTBI are requested to report to the local public health centers as soon as it is possible.

Local public health centers (PHCs), which are local government authorities responsible for public health in Japan, are responsible for compiling the reports and reporting to the Ministry of Health, Labour and Welfare of Japan.

Japan introduced the first nationwide computerized TB surveillance system, the Japan Tuberculosis Surveillance (JTBS) in 1987. The data, once entered into JTBS, is updated every month, and major findings are published annually, and also made available on-line, in Japanese. Treatment outcome is reported for the cohort notified in the previous year.

Simplified flowchart of TB

Data cleaning and analyses at national level,
Dissemination and publication of analysis
results



Appendix II: Definitions

Notification rates:

Notification rate per 100,000 is calculated using the population estimates from the annual “Current Population Estimates” as of October 1st each year (Statistics Bureau, Ministry of Internal Affairs and Communications, Japan), unless in the year of population census. The population census is conducted every five year, and in the year of census the notification rates are calculated using the data from the census.

Notification rate among the foreign-born was calculated using the population estimates of foreign residents from the “Foreign residents’ statistics” at the end of each year (Immigration Bureau, Ministry of Justice, Japan).

Terms of definitions and reporting years:

The overall trend is analyzed from 2010, unless otherwise noted as below:

Country of birth

Information regarding nationality (either “Japanese” or “non-Japanese”) was added to JTBS in 1998, and country name and the year of entry (either “within five years”, or “more than five years” or “unknown”) in 2007. In 2012, the category of nationality was changed to country of birth (either “Japan-born”, “foreign-born” or “unknown”), and the year of entry to the exact year of entry to Japan. In this report, the trend since 2007 is analyzed, however, the “foreign-born” includes those classified as “non-Japanese” prior to 2007. As for the time between entry to Japan and TB notification, trend since 2012 is analyzed.

Occupation

Service industry refers to those whose work involves face-to-face interactions with an unspecified large number of customers.

Other healthcare workers include co-medical workers, including care workers of elderly institutions.

Teachers include teachers of nursery and kindergarten school, primary, secondary, high-schools and universities, as well as of private classes and schools of non-compulsory education.

Full-and part-time employed refers to those with stable income other than service industry, healthcare workers, and teachers, and, and is differentiated from temporary employed (including day laborers) whose income is irregular.

Houseworkers refer to housewives and househusbands, and not paid workers e.g. maids.

Unemployed include all those without regular and/or irregular job, including the elderly who has retired.

HIV/DM

Information regarding HIV co-infection and DM was added to JTBS in 2007. HIV and DM data are self-reported, and are not matched with other database in any way. Information regarding HIV had been entered as “HIV positive”, “HIV negative” and “unknown” until 2011. Since 2012, a new category of “HIV test not done” was added. Information regarding DM is entered as “with DM”, “without DM” and “unknown”. Both for HIV and DM, the trend since 2012 is analyzed.

Mode of detection

Regular screening refers to mandatory screening conducted at schools, workplaces and other institutions including social welfare institutions and prison institutions.

Other mass investigation refers to mass screening programs organized by local authorities, targeting specific high-risk population groups such as homeless and foreign-born students.

At hospital setting refers to a case whereby he or she is diagnosed while seeking medical attention for TB symptoms, for diseases other than TB, or during medical examination while being hospitalized for diseases other than TB.

During follow-up for TB refers to a case whereby he or she is diagnosed during the two-year follow-up after completing treatment for TB/LTBI.

Treatment outcomes of drug susceptible TB

The definitions of the treatment outcomes for active TB are in line with latest definitions of the WHO. Due to the system restructuring of JTBS as mentioned earlier, the treatment outcomes for the 2019 cohort are evaluated differently from the cohort from the previous years. The outcomes are not directly comparable, and thus the trends are not analyzed.

LTBI

Information regarding LTBI was added to JTBS in 2006. However, due to questionable accuracy of the data reported in 2006, trend since 2007 is analyzed.

Treatment outcomes of LTBI

Completed treatment: An LTBI patient who has undergone treatment of sufficient duration as recommended by the Japanese guideline of LTBI treatment (i.e. 6 or 9 months of INH, or 4 or 6 months of RFP)

Died: An LTBI patient who has died from any cause during treatment.

Lost to follow-up: An LTBI patient whose treatment was interrupted and not restarted.

Transferred out: An LTBI patient who has moved out of the catchment area of a public health center during treatment, and whose final treatment outcome could not be identified by the public health center.

Still on treatment: An LTBI patient who is still on treatment at month 12.

Not evaluated: An LTBI patient whose treatment outcome could not be evaluated by the public health center.

Appendix III: Data quality

Data quality is ensured via the system's automatic verification program, as well as regular meetings at local levels attended by staffs from hospitals and PHCs. Periodic refresher trainings on data entry are also provided to PHC nurses as well as administrative staff across the nation.

Data capture rate for selected variables is summarized in Table iii.a. The capture rate was defined and calculated for each variable as follows:

$$\text{Country of birth: } \frac{\text{All active TB} - \text{country of birth unknown}}{\text{All active TB}} \times 100$$

$$\text{Occupation: } \frac{\text{All active TB} - \text{occupation unknown}}{\text{All active TB}} \times 100$$

$$\text{Homelessness: } \frac{\text{All active TB} - (\text{homeless unknown} + \text{no data entered})}{\text{All active TB}} \times 100$$

$$\text{Treatment history: } \frac{\text{All active TB} - \text{treatment history unknown}}{\text{All active TB}} \times 100$$

$$\text{Previous treatment regimen: } \frac{\text{All active retreatment TB} - \text{regimen unknown}}{\text{All active retreatment TB}} \times 100$$

$$\text{Total delay: } \frac{\text{All symptomatic PTB} - \text{delay unknown}}{\text{All symptomatic PTB}} \times 100$$

$$\text{DM: } \frac{\text{All active TB} - \text{DM unknown}}{\text{All active TB}} \times 100$$

$$\text{HIV status: } \frac{(\text{HIV positive} + \text{HIV negative})}{\text{All active TB}} \times 100$$

$$\text{HIV testing status: } \frac{(\text{HIV positive} + \text{HIV negative} + \text{test not done})}{\text{All active TB}} \times 100$$

$$\text{Culture known TB: } \frac{(\text{Culture positive} + \text{Culture negative})}{\text{All active TB}} \times 100$$

$$\text{Culture known PTB: } \frac{(\text{Culture positive} + \text{Culture negative})}{\text{All active PTB}} \times 100$$

$$\text{DST known TB } \frac{(\text{INH negative} + \text{positive}) + (\text{RFP negative} + \text{positive})}{\text{All culture positive TB}} \times 100$$

$$\text{DST known PTB: } \frac{(\text{INH negative} + \text{positive}) + (\text{RFP negative} + \text{positive})}{\text{All culture positive PTB}} \times 100$$

The denominators are summarized in Table iii.b.

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Table iii.a
Data capture rate,
2021

| Prefecture | Country of birth | Occupation | Homelessness | Treatment history | Previous treatment regimen | Total delay |
|------------|------------------|------------|--------------|-------------------|----------------------------|-------------|
| 1 | 97.6 | 98.8 | 21.5 | 99.4 | 62.5 | 70.2 |
| 2 | 99.0 | 96.2 | 19.0 | 97.1 | 83.3 | 58.2 |
| 3 | 100.0 | 98.4 | 60.7 | 96.7 | 75.0 | 60.0 |
| 4 | 99.3 | 97.4 | 46.1 | 100.0 | 40.0 | 43.9 |
| 5 | 100.0 | 100.0 | 50.0 | 100.0 | 100.0 | 48.7 |
| 6 | 100.0 | 96.7 | 50.0 | 95.0 | 66.7 | 38.0 |
| 7 | 100.0 | 99.0 | 58.4 | 98.0 | 83.3 | 63.6 |
| 8 | 97.3 | 98.6 | 38.5 | 97.3 | 75.0 | 34.1 |
| 9 | 100.0 | 97.4 | 27.8 | 99.3 | 42.9 | 79.1 |
| 10 | 99.2 | 99.2 | 52.8 | 100.0 | 100.0 | 93.4 |
| 11 | 87.7 | 89.4 | 50.0 | 96.9 | 60.0 | 34.4 |
| 12 | 99.1 | 95.5 | 66.4 | 99.5 | 66.7 | 63.3 |
| 13 | 98.5 | 96.5 | 63.0 | 99.2 | 79.3 | 70.5 |
| 14 | 90.6 | 96.0 | 23.1 | 99.2 | 70.4 | 40.6 |
| 15 | 89.6 | 99.3 | 52.8 | 100.0 | 40.0 | 79.2 |
| 16 | 100.0 | 97.6 | 50.0 | 100.0 | 100.0 | 45.8 |
| 17 | 99.0 | 100.0 | 37.1 | 96.9 | 33.3 | 80.5 |
| 18 | 96.1 | 100.0 | 62.7 | 100.0 | 25.0 | 88.2 |
| 19 | 100.0 | 94.3 | 71.4 | 97.1 | 100.0 | 7.1 |
| 20 | 100.0 | 98.1 | 26.9 | 99.0 | 66.7 | 37.0 |
| 21 | 100.0 | 99.1 | 41.1 | 98.6 | 75.0 | 60.0 |
| 22 | 99.0 | 96.9 | 33.3 | 99.3 | 83.3 | 46.3 |
| 23 | 99.8 | 98.5 | 81.5 | 99.8 | 88.9 | 74.7 |
| 24 | 97.3 | 95.9 | 35.1 | 98.6 | 50.0 | 43.8 |
| 25 | 98.3 | 98.3 | 24.8 | 100.0 | 87.5 | 25.0 |
| 26 | 89.7 | 98.9 | 80.1 | 98.9 | 100.0 | 80.4 |
| 27 | 99.1 | 96.5 | 39.1 | 98.6 | 80.6 | 90.8 |
| 28 | 98.6 | 98.8 | 61.1 | 99.0 | 66.7 | 77.4 |
| 29 | 99.2 | 95.9 | 67.8 | 99.2 | 57.1 | 65.7 |
| 30 | 100.0 | 100.0 | 69.7 | 100.0 | 100.0 | 97.1 |
| 31 | 97.4 | 97.4 | 18.4 | 100.0 | NA | 25.8 |
| 32 | 100.0 | 100.0 | 50.0 | 98.1 | NA | 55.8 |
| 33 | 100.0 | 97.3 | 12.0 | 100.0 | 33.3 | 69.3 |
| 34 | 84.1 | 95.0 | 29.7 | 98.7 | 72.7 | 40.3 |
| 35 | 99.2 | 99.2 | 39.5 | 98.3 | 100.0 | 62.8 |
| 36 | 97.8 | 96.7 | 19.6 | 100.0 | 33.3 | 32.4 |
| 37 | 97.6 | 98.8 | 55.4 | 98.8 | NA | 43.2 |
| 38 | 96.4 | 99.1 | 43.6 | 100.0 | 83.3 | 72.7 |
| 39 | 75.0 | 93.8 | 27.1 | 100.0 | 75.0 | 62.2 |
| 40 | 97.8 | 96.3 | 37.4 | 98.9 | 77.8 | 61.8 |
| 41 | 88.9 | 95.8 | 18.1 | 98.6 | 50.0 | 47.8 |
| 42 | 77.7 | 98.9 | 29.1 | 98.3 | 33.3 | 55.1 |
| 43 | 93.7 | 99.2 | 42.9 | 96.8 | 80.0 | 29.6 |
| 44 | 98.3 | 94.9 | 48.7 | 100.0 | 75.0 | 88.6 |
| 45 | 100.0 | 100.0 | 29.5 | 96.6 | 57.1 | 59.2 |
| 46 | 98.8 | 99.4 | 46.6 | 96.9 | 44.4 | 49.2 |
| 47 | 100.0 | 99.4 | 70.9 | 99.4 | 70.0 | 93.9 |
| Total | 96.6 | 97.0 | 48.2 | 98.9 | 72.4 | 63.8 |

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(cont.)

| Prefecture | DM | HIV status | HIV testing status | Culture known TB | Culture known PTB | DST known TB | DST known PTB |
|------------|------|------------|--------------------|------------------|-------------------|--------------|---------------|
| 1 | 77.0 | 7.8 | 60.9 | 69.0 | 73.3 | 42.5 | 41.9 |
| 2 | 58.1 | 2.9 | 47.6 | 65.7 | 72.7 | 54.3 | 54.5 |
| 3 | 85.2 | 3.3 | 44.3 | 59.0 | 64.0 | 39.3 | 38.5 |
| 4 | 91.4 | 0.0 | 32.2 | 91.4 | 92.3 | 81.2 | 82.0 |
| 5 | 91.3 | 0.0 | 23.9 | 82.6 | 85.7 | 32.4 | 37.0 |
| 6 | 75.0 | 0.0 | 13.3 | 65.0 | 71.1 | 13.3 | 15.4 |
| 7 | 75.2 | 0.0 | 65.3 | 78.2 | 81.1 | 54.4 | 57.1 |
| 8 | 83.3 | 2.3 | 59.3 | 78.7 | 84.8 | 41.9 | 43.6 |
| 9 | 92.1 | 17.2 | 47.0 | 93.4 | 99.1 | 96.6 | 100.0 |
| 10 | 86.2 | 3.3 | 53.7 | 97.6 | 98.9 | 94.8 | 96.2 |
| 11 | 79.5 | 3.2 | 23.5 | 72.6 | 75.7 | 60.4 | 61.1 |
| 12 | 90.8 | 2.4 | 42.3 | 88.8 | 90.8 | 85.0 | 85.0 |
| 13 | 92.2 | 43.2 | 63.1 | 93.1 | 96.9 | 94.8 | 96.3 |
| 14 | 76.5 | 2.4 | 22.6 | 69.7 | 70.4 | 66.3 | 68.7 |
| 15 | 77.8 | 3.5 | 65.3 | 70.8 | 77.9 | 37.8 | 40.8 |
| 16 | 84.5 | 0.0 | 35.7 | 77.4 | 75.0 | 60.0 | 62.1 |
| 17 | 85.6 | 2.1 | 34.0 | 94.8 | 94.5 | 89.3 | 91.9 |
| 18 | 98.0 | 3.9 | 13.7 | 80.4 | 78.9 | 90.0 | 91.3 |
| 19 | 91.4 | 0.0 | 94.3 | 68.6 | 66.7 | 40.0 | 41.7 |
| 20 | 66.3 | 1.9 | 28.8 | 64.4 | 67.1 | 42.9 | 46.2 |
| 21 | 85.0 | 1.4 | 28.0 | 70.6 | 78.6 | 58.3 | 58.7 |
| 22 | 75.9 | 0.3 | 26.5 | 74.9 | 78.2 | 66.7 | 67.7 |
| 23 | 93.3 | 2.8 | 35.7 | 95.9 | 97.9 | 90.3 | 92.9 |
| 24 | 75.7 | 6.1 | 35.1 | 76.4 | 79.8 | 44.2 | 42.3 |
| 25 | 93.2 | 1.7 | 41.0 | 75.2 | 81.2 | 43.6 | 47.6 |
| 26 | 86.7 | 0.4 | 18.5 | 89.3 | 92.6 | 82.2 | 82.8 |
| 27 | 92.5 | 2.2 | 50.0 | 91.5 | 93.2 | 93.1 | 94.0 |
| 28 | 87.2 | 3.2 | 40.3 | 93.5 | 96.6 | 90.0 | 89.7 |
| 29 | 90.1 | 3.3 | 29.8 | 96.7 | 98.9 | 89.3 | 88.2 |
| 30 | 89.9 | 0.0 | 68.5 | 97.8 | 100.0 | 97.3 | 98.5 |
| 31 | 71.1 | 0.0 | 26.3 | 34.2 | 33.3 | 33.3 | 42.9 |
| 32 | 87.0 | 0.0 | 5.6 | 64.8 | 58.3 | 65.5 | 65.0 |
| 33 | 92.9 | 0.0 | 41.5 | 83.1 | 84.0 | 36.2 | 35.3 |
| 34 | 77.0 | 0.4 | 23.4 | 70.3 | 77.9 | 58.3 | 57.6 |
| 35 | 97.5 | 0.8 | 31.9 | 70.6 | 77.4 | 52.2 | 56.5 |
| 36 | 85.9 | 1.1 | 18.5 | 65.2 | 64.2 | 32.6 | 36.1 |
| 37 | 75.9 | 0.0 | 9.6 | 81.9 | 81.0 | 61.7 | 63.2 |
| 38 | 96.4 | 0.0 | 60.9 | 79.1 | 90.1 | 52.9 | 56.9 |
| 39 | 91.7 | 2.1 | 29.2 | 66.7 | 67.6 | 29.6 | 31.8 |
| 40 | 90.8 | 1.3 | 15.0 | 81.3 | 88.4 | 68.3 | 69.7 |
| 41 | 77.8 | 0.0 | 9.7 | 65.3 | 66.7 | 44.4 | 39.3 |
| 42 | 94.3 | 0.0 | 34.9 | 47.4 | 48.3 | 46.8 | 47.8 |
| 43 | 92.9 | 0.0 | 78.6 | 61.1 | 69.9 | 63.6 | 67.3 |
| 44 | 96.6 | 0.0 | 98.3 | 96.6 | 98.8 | 87.2 | 89.2 |
| 45 | 90.9 | 0.0 | 30.7 | 83.0 | 89.3 | 74.5 | 80.6 |
| 46 | 91.9 | 0.0 | 37.3 | 77.0 | 80.3 | 67.3 | 67.4 |
| 47 | 95.4 | 0.6 | 39.4 | 59.4 | 63.6 | 30.7 | 30.8 |
| Total | 87.1 | 7.4 | 40.7 | 82.3 | 85.8 | 75.6 | 77.1 |

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Table iii.b
Denominators used
to calculate the
capture rate, 2021

| Prefecture | Active TB | Total PTB | Active TB, retreatment cases | Symptomatic PTB | Culture positive PTB | Culture positive TB |
|--------------|---------------|--------------|------------------------------------|--------------------|-------------------------|------------------------|
| 1 | 335 | 243 | 8 | 275 | 136 | 160 |
| 2 | 105 | 77 | 6 | 79 | 44 | 46 |
| 3 | 61 | 50 | 4 | 45 | 26 | 28 |
| 4 | 152 | 117 | 5 | 114 | 89 | 101 |
| 5 | 46 | 35 | 2 | 39 | 27 | 34 |
| 6 | 60 | 45 | 3 | 50 | 26 | 30 |
| 7 | 101 | 74 | 6 | 77 | 49 | 57 |
| 8 | 221 | 151 | 8 | 173 | 101 | 129 |
| 9 | 151 | 117 | 7 | 129 | 101 | 119 |
| 10 | 123 | 93 | 2 | 106 | 78 | 96 |
| 11 | 616 | 440 | 20 | 465 | 265 | 323 |
| 12 | 553 | 411 | 21 | 403 | 286 | 341 |
| 13 | 1,429 | 1,094 | 58 | 949 | 839 | 965 |
| 14 | 748 | 544 | 27 | 532 | 316 | 386 |
| 15 | 144 | 104 | 10 | 125 | 71 | 82 |
| 16 | 84 | 52 | 4 | 72 | 29 | 40 |
| 17 | 97 | 73 | 6 | 82 | 62 | 75 |
| 18 | 51 | 38 | 4 | 34 | 23 | 30 |
| 19 | 35 | 21 | 1 | 28 | 12 | 15 |
| 20 | 104 | 76 | 3 | 73 | 39 | 49 |
| 21 | 214 | 154 | 4 | 145 | 104 | 115 |
| 22 | 291 | 216 | 18 | 214 | 133 | 156 |
| 23 | 880 | 628 | 45 | 672 | 507 | 616 |
| 24 | 148 | 109 | 6 | 112 | 71 | 86 |
| 25 | 117 | 69 | 8 | 68 | 42 | 55 |
| 26 | 271 | 176 | 5 | 224 | 145 | 174 |
| 27 | 1,171 | 908 | 36 | 865 | 703 | 795 |
| 28 | 586 | 437 | 21 | 483 | 369 | 428 |
| 29 | 121 | 91 | 7 | 99 | 76 | 84 |
| 30 | 89 | 71 | 2 | 70 | 65 | 73 |
| 31 | 38 | 30 | 1 | 31 | 7 | 9 |
| 32 | 54 | 36 | 1 | 43 | 20 | 29 |
| 33 | 183 | 125 | 3 | 140 | 85 | 105 |
| 34 | 239 | 163 | 11 | 181 | 92 | 108 |
| 35 | 119 | 93 | 5 | 78 | 62 | 69 |
| 36 | 92 | 67 | 3 | 71 | 36 | 43 |
| 37 | 83 | 58 | 0 | 74 | 38 | 47 |
| 38 | 110 | 81 | 6 | 88 | 58 | 70 |
| 39 | 48 | 34 | 4 | 45 | 22 | 27 |
| 40 | 535 | 388 | 27 | 380 | 267 | 303 |
| 41 | 72 | 51 | 4 | 46 | 28 | 36 |
| 42 | 175 | 116 | 3 | 147 | 46 | 62 |
| 43 | 126 | 73 | 5 | 108 | 49 | 66 |
| 44 | 117 | 83 | 4 | 88 | 65 | 78 |
| 45 | 88 | 56 | 7 | 71 | 36 | 47 |
| 46 | 161 | 127 | 9 | 132 | 92 | 98 |
| 47 | 175 | 118 | 10 | 132 | 65 | 75 |
| Total | 11,519 | 8,413 | 460 | 8,657 | 5,902 | 6,960 |

Appendix IV: Supplementary tables

Table s1. Number and rate of all active TB notifications, 2010-2021

| | No. cases | Percentage change in cases | Notification rate per 100,000 | Percentage change in rate |
|------|-----------|----------------------------|-------------------------------|---------------------------|
| 2010 | 23,261 | NA | 18.2 | NA |
| 2011 | 22,681 | 2.5 | 17.7 | 2.8 |
| 2012 | 21,283 | 6.2 | 16.7 | 5.7 |
| 2013 | 20,495 | 3.7 | 16.1 | 3.6 |
| 2014 | 19,615 | 4.3 | 15.4 | 4.4 |
| 2015 | 18,280 | 6.8 | 14.4 | 6.5 |
| 2016 | 17,625 | 3.6 | 13.9 | 3.5 |
| 2017 | 16,789 | 4.7 | 13.3 | 4.3 |
| 2018 | 15,590 | 7.1 | 12.3 | 7.5 |
| 2019 | 14,460 | 7.2 | 11.5 | 6.5 |
| 2020 | 12,739 | 11.9 | 10.1 | 12.2 |
| 2021 | 11,519 | 9.6 | 9.2 | 8.9 |

Table s2. Number of TB notifications by age group and sex, 2021

| Age groups (years) | Total | Male | Female |
|--------------------|--------|-------|--------|
| | n | n | n |
| 0-4 | 14 | 5 | 9 |
| 5-9 | 5 | 4 | 1 |
| 10-14 | 10 | 3 | 7 |
| 15-19 | 98 | 48 | 50 |
| 20-24 | 447 | 235 | 212 |
| 25-29 | 483 | 260 | 223 |
| 30-34 | 315 | 154 | 161 |
| 35-39 | 282 | 137 | 145 |
| 40-44 | 274 | 137 | 137 |
| 45-49 | 366 | 217 | 149 |
| 50-54 | 447 | 271 | 176 |
| 55-59 | 394 | 274 | 120 |
| 60-64 | 452 | 329 | 123 |
| 65-69 | 618 | 431 | 187 |
| 70-74 | 1,011 | 707 | 304 |
| 75-79 | 1,230 | 806 | 424 |
| 80-84 | 1,591 | 952 | 639 |
| 85-89 | 1,849 | 983 | 866 |
| 90+ | 1,633 | 773 | 860 |
| Total | 11,519 | 6,726 | 4,793 |

Table s3. Newly notified cases by age groups, 1987-2021

| | 0-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85-89 | 90+ |
|------|--------|-------|-------|-------|-------|-------|-------|
| 1987 | 35,690 | 5,549 | 5,831 | 4,954 | 2,979 | 1,202 | 291 |
| 1988 | 33,783 | 5,497 | 5,445 | 4,937 | 2,984 | 1,351 | 360 |
| 1989 | 32,694 | 5,548 | 5,241 | 4,934 | 3,037 | 1,303 | 355 |
| 1990 | 31,108 | 5,585 | 5,227 | 4,945 | 3,265 | 1,298 | 393 |
| 1991 | 30,018 | 5,655 | 5,053 | 4,895 | 3,231 | 1,364 | 396 |
| 1992 | 28,740 | 5,545 | 4,868 | 4,577 | 3,412 | 1,397 | 417 |
| 1993 | 27,362 | 5,589 | 4,828 | 4,480 | 3,237 | 1,518 | 423 |
| 1994 | 25,307 | 5,390 | 4,785 | 4,030 | 3,190 | 1,448 | 440 |
| 1995 | 24,441 | 4,963 | 4,667 | 3,984 | 3,148 | 1,433 | 442 |
| 1996 | 24,220 | 4,769 | 4,614 | 3,858 | 3,093 | 1,474 | 444 |
| 1997 | 23,293 | 4,718 | 4,845 | 4,195 | 3,280 | 1,817 | 567 |
| 1998 | 22,217 | 4,450 | 4,696 | 3,945 | 3,197 | 1,834 | 694 |
| 1999 | 22,838 | 3,707 | 4,409 | 5,178 | 4,699 | 3,548 | 2,271 |
| 2000 | 20,349 | 3,780 | 4,613 | 4,232 | 3,262 | 2,200 | 948 |
| 2001 | 18,020 | 3,407 | 3,916 | 3,985 | 3,083 | 2,127 | 951 |
| 2002 | 16,300 | 2,906 | 3,692 | 3,938 | 3,057 | 2,049 | 886 |
| 2003 | 15,243 | 2,809 | 3,365 | 3,928 | 3,136 | 2,088 | 1,069 |
| 2004 | 14,256 | 2,422 | 3,060 | 3,773 | 3,074 | 2,035 | 1,116 |
| 2005 | 13,361 | 2,244 | 2,823 | 3,509 | 3,206 | 2,051 | 1,125 |
| 2006 | 12,004 | 1,991 | 2,724 | 3,385 | 3,090 | 2,060 | 1,130 |
| 2007 | 11,222 | 1,967 | 2,523 | 3,136 | 3,282 | 2,060 | 1,121 |
| 2008 | 10,716 | 1,935 | 2,485 | 3,039 | 3,226 | 2,209 | 1,150 |
| 2009 | 10,159 | 1,890 | 2,160 | 2,988 | 3,380 | 2,320 | 1,273 |
| 2010 | 9,516 | 1,826 | 2,092 | 2,908 | 3,194 | 2,429 | 1,296 |
| 2011 | 8,925 | 1,552 | 2,014 | 2,861 | 3,305 | 2,592 | 1,432 |
| 2012 | 7,976 | 1,475 | 1,984 | 2,611 | 3,100 | 2,653 | 1,484 |
| 2013 | 7,268 | 1,470 | 1,852 | 2,507 | 3,082 | 2,774 | 1,542 |
| 2014 | 6,792 | 1,399 | 1,806 | 2,222 | 2,949 | 2,804 | 1,643 |
| 2015 | 6,114 | 1,401 | 1,636 | 2,121 | 2,756 | 2,561 | 1,691 |
| 2016 | 5,883 | 1,341 | 1,406 | 2,001 | 2,579 | 2,559 | 1,856 |
| 2017 | 5,593 | 1,283 | 1,353 | 1,834 | 2,408 | 2,414 | 1,904 |
| 2018 | 5,193 | 1,062 | 1,253 | 1,742 | 2,170 | 2,364 | 1,806 |
| 2019 | 4,758 | 864 | 1,172 | 1,638 | 1,951 | 2,110 | 1,967 |
| 2020 | 4,016 | 751 | 1,074 | 1,473 | 1,781 | 1,905 | 1,739 |
| 2021 | 3,587 | 618 | 1,011 | 1,230 | 1,591 | 1,849 | 1,633 |

Table s4. Pulmonary TB cases by culture test results, 2012-2021

| | Positive | Negative | Pending | Aborted | Not done | Unknown |
|------|----------|----------|---------|---------|----------|---------|
| 2012 | 11,261 | 2,797 | 1,503 | 22 | 537 | 312 |
| 2013 | 10,523 | 2,788 | 1,850 | 25 | 503 | 283 |
| 2014 | 10,259 | 2,650 | 1,554 | 23 | 418 | 245 |
| 2015 | 10,035 | 2,225 | 1,318 | 14 | 385 | 146 |
| 2016 | 9,878 | 2,377 | 938 | 14 | 260 | 141 |
| 2017 | 9,580 | 2,184 | 906 | 18 | 218 | 105 |
| 2018 | 9,016 | 2,054 | 653 | 21 | 208 | 81 |
| 2019 | 8,110 | 1,858 | 846 | 24 | 177 | 79 |
| 2020 | 6,645 | 1,525 | 949 | 24 | 174 | 129 |
| 2021 | 5,902 | 1,317 | 863 | 11 | 193 | 127 |

Table s5. Proportion of those with cavity among pulmonary TB cases by age groups and sex, 2021

| Age groups (years) | Male | | Female | | Total | |
|--------------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
| | No. with cavity | % with cavity | No. with cavity | % with cavity | No. with cavity | % with cavity |
| 0-4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 5-9 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 |
| 10-14 | 0 | 0.0 | 5 | 0.0 | 5 | 0.0 |
| 15-19 | 12 | 31.7 | 7 | 17.8 | 19 | 24.4 |
| 20-24 | 59 | 23.5 | 38 | 20.7 | 97 | 22.2 |
| 25-29 | 61 | 27.2 | 44 | 19.0 | 105 | 23.4 |
| 30-34 | 49 | 29.8 | 27 | 26.3 | 76 | 28.1 |
| 35-39 | 36 | 25.5 | 28 | 24.3 | 64 | 24.9 |
| 40-44 | 44 | 30.3 | 23 | 17.0 | 67 | 24.4 |
| 45-49 | 70 | 36.9 | 27 | 19.6 | 97 | 30.4 |
| 50-54 | 95 | 42.0 | 32 | 28.4 | 127 | 37.6 |
| 55-59 | 86 | 41.9 | 23 | 22.4 | 109 | 37.0 |
| 60-64 | 121 | 39.6 | 24 | 22.1 | 145 | 35.5 |
| 65-69 | 165 | 41.8 | 42 | 25.0 | 207 | 37.3 |
| 70-74 | 210 | 34.2 | 54 | 25.6 | 264 | 31.8 |
| 75-79 | 204 | 30.2 | 90 | 26.9 | 294 | 29.2 |
| 80-84 | 221 | 28.2 | 92 | 24.8 | 313 | 26.9 |
| 85-89 | 200 | 30.3 | 136 | 26.4 | 336 | 28.5 |
| 90+ | 134 | 25.9 | 159 | 19.7 | 293 | 22.7 |
| Total | 1767 | 31.9 | 852 | 23.4 | 2619 | 28.6 |

Table s6. Proportion of those with smear positive among pulmonary TB cases by age groups and sex, 2021

| Age groups (years) | Male | | Female | | Total | |
|--------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| | No. sputum smear positive | % sputum smear positive | No. sputum smear positive | % sputum smear positive | No. sputum smear positive | % sputum smear positive |
| 0-4 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| 5-9 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| 10-14 | 0 | 0 | 2 | 40.0 | 2 | 28.6 |
| 15-19 | 17 | 41.5 | 18 | 40.0 | 35 | 40.7 |
| 20-24 | 54 | 28.9 | 54 | 31.0 | 108 | 29.9 |
| 25-29 | 51 | 26.2 | 43 | 25.6 | 94 | 25.9 |
| 30-34 | 41 | 33.1 | 42 | 35.6 | 83 | 34.3 |
| 35-39 | 41 | 40.2 | 45 | 40.5 | 86 | 40.4 |
| 40-44 | 38 | 34.9 | 34 | 38.6 | 72 | 36.5 |
| 45-49 | 72 | 40.9 | 38 | 35.5 | 110 | 38.9 |
| 50-54 | 111 | 48.1 | 48 | 44.0 | 159 | 46.8 |
| 55-59 | 105 | 45.9 | 27 | 35.5 | 132 | 43.3 |
| 60-64 | 142 | 51.6 | 27 | 31.4 | 169 | 46.8 |
| 65-69 | 161 | 48.8 | 49 | 40.8 | 210 | 46.7 |
| 70-74 | 255 | 48.9 | 99 | 50.8 | 354 | 49.4 |
| 75-79 | 305 | 50.0 | 135 | 49.8 | 440 | 49.9 |
| 80-84 | 372 | 56.2 | 231 | 55.0 | 603 | 55.7 |
| 85-89 | 411 | 57.6 | 360 | 59.4 | 771 | 58.5 |
| 90+ | 356 | 60.6 | 343 | 56.3 | 699 | 58.4 |
| Total | 2,532 | 49.6 | 1,595 | 48.1 | 4,127 | 49.1 |

Table s7. Number of new, retreatment and history of treatment unknown cases, 2010-2021

| | New | Retreatment | Unknown | Total |
|------|--------|-------------|---------|--------|
| 2010 | 21,029 | 1,762 | 470 | 23,261 |
| 2011 | 20,479 | 1,687 | 515 | 22,681 |
| 2012 | 19,577 | 1,335 | 371 | 21,283 |
| 2013 | 18,944 | 1,262 | 289 | 20,495 |
| 2014 | 18,157 | 1,179 | 279 | 19,615 |
| 2015 | 17,037 | 1,032 | 211 | 18,280 |
| 2016 | 16,481 | 908 | 236 | 17,625 |
| 2017 | 15,734 | 839 | 216 | 16,789 |
| 2018 | 14,661 | 732 | 197 | 15,590 |
| 2019 | 13,606 | 667 | 187 | 14,460 |
| 2020 | 12,024 | 546 | 169 | 12,739 |
| 2021 | 10,930 | 460 | 129 | 11,519 |

Table s8. Proportion of drug susceptibility test results known of culture confirmed pulmonary TB, 2012- 2021

| | Culture confirmed PTB | Of which, DST results known | Proportion (%) |
|------|-----------------------|-----------------------------|----------------|
| 2012 | 11,261 | 8,347 | 74.1 |
| 2013 | 10,523 | 7,701 | 73.2 |
| 2014 | 10,259 | 7,645 | 74.5 |
| 2015 | 10,035 | 7,630 | 76.0 |
| 2016 | 9,878 | 7,732 | 78.3 |
| 2017 | 9,580 | 7,891 | 82.4 |
| 2018 | 9,016 | 7,570 | 84.0 |
| 2019 | 8,110 | 6,658 | 82.1 |
| 2020 | 6,645 | 5,209 | 78.4 |
| 2021 | 5,902 | 4,551 | 77.1 |

PTB: pulmonary tuberculosis, DST: drug susceptibility test

Table s9a. Drug resistance among pulmonary TB, new cases, 2012-2021

| INH resistance | | | | |
|----------------|-----------|---------------|-------|-------------|
| | Resistant | Not resistant | Total | % resistant |
| 2012 | 310 | 7,367 | 7,677 | 4.0 |
| 2013 | 326 | 6,840 | 7,166 | 4.5 |
| 2014 | 288 | 6,816 | 7,104 | 4.1 |
| 2015 | 317 | 6,818 | 7,135 | 4.4 |
| 2016 | 316 | 6,962 | 7,278 | 4.3 |
| 2017 | 338 | 7,096 | 7,434 | 4.5 |
| 2018 | 331 | 6,840 | 7,171 | 4.6 |
| 2019 | 319 | 5,969 | 6,288 | 5.1 |
| 2020 | 260 | 4,678 | 4,938 | 5.3 |
| 2021 | 205 | 4,130 | 4,335 | 4.7 |

| RFP resistance | | | | |
|----------------|-----------|---------------|-------|-------------|
| | Resistant | Not resistant | Total | % resistant |
| 2012 | 46 | 7,631 | 7,677 | 0.6 |
| 2013 | 42 | 7,124 | 7,166 | 0.6 |
| 2014 | 58 | 7,046 | 7,104 | 0.8 |
| 2015 | 58 | 7,077 | 7,135 | 0.8 |
| 2016 | 56 | 7,222 | 7,278 | 0.8 |
| 2017 | 62 | 7,372 | 7,434 | 0.8 |
| 2018 | 68 | 7,103 | 7,171 | 0.9 |
| 2019 | 52 | 6,236 | 6,288 | 0.8 |
| 2020 | 44 | 4,894 | 4,938 | 0.9 |
| 2021 | 48 | 4,287 | 4,335 | 1.1 |

| MDR | | | | |
|------|-----------|---------------|-------|-------------|
| | Resistant | Not resistant | Total | % resistant |
| 2012 | 38 | 7,639 | 7,639 | 0.5 |
| 2013 | 31 | 7,135 | 7,135 | 0.4 |
| 2014 | 40 | 7,064 | 7,064 | 0.6 |
| 2015 | 33 | 7,102 | 7,102 | 0.5 |
| 2016 | 37 | 7,241 | 7,241 | 0.5 |
| 2017 | 41 | 7,393 | 7,393 | 0.6 |
| 2018 | 41 | 7,130 | 7,130 | 0.6 |
| 2019 | 35 | 6,253 | 6,253 | 0.6 |
| 2020 | 31 | 4,907 | 4,907 | 0.6 |
| 2021 | 36 | 4,299 | 4,335 | 0.8 |

INH: isoniazid, RFP: rifampicin, MDR: multidrug resistance

Table s9b. Drug resistance among pulmonary TB, retreatment cases, 2012-2021

| INH resistance | | | | |
|----------------|-----------|---------------|-------|-------------|
| | Resistant | Not resistant | Total | % resistant |
| 2012 | 67 | 487 | 554 | 12.1 |
| 2013 | 35 | 400 | 435 | 8.0 |
| 2014 | 57 | 392 | 449 | 12.7 |
| 2015 | 49 | 363 | 412 | 11.9 |
| 2016 | 51 | 307 | 358 | 14.2 |
| 2017 | 36 | 326 | 362 | 9.9 |
| 2018 | 41 | 282 | 323 | 12.7 |
| 2019 | 36 | 250 | 286 | 12.6 |
| 2020 | 31 | 170 | 201 | 15.4 |
| 2021 | 11 | 155 | 166 | 6.6 |

| RFP resistance | | | | |
|----------------|-----------|---------------|-------|-------------|
| | resistant | not resistant | total | % resistant |
| 2012 | 26 | 528 | 554 | 4.7 |
| 2013 | 22 | 413 | 435 | 5.1 |
| 2014 | 17 | 432 | 449 | 3.8 |
| 2015 | 18 | 394 | 412 | 4.4 |
| 2016 | 16 | 342 | 358 | 4.5 |
| 2017 | 15 | 347 | 362 | 4.1 |
| 2018 | 16 | 307 | 323 | 5.0 |
| 2019 | 13 | 273 | 286 | 4.5 |
| 2020 | 14 | 187 | 201 | 7.0 |
| 2021 | 7 | 159 | 166 | 4.2 |

| MDR | | | | |
|------|-----------|---------------|-------|-------------|
| | resistant | not resistant | total | % resistant |
| 2012 | 22 | 532 | 554 | 4.0 |
| 2013 | 16 | 419 | 435 | 3.7 |
| 2014 | 15 | 434 | 449 | 3.3 |
| 2015 | 14 | 398 | 412 | 3.4 |
| 2016 | 12 | 346 | 358 | 3.4 |
| 2017 | 9 | 353 | 362 | 2.5 |
| 2018 | 11 | 312 | 323 | 3.4 |
| 2019 | 9 | 277 | 286 | 3.1 |
| 2020 | 13 | 188 | 201 | 6.5 |
| 2021 | 4 | 162 | 166 | 2.4 |

INH: isoniazid, RFP: rifampicin, MDR: multidrug resistance

Table s10. Proportions of those with drug resistance, by country of birth and age groups, 2021

| Age groups (years) | Japan-born | | | | | Foreign-born | | | | |
|--------------------|-------------------|---------------|-----------------|-----|-------|-------------------|---------------|-----------------|-----|-------|
| | DST confirmed PTB | INH resistant | % INH resistant | MDR | % MDR | DST confirmed PTB | INH resistant | % INH resistant | MDR | % MDR |
| 15-39 | 265 | 13 | 4.9 | 2 | 0.8 | 361 | 37 | 10.2 | 15 | 4.2 |
| 40-59 | 526 | 23 | 4.4 | 8 | 1.5 | 61 | 9 | 14.8 | 3 | 4.9 |
| 60-79 | 1278 | 59 | 4.6 | 9 | 0.7 | 26 | 5 | 19.2 | 1 | 3.8 |
| 80+ | 1928 | 72 | 3.7 | 3 | 0.2 | 11 | 0 | 0.0 | 0 | 0.0 |

DST: drug susceptibility test, PTB: pulmonary tuberculosis, INH: isoniazid, MDR: multidrug resistance

Table s11. Foreign-born TB notifications and rates, 2010-2021

| | No. of cases | No. of foreign-born population | Rate per 100,000 |
|------|--------------|--------------------------------|------------------|
| 2010 | 952 | 2,087,261 | 45.6 |
| 2011 | 921 | 2,047,349 | 45.0 |
| 2012 | 1,069 | 2,033,656 | 52.6 |
| 2013 | 1,064 | 2,066,445 | 51.5 |
| 2014 | 1,101 | 2,121,831 | 51.9 |
| 2015 | 1,164 | 2,323,189 | 50.1 |
| 2016 | 1,338 | 2,382,822 | 56.2 |
| 2017 | 1,530 | 2,561,848 | 59.7 |
| 2018 | 1,667 | 2,731,093 | 61.0 |
| 2019 | 1,541 | 2,933,137 | 52.5 |
| 2020 | 1,411 | 2,887,116 | 48.9 |
| 2021 | 1,313 | 2,760,635 | 47.6 |

Source: Population of foreign-born residents. Foreign residents' statistics, Ministry of Justice
http://www.moj.go.jp/housei/toukei/toukei_ichiran_touroku.html

Table s12. Proportions of foreign-born TB notification by age groups, 2010-2021

| | Total | | 0-14 | | 15-24 | | 25-34 | | 35-44 | | 45-54 | | 55+ | |
|------|-------|------|------|------|-------|------|-------|------|-------|------|-------|------|-----|-----|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| 2010 | 952 | 4.2 | 9 | 10.5 | 274 | 30.1 | 341 | 19.4 | 165 | 8.8 | 82 | 4.7 | 81 | 0.5 |
| 2011 | 921 | 4.1 | 8 | 9.6 | 245 | 31.5 | 343 | 21.7 | 161 | 8.9 | 85 | 4.9 | 79 | 0.5 |
| 2012 | 1,069 | 5.2 | 7 | 11.1 | 304 | 42.2 | 357 | 25.4 | 196 | 12.1 | 106 | 7.1 | 99 | 0.6 |
| 2013 | 1,064 | 5.4 | 7 | 10.8 | 319 | 46.8 | 361 | 28.7 | 177 | 12.6 | 97 | 6.8 | 103 | 0.7 |
| 2014 | 1,101 | 5.8 | 8 | 17.0 | 339 | 47.9 | 376 | 31.0 | 180 | 13.9 | 115 | 8.4 | 83 | 0.6 |
| 2015 | 1,164 | 6.6 | 9 | 18.4 | 353 | 52.6 | 423 | 38.5 | 174 | 14.1 | 101 | 8.0 | 104 | 0.8 |
| 2016 | 1,338 | 7.9 | 12 | 20.3 | 471 | 58.6 | 478 | 43.6 | 175 | 17.1 | 107 | 8.9 | 95 | 0.8 |
| 2017 | 1,530 | 9.5 | 11 | 19.6 | 503 | 67.3 | 565 | 51.6 | 219 | 22.7 | 114 | 9.5 | 118 | 1.0 |
| 2018 | 1,667 | 10.9 | 12 | 23.5 | 571 | 70.8 | 625 | 58.4 | 200 | 23.9 | 139 | 12.2 | 120 | 1.1 |
| 2019 | 1,541 | 10.9 | 10 | 26.3 | 554 | 73.5 | 549 | 60.4 | 186 | 22.5 | 117 | 10.9 | 125 | 1.2 |
| 2020 | 1,411 | 11.3 | 9 | 17.3 | 428 | 74.6 | 546 | 62.3 | 214 | 33.0 | 110 | 12.8 | 104 | 1.1 |
| 2021 | 1,313 | 11.8 | 6 | 20.7 | 368 | 68.4 | 526 | 67.1 | 167 | 30.8 | 127 | 16.1 | 119 | 1.4 |

Table s13. Foreign-born TB notifications in selected country of birth, 2010-2021

| | China | the Philippines | Nepal | Vietnam | Indonesia |
|------|-------|-----------------|-------|---------|-----------|
| 2010 | 273 | 216 | 39 | 24 | 64 |
| 2011 | 273 | 218 | 38 | 52 | 49 |
| 2012 | 294 | 290 | 42 | 63 | 57 |
| 2013 | 292 | 256 | 65 | 68 | 57 |
| 2014 | 259 | 292 | 88 | 109 | 53 |
| 2015 | 249 | 284 | 108 | 135 | 78 |
| 2016 | 272 | 318 | 135 | 212 | 90 |
| 2017 | 258 | 321 | 164 | 257 | 121 |
| 2018 | 274 | 340 | 170 | 289 | 171 |
| 2019 | 253 | 308 | 146 | 331 | 160 |
| 2020 | 152 | 315 | 143 | 287 | 147 |
| 2021 | 152 | 284 | 113 | 264 | 134 |

Table s14. Foreign-born TB notifications by year of entry to Japan, 2012-2021

| | Same year | Previous year | 3-5 years | 6-10 years | More than 10 years | Year of entry unknown | Total |
|------|-----------|---------------|-----------|------------|--------------------|-----------------------|-------|
| 2012 | 135 | 115 | 150 | 105 | 140 | 424 | 1,069 |
| 2013 | 147 | 133 | 152 | 104 | 141 | 387 | 1,064 |
| 2014 | 143 | 156 | 138 | 86 | 151 | 427 | 1,101 |
| 2015 | 168 | 165 | 172 | 76 | 137 | 446 | 1,164 |
| 2016 | 201 | 228 | 179 | 76 | 152 | 502 | 1,338 |
| 2017 | 230 | 261 | 247 | 93 | 140 | 559 | 1,530 |
| 2018 | 291 | 310 | 281 | 99 | 193 | 493 | 1,667 |
| 2019 | 244 | 288 | 304 | 80 | 188 | 437 | 1,541 |
| 2020 | 88 | 274 | 307 | 87 | 159 | 496 | 1,411 |
| 2021 | 40 | 154 | 374 | 100 | 172 | 473 | 1,313 |

Table s15. Proportions of those with delay, 2010-2021

| | Patient delay | | | Doctor delay | | | Total delay | | |
|------|---------------|-------|------|--------------|-------|------|-------------|-------|------|
| | Total | n | % | Total | n | % | Total | n | % |
| 2010 | 8,940 | 1,637 | 18.3 | 13,094 | 2,958 | 22.6 | 9,022 | 1,770 | 19.6 |
| 2011 | 8,763 | 1,629 | 18.6 | 12,540 | 2,843 | 22.7 | 8,837 | 1,717 | 19.4 |
| 2012 | 8,177 | 1,532 | 18.7 | 11,302 | 2,481 | 22.0 | 8,226 | 1,613 | 19.6 |
| 2013 | 7,854 | 1,419 | 18.1 | 10,889 | 2,403 | 22.1 | 7,906 | 1,482 | 18.7 |
| 2014 | 6,901 | 1,297 | 18.8 | 10,156 | 2,198 | 21.6 | 6,967 | 1,325 | 19.0 |
| 2015 | 6,678 | 1,335 | 20.0 | 9,688 | 2,087 | 21.5 | 6,721 | 1,373 | 20.4 |
| 2016 | 6,703 | 1,323 | 19.7 | 9,213 | 2,024 | 22.0 | 6,754 | 1,322 | 19.6 |
| 2017 | 6,295 | 1,312 | 20.8 | 8,602 | 1,870 | 21.7 | 6,328 | 1,342 | 21.2 |
| 2018 | 6,253 | 1,289 | 20.6 | 7,979 | 1,752 | 22.0 | 6,293 | 1,301 | 20.7 |
| 2019 | 5,458 | 1,112 | 20.4 | 7,273 | 1,585 | 21.9 | 5,491 | 1,191 | 21.7 |
| 2020 | 4,449 | 848 | 19.1 | 6,111 | 1,278 | 20.9 | 4,489 | 883 | 19.7 |
| 2021 | 3,847 | 799 | 20.8 | 5,261 | 1,216 | 23.1 | 3,912 | 861 | 22.0 |

*Note: total excluding those cases without data on delay

Table s16. LTBI notifications by country of birth, 2010-2021

| | Total no. cases | Of which Japan-born | Of which foreign-born | Of which COB unknown |
|------|-----------------|---------------------|-----------------------|----------------------|
| 2010 | 4,930 | 4,587 | 293 | 50 |
| 2011 | 10,046 | 9,464 | 493 | 89 |
| 2012 | 8,771 | 8,037 | 487 | 247 |
| 2013 | 7,147 | 6,474 | 425 | 248 |
| 2014 | 7,562 | 6,823 | 523 | 216 |
| 2015 | 6,675 | 5,940 | 540 | 195 |
| 2016 | 7,477 | 6,499 | 650 | 328 |
| 2017 | 7,255 | 6,244 | 757 | 254 |
| 2018 | 7,414 | 6,293 | 963 | 158 |
| 2019 | 7,684 | 6,610 | 905 | 169 |
| 2020 | 5,575 | 4,862 | 599 | 114 |
| 2021 | 5,140 | 4,434 | 538 | 168 |

COB: country of birth

Table s17. LTBI notification by age groups, 2010-2021

| | 0-14 | 15-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | Total |
|------|------|-------|-------|-------|-------|-------|-------|--------|
| 2010 | 692 | 641 | 981 | 1,053 | 828 | 484 | 251 | 4,930 |
| 2011 | 957 | 1,191 | 2,164 | 2,141 | 1,696 | 1,260 | 637 | 10,046 |
| 2012 | 895 | 1,029 | 1,755 | 1,806 | 1,469 | 1,170 | 647 | 8,771 |
| 2013 | 858 | 614 | 1,185 | 1,287 | 1,237 | 1,071 | 895 | 7,147 |
| 2014 | 740 | 652 | 1,093 | 1,288 | 1,268 | 1,228 | 1,293 | 7,562 |
| 2015 | 661 | 466 | 848 | 988 | 1,086 | 1,017 | 1,609 | 6,675 |
| 2016 | 598 | 565 | 938 | 984 | 1,191 | 1,194 | 2,007 | 7,477 |
| 2017 | 631 | 480 | 829 | 906 | 1,111 | 1,018 | 2,280 | 7,255 |
| 2018 | 597 | 633 | 939 | 821 | 1,019 | 1,001 | 2,404 | 7,414 |
| 2019 | 526 | 573 | 760 | 897 | 1,151 | 1,034 | 2,743 | 7,684 |
| 2020 | 459 | 338 | 474 | 492 | 775 | 757 | 2,280 | 5,575 |
| 2021 | 344 | 248 | 445 | 441 | 681 | 661 | 2,320 | 5,140 |

Table s18. Treatment regimen upon notification by age groups, 2021

| | 0-4 | 5-14 | 15-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 | 85+ | Total |
|---|-----------|-----------|------------|------------|------------|------------|------------|--------------|--------------|--------------|---------------|
| HREZ or HRSZ | 2 | 13 | 497 | 737 | 512 | 723 | 738 | 1,313 | 1,460 | 802 | 6,797 |
| Other 4 or more drug regimen, including HRZ | 10 | 2 | 5 | 7 | 3 | 9 | 14 | 46 | 31 | 26 | 153 |
| Other 3 or more drug regimen, including HR | 0 | 0 | 17 | 16 | 15 | 32 | 40 | 165 | 1,106 | 2,205 | 3,596 |
| HR | 2 | 0 | 3 | 2 | 4 | 3 | 5 | 2 | 18 | 40 | 79 |
| Other 2 drug regimen | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 8 | 14 | 22 | 49 |
| Other 3 drug regimen | 0 | 0 | 15 | 9 | 7 | 6 | 15 | 26 | 45 | 56 | 179 |
| INH | 0 | 0 | 0 | 1 | 3 | 3 | 0 | 7 | 3 | 6 | 23 |
| Other monotherapy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 8 |
| No treatment | 0 | 0 | 4 | 17 | 6 | 18 | 13 | 35 | 98 | 250 | 441 |
| Unknown | 0 | 0 | 4 | 9 | 6 | 17 | 18 | 27 | 43 | 70 | 194 |
| Total | 14 | 15 | 545 | 798 | 556 | 813 | 846 | 1,629 | 2,821 | 3,482 | 11,519 |

H: isoniazid, R: rifampicin, E: ethambutol, Z: pyrazinamide, S: streptomycin