TUBERCULOSIS IN JAPAN

Annual Report – 2017

Tuberculosis
Surveillance
Center-RIT/JATA
Japan

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 2016. 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 http://www.jata.or.jp/rit/ekigaku/en/statistics-of-tb/.

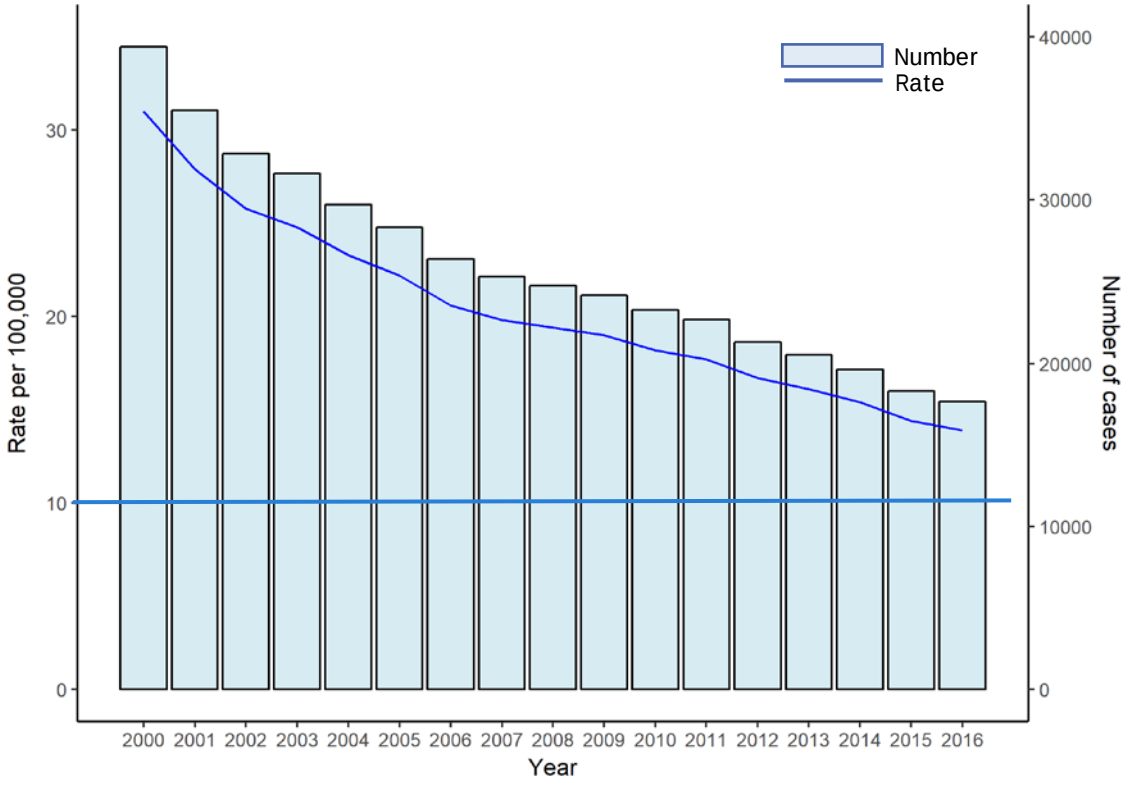
Chapter 1: Tuberculosis case report, 2000-2016

Overall numbers and rates:

In 2016, 17,625 cases of tuberculosis (TB) were newly notified, of which 11,668 were bacteriologically confirmed. Notification rate per 100,000 population was 13.9 for all TB, and 9.2 for bacteriologically confirmed cases.

Both the number of new cases and notification rates per 100,000 have continued to decline steadily towards the national target of below 10 per 100,000 by year 2020 (Figure 1, see also Tables s1 & s2).

Figure 1. TB notification and rates, 2000-2016



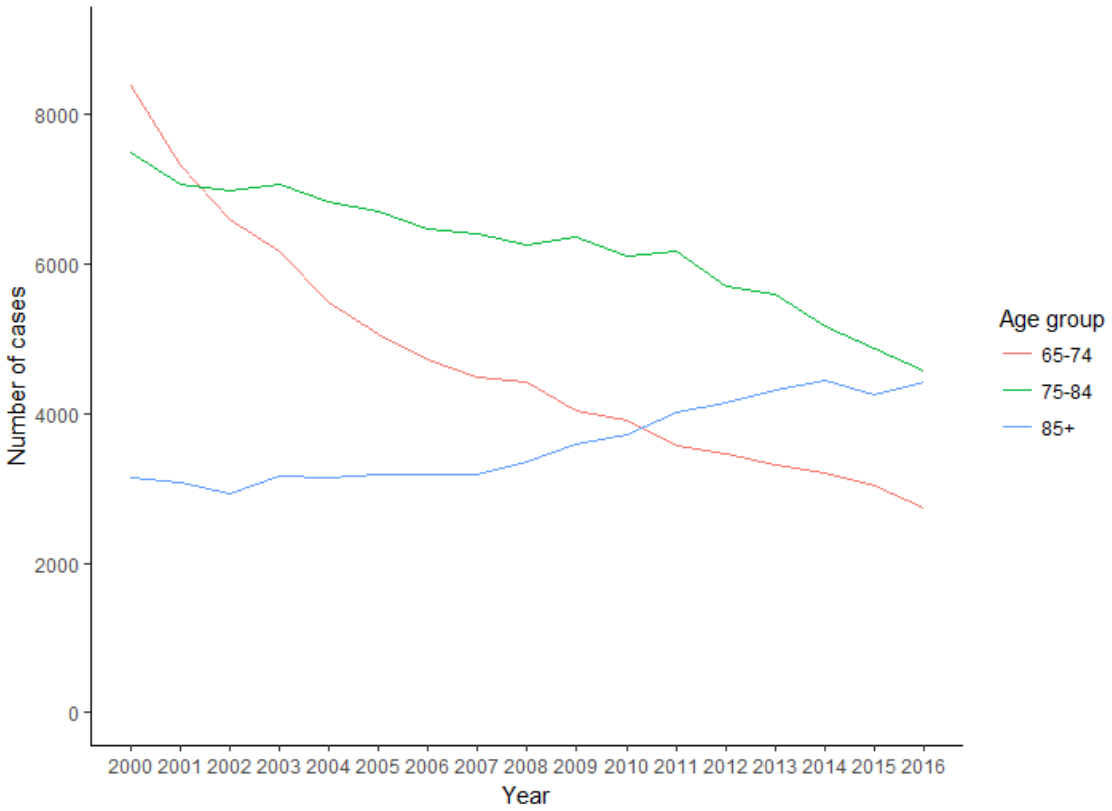
Age and sex:

In 2016, 60.1% of the notified cases were males (10,594 / 17,625) and 39.9% were females (7,031 / 17,625).

The largest number of cases were diagnosed among those aged 80 to 84 (2,579 cases, a rate of 49.8 per 100,000), followed by those aged 85 to 89 (2,559 cases, a rate of 78.1 per 100,000). The rates were consistently higher among males than females in all age groups (see Table s3).

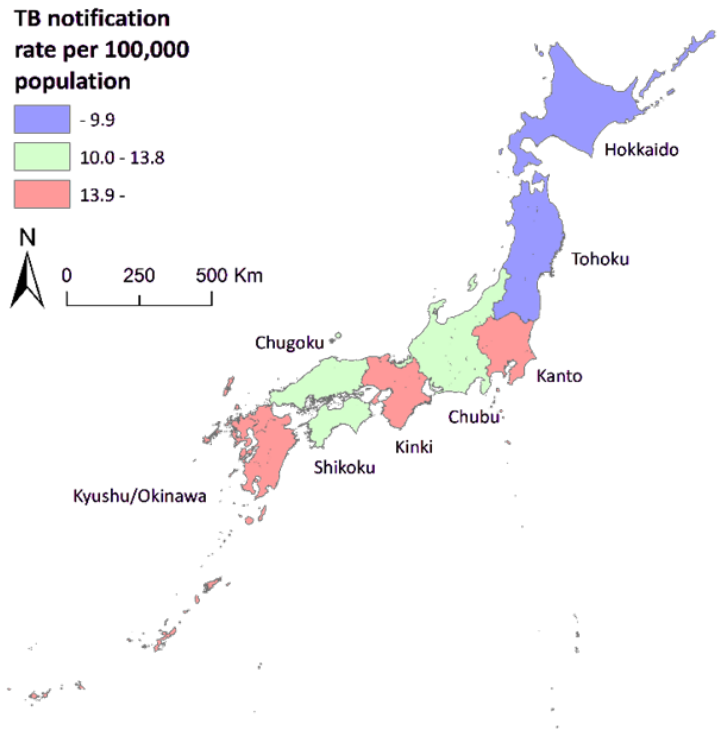
Among the elderly aged 65 and above, only the age group 85 years old and above have continued to increase in the number of cases (Figure 2, see also Table s4).

Figure 2. TB notification among the elderly, 2000-2016



Geographical distribution:

In terms of regional disparities, large variation existed between the 8 regions of Japan, with the notification rate ranging from 9.2 per 100,000 in Tohoku region to 17.4 per 100,000 in Kinki region (Map 1, Table 1). In two regions, the notification rate per 100,000 has reached the national target of 10 per 100,000.



Map 1: TB notification rate by regions, 2016

Table 1. TB notification rate by regions, 2016

Regions	Population	No.TB cases	Notification per 100,000
Hokkaido	5,351,828	518	9.7
Tohoku	8,915,258	816	9.2
Kanto	43,131,509	6172	14.3
Chubu	21,414,712	2807	13.1
Kinki	22,489,222	3914	17.4
Chugoku	7,405,796	863	11.7
Shikoku	3,818,175	483	12.7
Kyushu/Okinawa	14,406,272	2052	14.2

Occupation:

In 2016, among those aged 25 to 64, 67.0% (3,353 / 5,004) had some sort of job, while 23.3% (1,167 / 5,004) were unemployed, 3.1% (156 / 5,004) were houseworkers and 3.1% (154 / 5,004) were students. 3.5% (174 / 5,004) were recorded as “job unknown” (see Table s5).

Social risk factors among those aged 25-64:

Social risk factors (SRF) are defined as the following: those either currently homeless or with history of being homeless within one year of diagnosis (“homeless”), those unemployed (“unemployed”), those receiving social welfare benefit at the time of diagnosis (“on social welfare”), and those not covered under any health insurance at the time of diagnosis, including those “covered” but not being able to pay the premiums, and thus practically are not able to access the necessary health services (“no insurance”). “Homelessness”, “unemployed”, and “on social welfare” and “no insurance”, are not mutually exclusive. Among those aged 25 to 64, 9.0% (452 / 5,004) had at least one SRF.

The demographic characteristics of those with each SRF by sex, age groups and country of birth are summarized in Table 2. The proportions of those with SRFs tended to be higher among men than women, except being unemployed, among older than younger patients, and the foreign-born than Japan-born patients (Tables s6.a-s6.d).

Table 2. Number and proportions of those with social risk factors, by sex, age groups and COB*, 2016

	Homeless		Unemployed		On social welfare		No insurance	
	n	%	n	%	n	%	n	%
TOTAL	100	100.0	1167	100.0	380	100.0	48	100.0
Male	96	96.0	689	59.0	312	82.1	45	93.8
Female	4	4.0	478	41.0	68	17.9	3	6.3
Age group								
25-34	4	4.0	144	12.3	14	3.7	3	6.3
35-44	13	13.0	172	14.7	34	8.9	4	8.3
45-54	33	33.0	281	24.1	112	29.5	13	27.1
55-64	50	50.0	570	48.8	220	57.9	28	58.3
Country of birth								
Foreign-born	1	1.0	149	12.8	17	4.5	1	2.1
Japan-born	96	96.0	975	83.5	342	90.0	45	93.8
COB* unknown	3	3.0	43	3.7	21	5.5	2	4.2

COB = country of birth

Clinical characteristics:

In 2016, of the 17,625 newly notified cases, 77.2% (13,608 / 17,625) had pulmonary disease, either with or without concomitant extra-pulmonary disease, while 22.8% (4,017 / 17,625) had exclusive extra-pulmonary disease. Of the pulmonary TB cases, 85.7% (11,668 / 13,608) were bacteriologically confirmed, while the proportion was much less at 44.2% (1,775 / 4,017) among those with exclusive extra-pulmonary disease (Table 3).

Of the 13,608 pulmonary cases, history of previous TB was known for 98.6% (13,421 / 13,608). Among newly notified pulmonary cases with known history of previous TB, 94.6% (12,695 / 13,421) were new cases. Of the 3,968 extra-pulmonary cases with known history of previous TB, 95.6% (3,795 / 3,968) were new cases (Table 3).

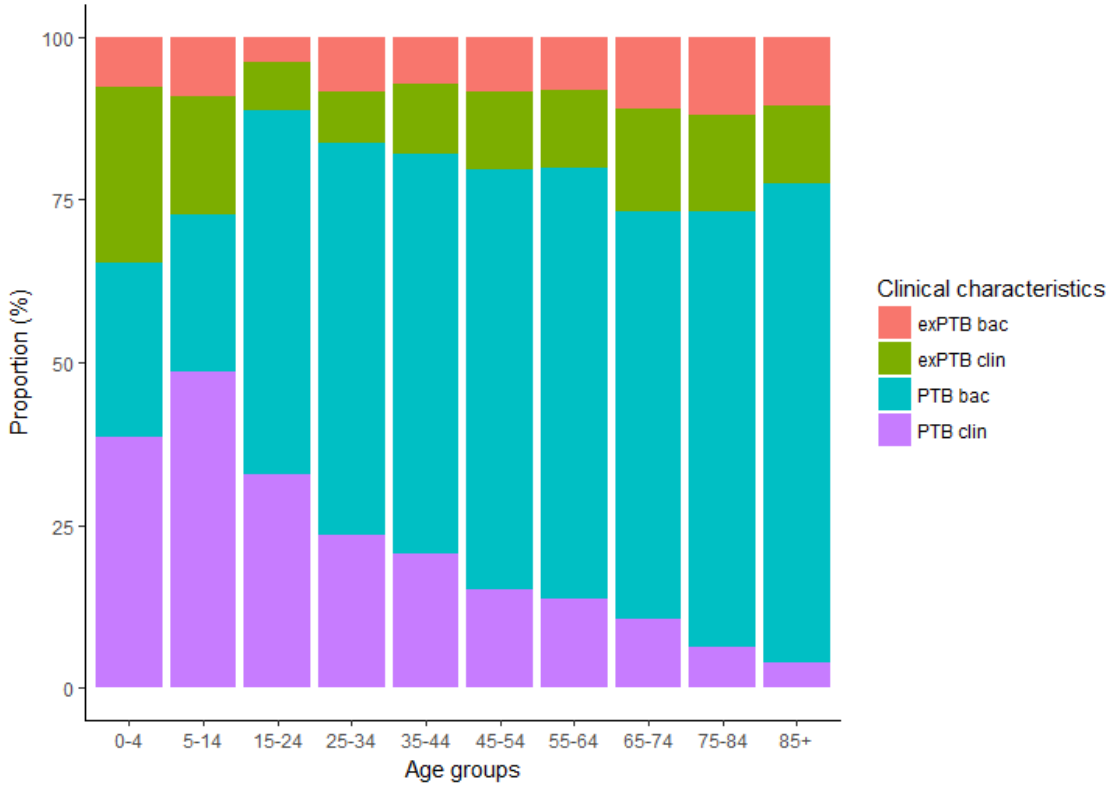
Table 3.Clinical characteristics of newly notified cases by treatment history, 2016

Tx history	PTB bac	PTB clin	exPTB bac	exPTB clin
New	10,897	1,789	1,669	2,126
Retreatment	610	125	80	93
Unknown	161	26	26	23
TOTAL	11,668	1,940	1,775	2,242

Tx = treatment, PTB=pulmonary tuberculosis, exPTB = extra-pulmonary tuberculosis
Clin = clinically confirmed, bac = bacteriologically confirmed

Looking at clinical characteristics by age groups, the proportion of bacteriologically confirmed among the pulmonary cases tended to increase with age, with 27.6% among those aged 0-4 compared with 72.0% among those aged 85 and above. The proportion of extra-pulmonary cases remained relatively constant in all age groups, and was the highest among those aged 5-14 at 31.8%, and the lowest among those aged 15-24 at 14.8% (Figure 3, see also Table s7).

Fig 3. Clinical characteristics by age groups, 2016



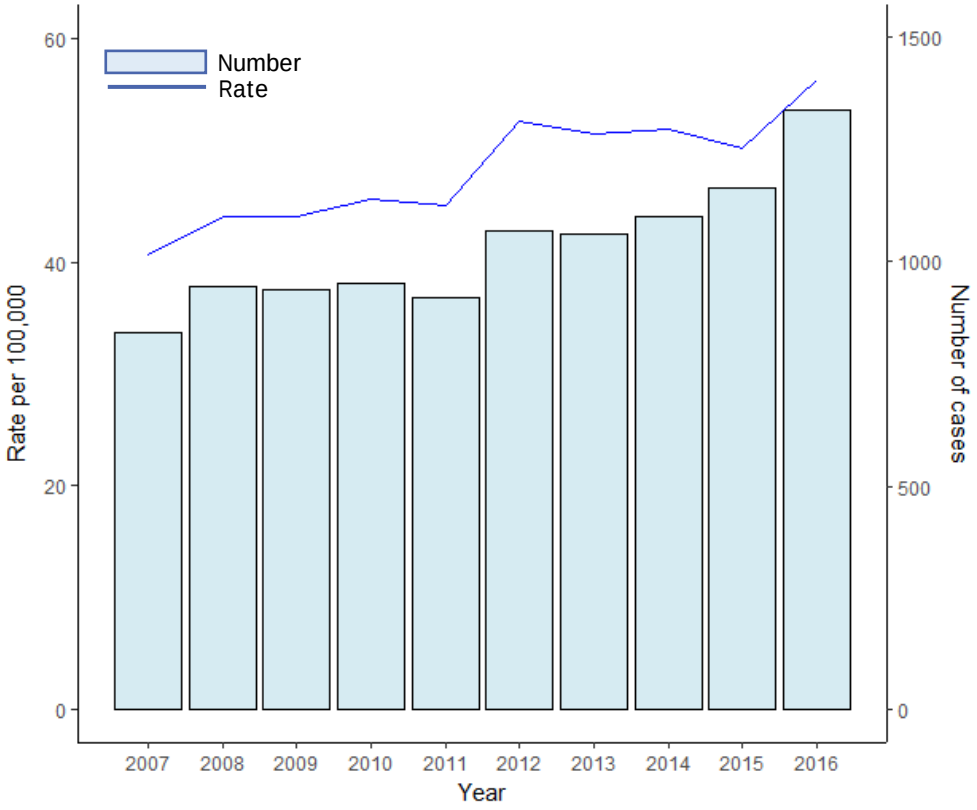
PTB = pulmonary tuberculosis, exPTB = extra-pulmonary tuberculosis
Clin = clinically confirmed, bac = bacteriologically confirmed

Chapter 2: Foreign-born TB, 2007-2016

Overall number and rates:

Information regarding place of birth (Japan-born/foreign-born) was known for 95.6% of the newly notified cases (16,842 / 17,625). Of those cases, 7.9**%** was born outside Japan (1,338 / 16,842). Both the number of case notification per 100,000 have continued to increase (Figure 4, see also Table s8).

Figure 4. Foreign-born TB notification and rates, 2007-2016



Age and sex:

In 2016, 51.8% of the foreign-born cases were males (693 / 1,338) and 48.2% were females (645 / 1,338).

The largest number of cases were diagnosed among those aged 25 to 34 (478 cases), followed by those aged 15 to 24 (471 cases). The proportion of foreign-born of the total newly notified cases was higher among the younger age group, with the proportion reaching almost 60.0% among those aged 15-24 (Table 4).

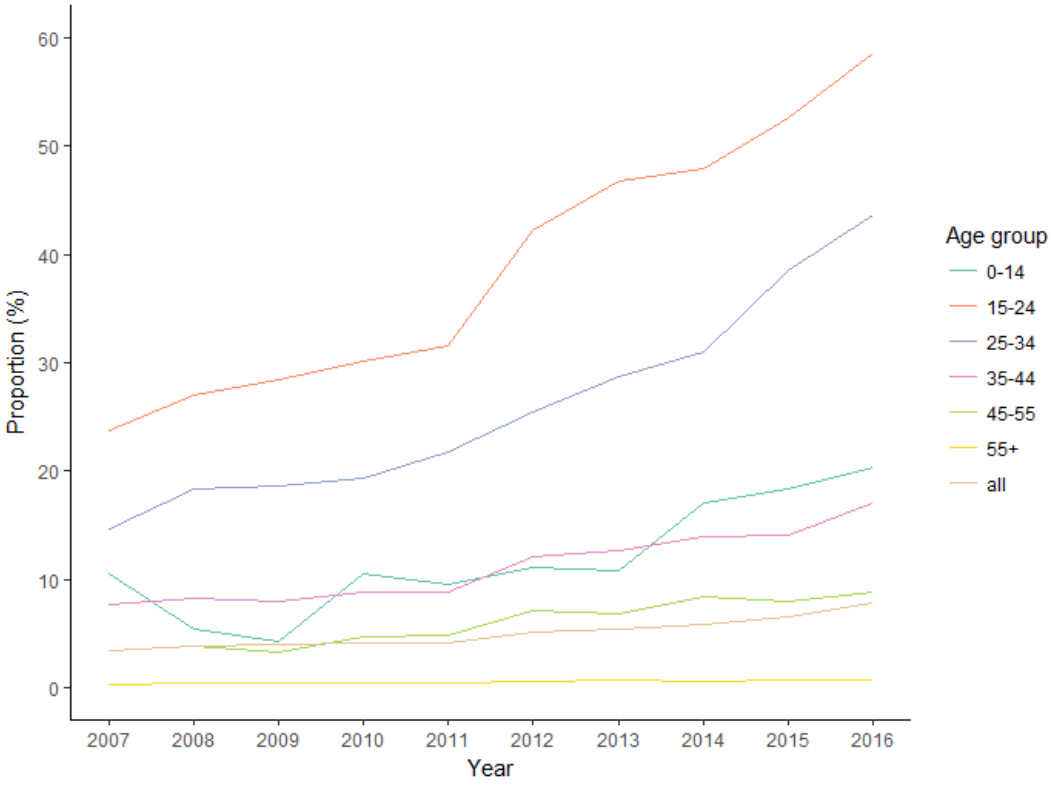
Table 4: Foreign-born TB cases* by sex and age groups, 2016

Age group	Total		Male		Female	
	n	%	n	%	n	%
0-4	2	7.7	0	0	2	16.7
5-14	10	30.3	5	29.4	5	31.2
15-24	471	57.4	305	62	166	50.6
25-34	478	42.6	243	41	235	44.4
35-44	175	16.5	59	9.7	116	25.6
45-54	107	8.5	37	4.5	70	15.8
55-64	46	2.9	19	1.7	27	5.8
65-74	19	0.7	10	0.5	9	1.1
75-84	16	0.3	7	0.3	9	0.5
85+	14	0.3	8	0.4	6	0.3
TOTAL	1,338	100.0	693	100.0	645	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 15-34 has increased dramatically especially since 2011, while that among other age groups have increased steadily (Figure 5, see also Table s9).

Figure 5. Proportion of foreign-born TB notification by age groups, 2007-2016



Country of birth and time of entry to Japan:

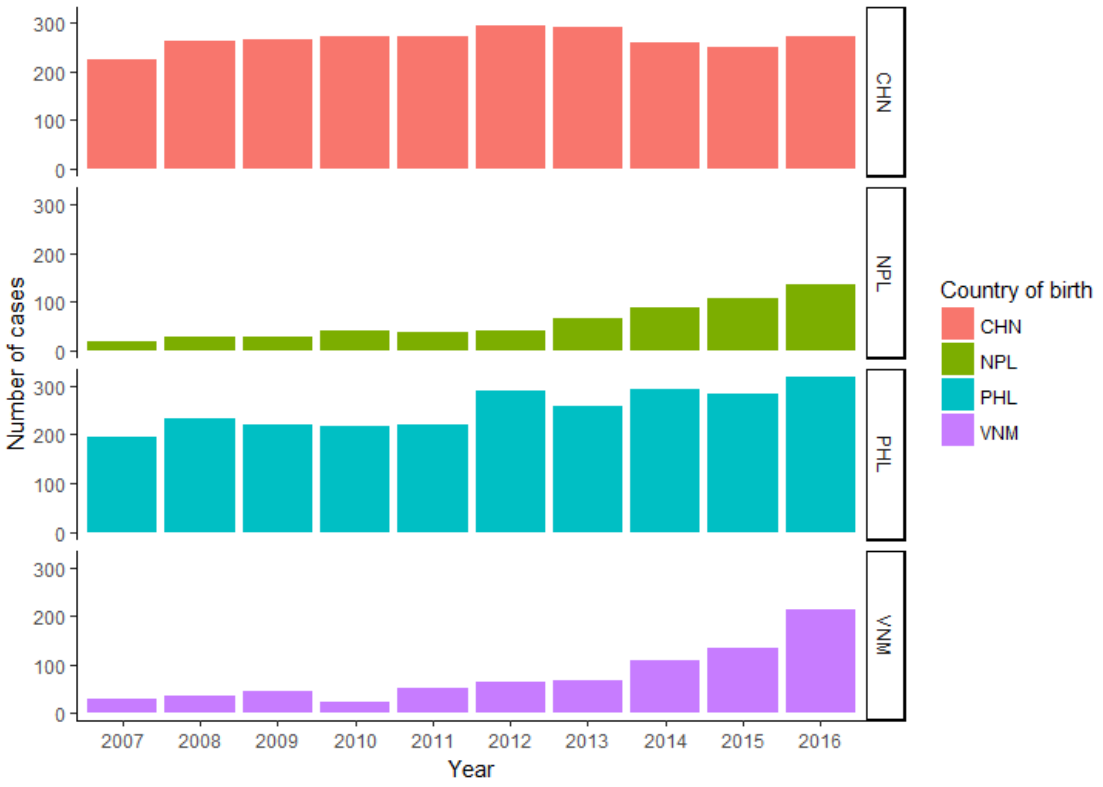
Table 5 summarizes the foreign-born TB cases by county of birth (see also Table s10). The Philippines and China were the most frequent countries of birth for foreign-born cases notified in 2016 (23.8%, 318 / 1,338, and 20.3%, 272 / 1,338), followed by Vietnam and Nepal (15.8%, 212 / 1,338 and 10.1%, 135 / 1,338).

Table 5: Foreign-born TB cases by country of birth, 2016

Country name	Cases	Proportion (%)
The Philippines	318	23.8
China	272	20.3
Vietnam	212	15.8
Nepal	135	10.1
Indonesia	90	6.7
Unknown	82	6.1
Myanmar	58	4.3
South Korea	45	3.4
Thailand	19	1.4
Mongolia	16	1.2
Brazil	14	1
Others	77	5.8
TOTAL	1,338	100

Looking at the trend in the four most frequent countries of birth, while the number of those from China and the Philippines have been relatively constant, those from Vietnam and Nepal have increased dramatically in the recent years (Figure 6, see also Table s11).

Figure 6. Foreign-born TB notifications in selected countries of birth, 2007-2016



PHL= the Philippines, CHN= China, VNM= Vietnam, NPL= Nepal

Year of entry to Japan has been collected under the JTBS since 2012. Of the 5,736 foreign-born cases notified in Japan between 2012 and 2017, year of entry was known for 61.9% (3,550 / 5,736). In 2016, 51.3% (429 / 836) of foreign-born cases were notified within 2 years of entering Japan. The proportion of those being notified within 2 years of entering Japan has increased steadily since 2012 (Figure 7, see also Table s12).

Fig 7. Year between entry to Japan and TB notification, 2012-2016

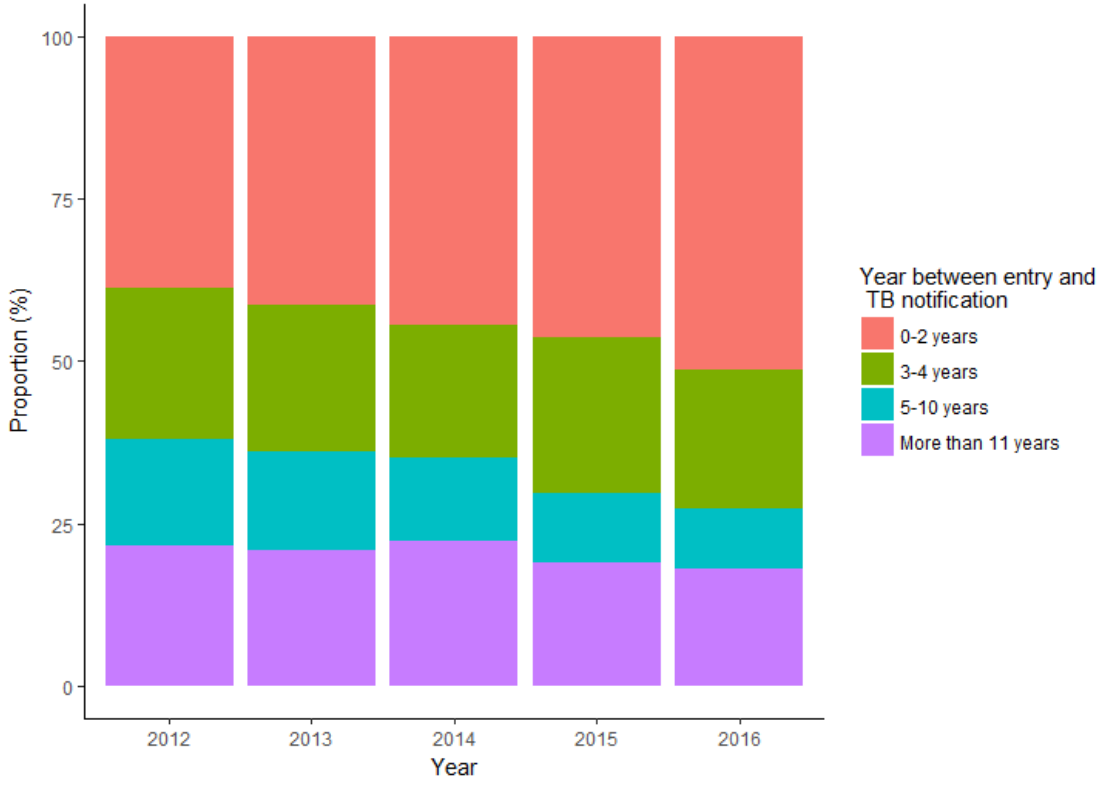
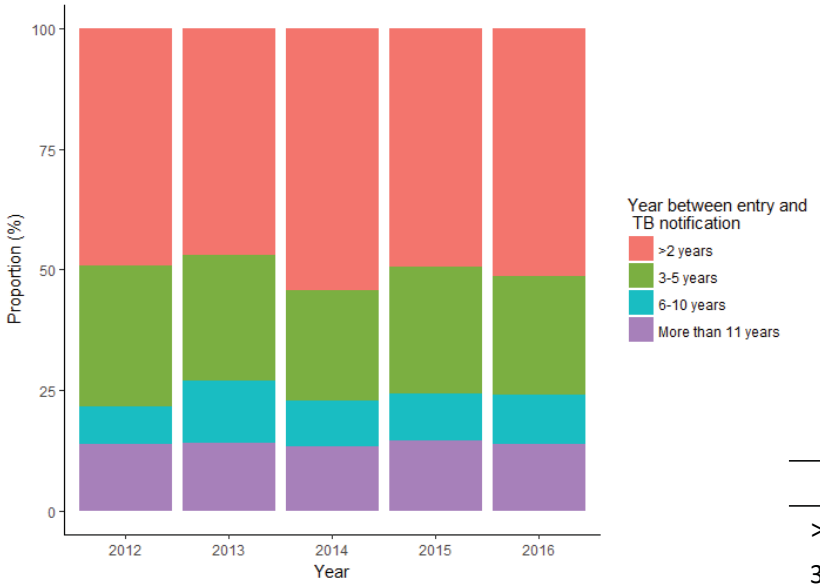
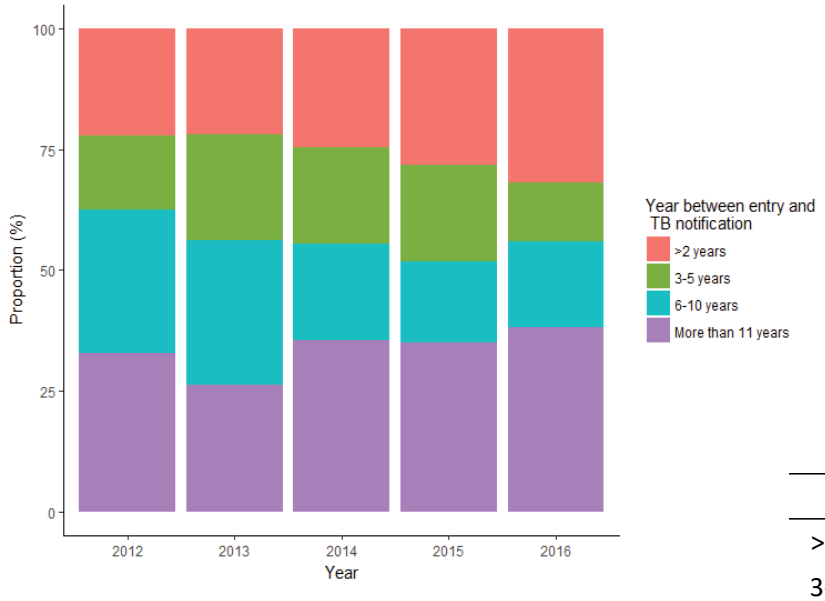


Fig 7a. Year between entry to Japan and TB notification, China-born, 2012-2016



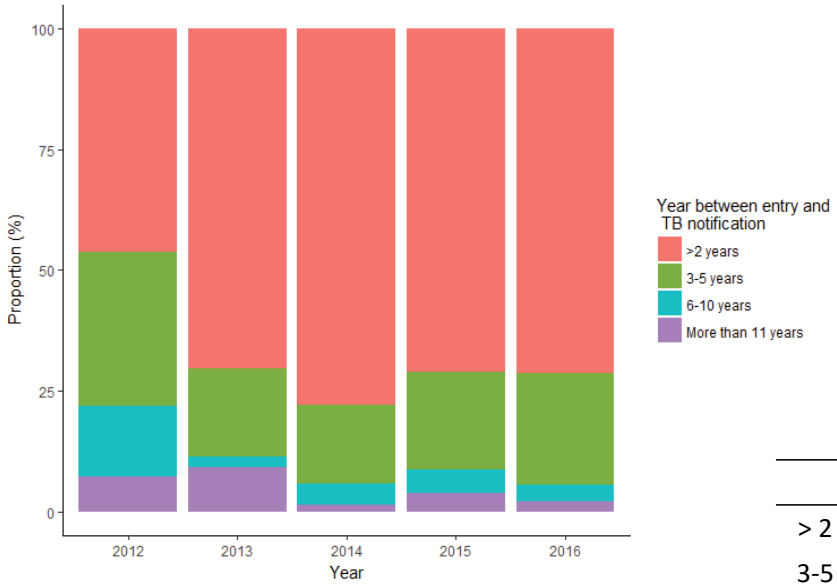
	2012	2013	2014	2015	2016
> 2 years	100	101	97	81	90
3-5 years	59	56	41	43	43
6-10 years	16	28	17	16	18
11 + years	28	30	24	24	24

Fig 7b. Year between entry to Japan and TB notification, Philippines-born, 2012-2016



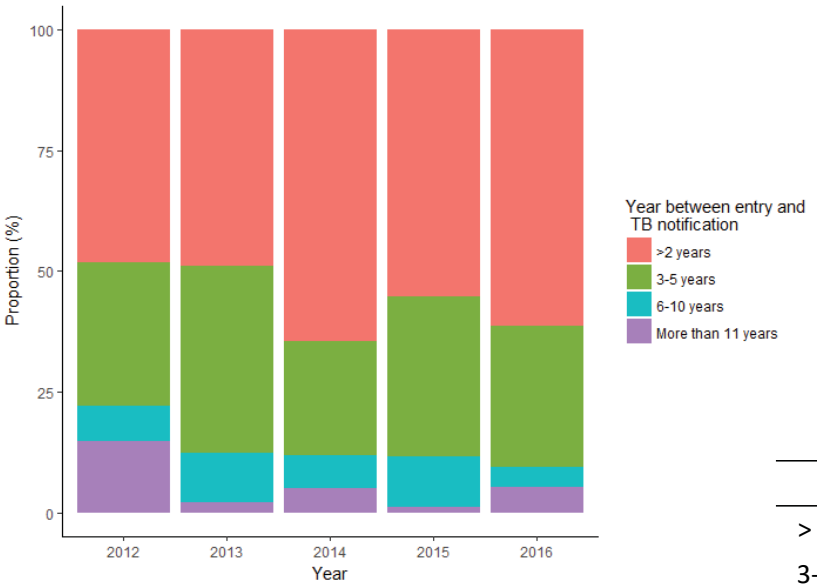
	2012	2013	2014	2015	2016
> 2 years	37	36	48	47	63
3-5 years	26	36	39	33	24
6-10 years	50	49	39	28	35
11 + years	55	43	69	58	75

Fig 7c. Year between entry to Japan and TB notification, Vietnam-born, 2012-2016



	2012	2013	2014	2015	2016
> 2 years	19	31	53	74	104
3-5 years	13	8	11	21	34
6-10 years	6	1	3	5	5
11 + years	3	4	1	4	3

Fig 7d. Year between entry to Japan and TB notification, Nepal-born, 2012-2016



	2012	2013	2014	2015	2016
> 2 years	13	24	38	43	59
3-5 years	8	19	14	26	28
6-10 years	2	5	4	8	4
11 + years	4	1	3	1	5

Chapter 3: Co-morbidities (HIV and Diabetes mellitus), 2012-2016

HIV/TB cases:

Table 6 summarizes the newly notified TB cases by HIV status. In 2016, HIV test results were known only for 9.1% (1,600 / 17,625), while unknown for 90.9% of the newly notified cases. Of those cases with known test results, 44 (2.8%) were HIV positive and 1,556 (97.3%) were HIV negative.

Table 6: Newly notified cases by HIV test results, 2012-2016

Notification year	HIV positive	HIV negative	HIV test not done	Unknown
2012	62	3,266	4,601	13,354
2013	50	1,890	5,090	13,465
2014	45	1,627	4,970	12,973
2015	40	1,474	4,697	12,069
2016	44	1,556	4,933	11,092

Of the 44 HIV positive TB cases, 12 (27.3%) were foreign-born and 32 (72.7%) were Japan-born. The proportion of women was larger among the foreign-born HIV positive TB cases (33.3%, 4 / 12) compared with the Japan-born (12.5%, 4 / 32) cases (Table 7).

Table 7: Characteristics of HIV positive TB patients, 2016 (n=44)

	Foreign-born	Japan-born
Male	8	28
Female	4	4

Proportion of those who were not tested for HIV has been on a gradual increase, from 21.6% in 2012 (4,601/21,283) to 28.0% (4,933/17,625) in 2016.

Diabetes mellitus/TB cases:

Table 8 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 2016, the status of DM was known for 89.6% of the newly notified cases (15,786/17,625). Of those cases with known DM status, 2,509 had concomitant DM. Proportion of those with DM has continued to increase steadily.

Table 8: Newly notified cases by DM status, 2012-2016

Notification year	With DM	Without DM	Unknown
2012	3,036	15,978	2,269
2013	2,964	15,010	2,521
2014	2,753	14,536	2,326
2015	2,686	13,472	2,122
2016	2,509	13,277	1,839

Of the 2,509 cases with DM, 41 (1.6%) were foreign-born, and 2,341 (93.3%) were Japan-born. While 51.2% (21 / 41) of the foreign-born cases were aged between 35 and 54, 92.6% (2,167 / 2,341) of the Japan-born cases were aged 55 and above (Table 9).

Table 9: Characteristics of cases with DM, 2016 (n=2,509)

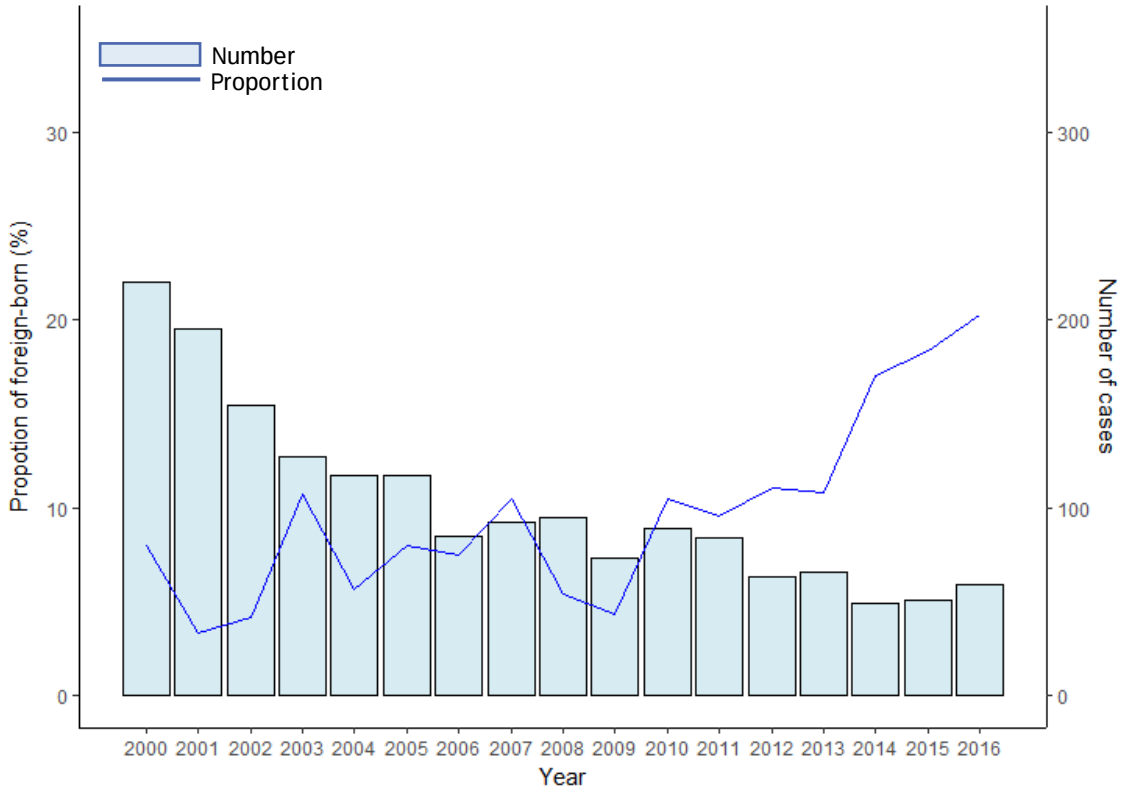
Age group	Foreign-born	Japan-born	Unknown
15-34	3	6	0
35-54	21	168	6
55+	17	2,167	121

Chapter 4: Childhood TB, 2000-2016

In 2016, 59 cases of TB were newly notified among children aged 14 and below, with a rate per 100,000 of 0.4. Of those cases, 52.5% were males (31 / 59) and 47.5% were females (28 / 59). 69.5% (41 / 59) had pulmonary diseases, and 30.5% (18 / 59) had extra-pulmonary disease only. Two case of meningeal and one case of military TB were reported. Although the number of cases have steadily declined until 2013, since then, has shown a slight increase.

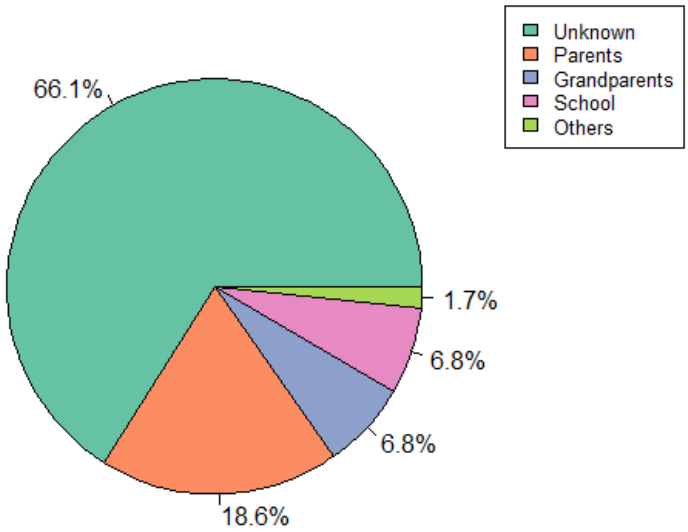
In 2016, 20.3% (12 / 59) of childhood TB cases were foreign-born. The proportion of those foreign-born has been on a gradual increase (Figure 8, see also Table s13).

Figure 8. TB notification among children aged 0-14, 2000-2017



The source of infection was known for 20 of the 59 cases, all of whom were Japan-born. 11 were infected by their parents, 4 by their grandparents, and 4 at schools (Figure 9, see also Table s14.a). Of the 47 Japan-born cases, 46.8% (22/47) were detected via contact investigation and 42.6% (20/47) at hospital setting, with symptoms. On the other hand, of the 12 foreign-born cases, 66.7% (8/12) were detected at hospital setting, with symptoms (Table s14.b).

Figure 9. Source of infection of notified childhood TB, 2016



Chapter 5: Laboratory confirmation

Sputum smear status for pulmonary cases:

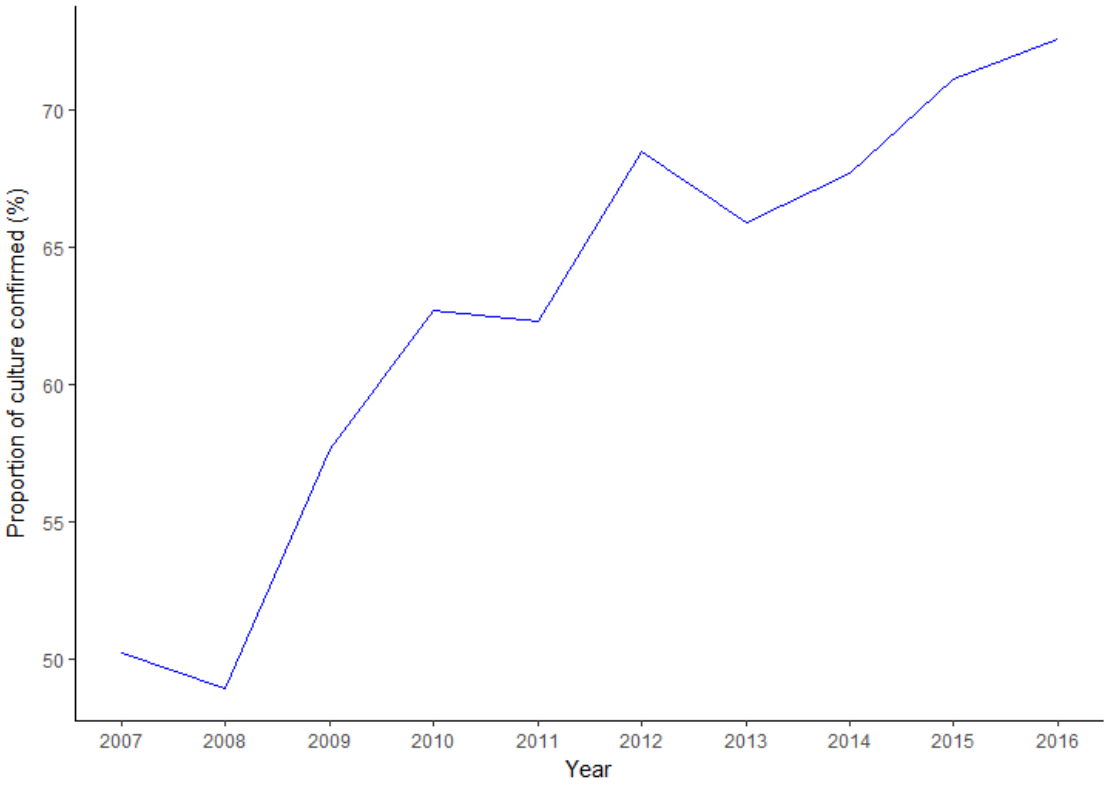
Of the 13,608 pulmonary TB cases notified in 2016, the results of sputum smear status were known for 98.9% (13,456/13,608). Of these cases, 51.6% were positive (7,025/13,608). Sputum smear test was not done for 111 cases, and test results not reported for 41 cases.

Culture confirmation:

Of the 13,608 pulmonary TB cases notified in 2016, the results of culture confirmation were known for 90.1% (12,255 / 13,608). Of these cases, 80.6% (9,878 / 12,255) were culture confirmed. Results were pending for 938 cases, unknown for 141 cases, test was not done for 260 cases and terminated for 14 cases. The proportion of those culture confirmed has steadily increased from 50.2% in 2007 to 72.6% in 2016 (Figure 10, see also Table s15)

Of all TB cases notified in 2016, results of culture confirmation were known for 86.5% (15,252 / 17,625). Of these cases, 73.1% (11,151 / 15,252) were culture confirmed. Results were pending for 1,342 cases, unknown for 590 cases, test was not done for 420 cases and terminated for 21 cases.

Figure 10. Proportion of culture confirmed among PTB, 2007-2016

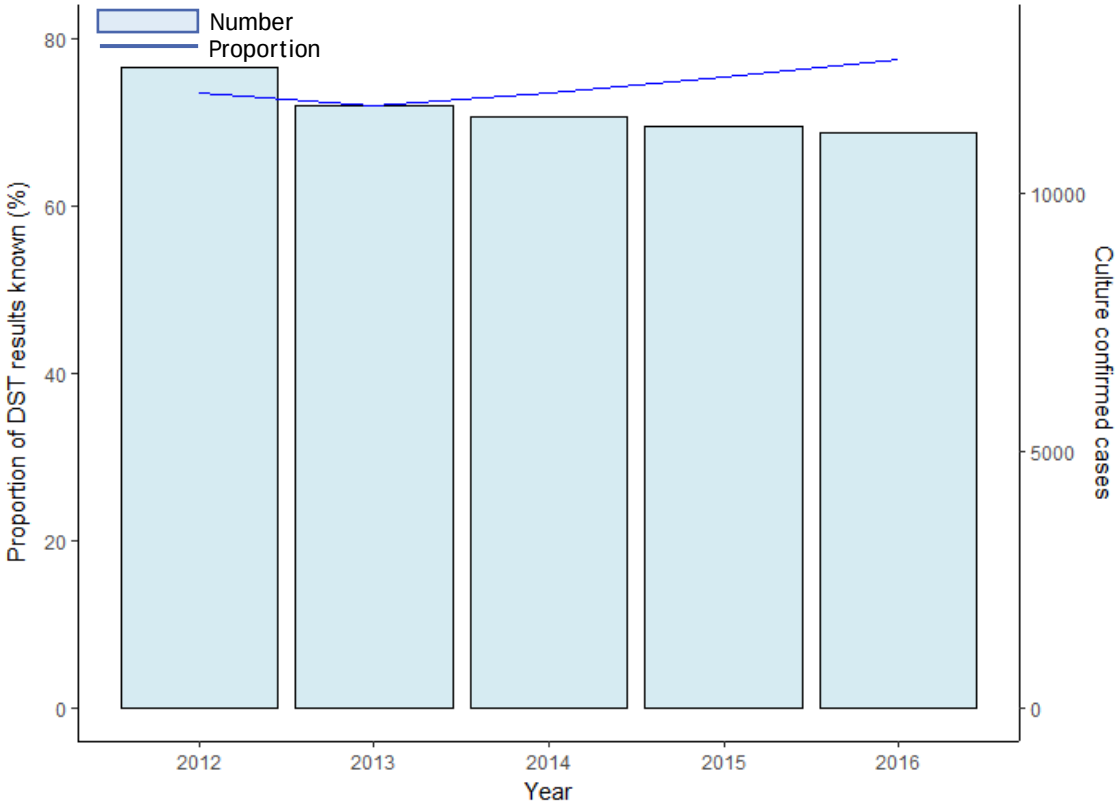


Chapter 6: Drug-resistant TB (including outcomes)

Drug susceptibility test for isoniazid and rifampicin:

Of the 11,151 culture confirmed TB cases notified in 2016, drug susceptibility test (DST) results for both isoniazid (INH) and rifampicin (RFP) were known for 77.5% (8,638 / 11,151). The proportion of those with DST results for both isoniazid and rifampicin has, despite gradually, been increasing (Figure 11, see also Table s16).

Figure 11. Proportion of DST results known of culture confirmed TB, 2012-2016



MDR and rifampicin resistance without MDR-TB:

Of the 8,638 cases with DST results known, 0.9% (78 / 8,638) were resistant to rifampicin (RR), of which 50 had multi-drug resistance (MDR) with resistance to at least isoniazid and rifampicin. The overall number of cases with MDR/RR have remained stable. The number of cases among the foreign-born has slightly increased but the proportion has remained stable (Figures 12a-12c, see also Table s17)

Figure 12a. Number and proportion of RR/MDR resistant TB (all), 2012-2016

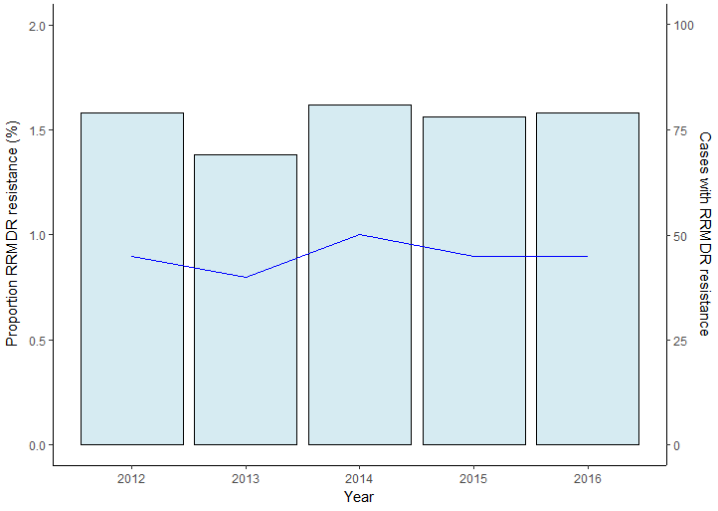


Figure 12b. Number and proportion of RR/MDR resistant TB (foreign-born), 2012-2016

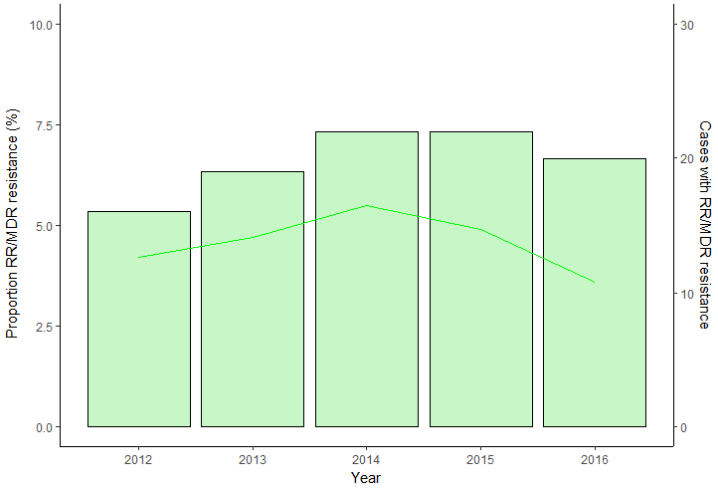
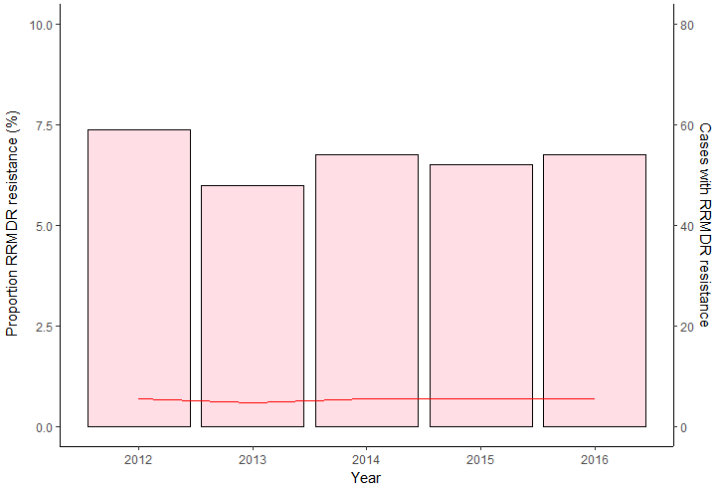


Figure 12c. Number and proportion of RRMDR resistant TB (Japan-born), 2012-2016



Bar = number, line = proportion, RR = rifampicin resistance, MDR = multi-drug resistance

Isoniazid resistance without MDR-TB:

Of the 8,638 cases with DST results known, 4.5% (392 / 8,638) were resistant to isoniazid (INH) without MDR. The overall number of cases with INH resistance has increased since 2007, however, has remained relatively constant over the 5 years. However, looking at the cases by country of birth, both the number and the proportion of INH resistant cases have increased quite dramatically among the foreign-born cases (Figures 13a-13c, see also Table s18).

Figure 13a. Number and proportion of INH resistant TB (all), 2012-2016

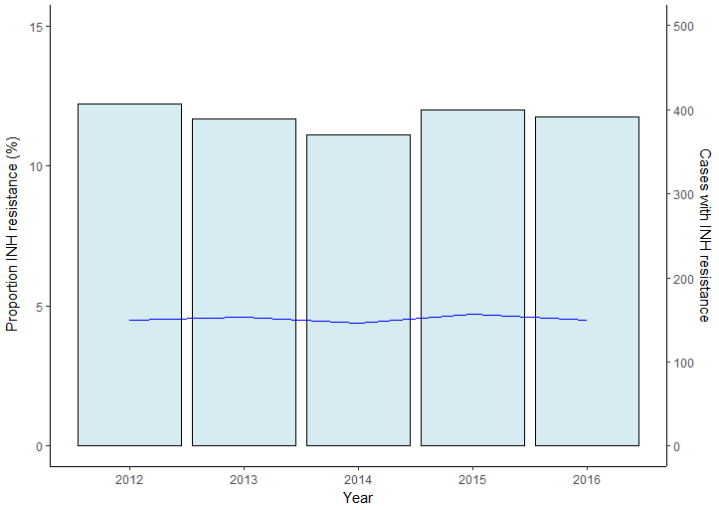


Figure 13b. Number and proportion of INH resistant TB (foreign-born), 2012-2016

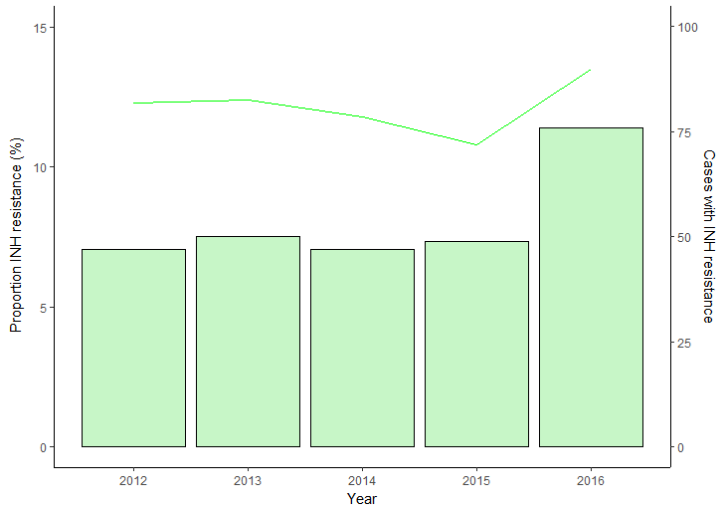
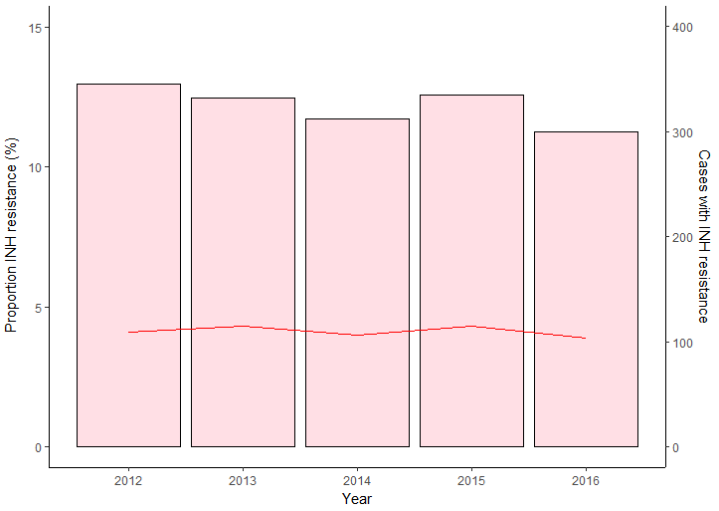


Figure 13c. Number and proportion of INH resistant TB (Japan-born), 2012-2016



Bar = number, line = proportion, INH = isoniazid

Table 10 summarizes the characteristics of those cases with MDR, RFP mono-resistance and INH mono-resistance notified in 2016. The proportions of males were greater among those with MDR and INH mono-resistance. The proportions of those aged 55 and above were the largest among all cases, reflecting the age structure of TB patients in Japan. The proportions of foreign-born were much higher than the proportion of foreign-born among the overall TB cases (7.9% in 2016). The proportion of retreatment was higher among those with MDR compared with those with RFP or INH mono-resistance.

Table 10. Characteristics of cases with MDR, RFP mono- and INH mono-resistance, 2016

	MDR		RFP mono-resistance		INH mono-resistance	
	n	%	n	%	n	%
Sex						
Male	32	64.0	14	50.0	262	66.8
Female	18	36.0	14	50.0	130	33.2
Age group						
0-14	0	0.0	0	0.0	1	0.3
15-34	15	30.0	5	17.9	80	20.4
35-54	6	12.0	4	14.3	53	13.5
55+	29	58.0	19	67.9	258	65.8
Country of birth						
Japan-born	35	70.0	18	64.3	300	76.5
Foreign-born	15	30.0	5	17.9	76	19.4
COB unknown	0	0.0	5	17.9	16	4.1
Tx history						
New	38	76.0	22	78.6	336	85.7
Retreatment	12	24.0	4	14.3	54	13.8
Unknown	0	0.0	2	7.1	2	0.5
TOTAL	50	100.0	28	100.0	392	100.0

COB= country of birth, Tx=treatment

Outcomes of MDR-TB cohort

Currently, the JTBS only summarizes the treatment outcomes of pulmonary TB, as according to the computerized algorithm. The outcomes of MDR-TB cases (2014 cohort) at the end 2016 were therefore calculated manually, using the data regarding “reasons for terminating TB treatment” from the end of year data, and regarding “reasons for de-registration” from the de-registration data. In 2014, a total of 64 MDR-TB cases were newly notified. At the end of 2016, 43.8% (28 / 64) had completed treatment, while 20.3% (13 / 64) had gone back to their home country (i.e. were foreign-born), and 23.4% (15 / 64) had died due either to TB or non-TB reasons (Table 11).

Table 11. Outcomes of MDR-TB cohort, notified in 2014, at the end of 2016

Tx outcomes	n	%
Tx completed	28	43.8
Tx terminated (self-terminated)	1	1.6
LTFU	2	3.1
Gone back to home country	13	20.3
TB dead	5	7.8
non TB dead	10	15.6
No tx	1	1.6
Still on tx	4	6.3
TOTAL	64	100.0

Tx = treatment, LTFU = lost to follow-up

Chapter 7: Delay

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 10,063 symptomatic pulmonary TB cases, information regarding patient delay was known for 66.6% (6,703 / 10,063), doctor delay for 91.6% (9,213 / 10,063), and total delay for 67.1% (6,754 / 10,063). Patient delay was observed in 19.7% (1,323 / 6,703), doctor delay in 22.0% (2,024 / 9,213) and total delay in 19.6% (1,322 / 6,754) (Table 12).

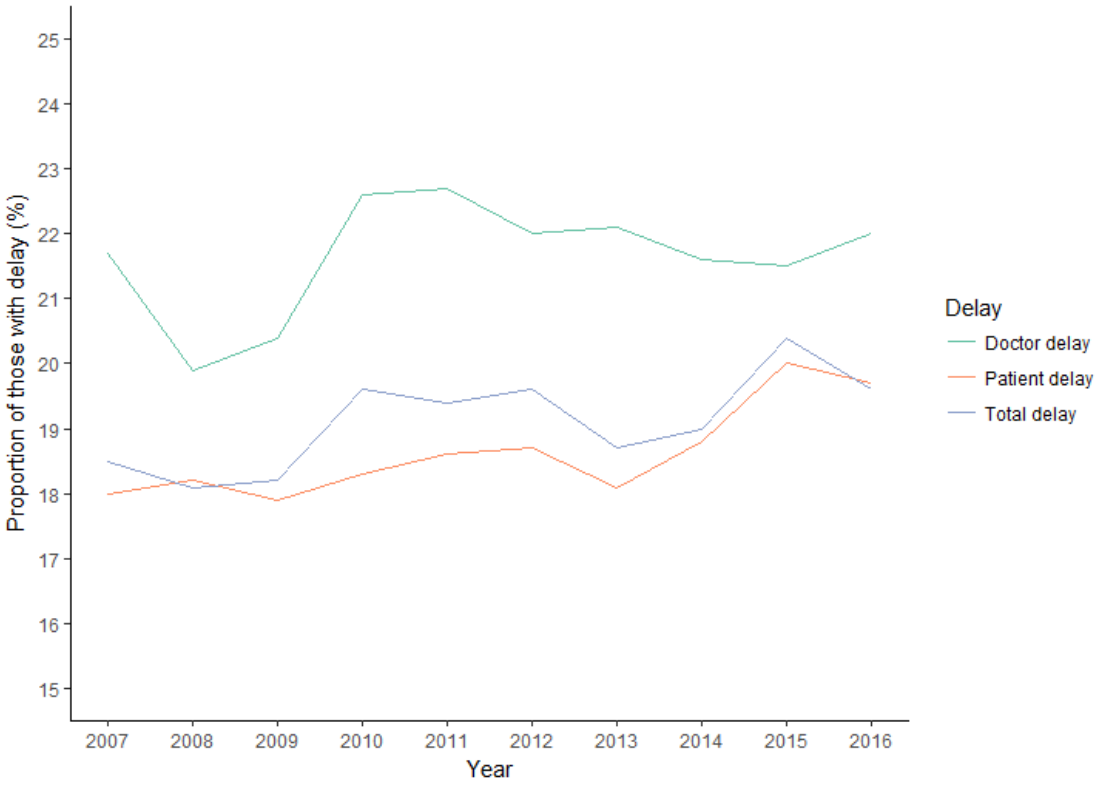
Table 12. Number and proportion of those with delay, 2016

Type of delay	Total no. symptomatic PTB*	Delay	
		n	%
Patient delay	6,703	1,323	19.7
Doctor delay	9,213	2,024	22.0
Total delay	6,754	1,322	19.6

*Note: exclude those whose information on delay is unknown

The proportions of those with delay appear to be gradually increasing, with the proportion of those with doctor delay constantly being higher than patient delay (Figure 14, see also Table s19).

Figure 14. Proportions of those with delay, 2007-2016



Characteristics of those with delay

Proportions of those with each delay among selected characteristics are summarized in Table 13. Proportions of those with patient delay was higher among males compared with females, while vice versa for doctor delay. Proportions of those with patient delay was higher among the age groups 0-64 while of those with doctor delay higher among the age groups 65 and above. Proportion of patient delay was higher among the foreign-born compared with the Japan-born, and among the homeless and those with no insurance. Proportion of total delay was the highest among the homeless, followed by those with no insurance, and those aged 45-54.

Table 13. Proportions of those with delay among selected characteristics, 2016

	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	4,122	874	21.2	5,699	1183	20.8	4,150	833	20.1
Female	2,581	449	17.4	3,514	841	23.9	2,604	489	18.8
Age group									
0-4	3	0	0.0	6	0	0.0	3	0	0.0
5-14	6	2	33.3	9	2	22.2	6	1	16.7
15-24	232	54	23.3	329	49	14.9	233	60	25.8
25-34	375	95	25.3	515	115	22.3	375	97	25.9
35-44	353	85	24.1	496	101	20.4	358	92	25.7
45-54	432	134	31.0	602	143	23.8	434	141	32.5
55-64	584	156	26.7	809	164	20.3	587	146	24.9
65-74	947	227	24.0	1,337	323	24.2	955	210	22.0
75-84	1,842	319	17.3	2,489	582	23.4	1,850	333	18.0
85+	1,929	251	13.0	2,621	545	20.8	1,953	242	12.4
Country of birth									
Foreign-born	390	102	26.2	557	107	19.2	392	101	25.8
Japan-born	6,008	1165	19.4	8,252	1824	22.1	6,055	1161	19.2
COB unknown	305	56	18.4	404	93	23.0	307	60	19.5
Social risk factor									
Homeless	80	34	42.5	118	13	11.0	81	30	37.0
Unemployed	4,712	817	17.3	6,431	1407	21.9	4,750	800	16.8
On social welfare	545	124	22.8	735	147	20.0	549	113	20.6
No insurance	37	15	40.5	56	3	5.4	38	12	31.6

COB = country of birth

*Note: total of homeless excludes those whose information on the state of homelessness is unknown

Chapter 8: Treatment outcomes in the drug sensitive cohort at the end of 12 months

TB outcomes in the entire drug sensitive cohort

In 2015, a total of 14,123 pulmonary cases were reported. Treatment outcome at the end of 12 months was available for 98.9% (13,971 / 14,123) and is summarized in Table 14.

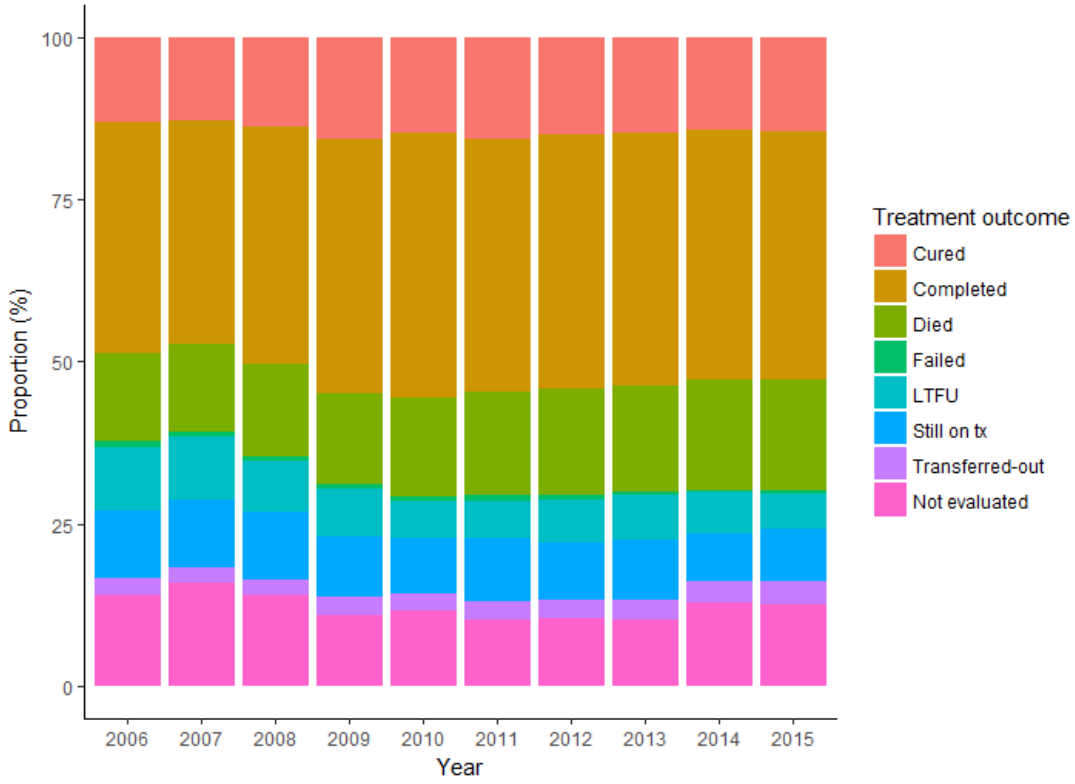
Table 14. Treatment outcomes at 12 months for drug sensitive cases notified in 2015

Tx outcomes	n	%
Cured	2,034	14.6
Completed	5,344	38.3
Died	2,376	17.0
Failed	60	0.4
LTFU	785	5.6
Still on tx	1,099	7.9
Transferred-out	518	3.7
Not evaluated	1,755	12.6
Total	13,971	100.0

Tx = treatment, LTFU = lost to follow-up

The proportion of treatment success (completed and cured) was 52.8% (7,378 / 13,971) in the 2015 cohort, however, it has decreased slightly since 2011, as a result of increases in the proportions of those who have died, from 15.8% in 2011 to 17.0% in 2015, of those whose treatment outcomes were not evaluated from 10.2% in 2011 to 12.6% in 2015, and those who have transferred out from 2.9% in 2011 to 3.7% in 2015 (Figure 15, see also Table s20).

Fig 15. Treatment outcomes of drug sensitive cohort, 2006-2015



Tx = treatment, LTFU = lost to follow-up

As approximately two-thirds of the cases in Japan are aged 65 and above, the treatment outcomes of the younger age groups were re-analyzed. Of the 4,929 pulmonary cases aged 64 and below, whose treatment outcomes at the end of 12 months were available, 69.2% (3,413 / 4,929) had either completed treatment or were cured (Table 15).

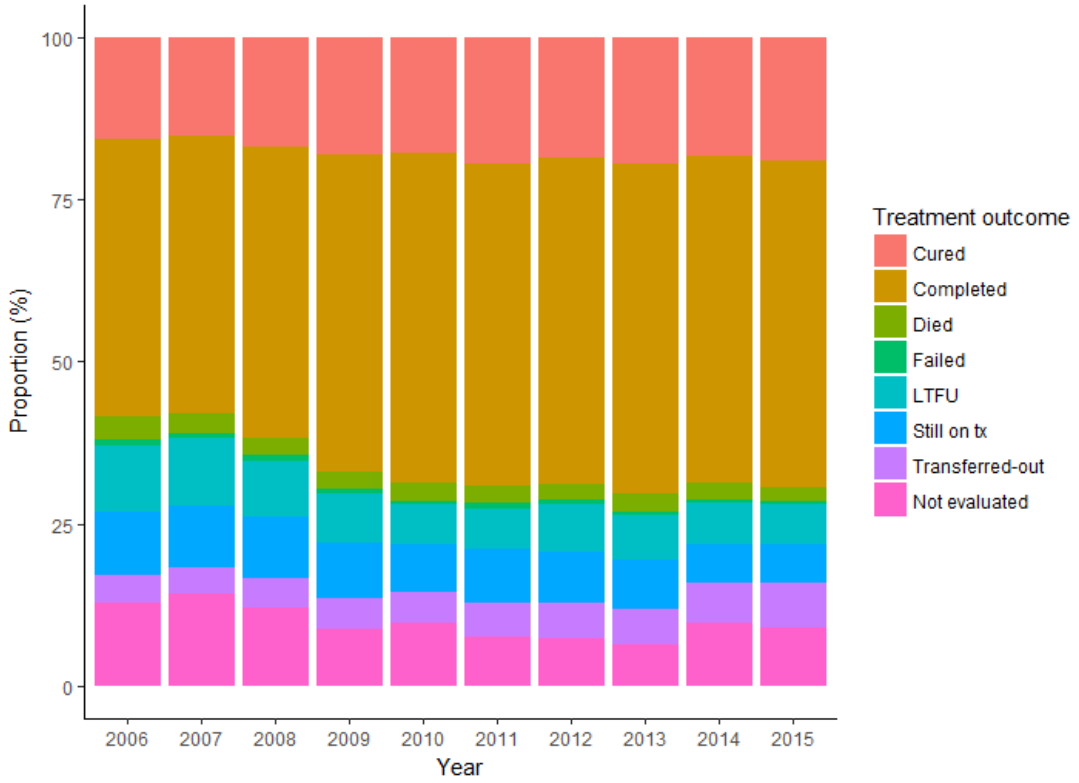
Table 15. Treatment outcomes 12 months for drug sensitive cases (aged 0-64) notified in 2015

Tx outcomes	n	%
Cured	945	19.2
Completed	2,468	50.1
Died	112	2.3
Failed	27	0.5
LTFU	296	6.0
Still on tx	294	6.0
Transferred-out	345	7.0
Not evaluated	442	9.0
Total	4,929	100.0

Tx = treatment, LTFU = lost to follow-up

The proportion of treatment success (completed and cured) has remained relatively stable however the proportion of those who have transferred has gradually increased from 4.4% in 2006 to 7.0% in 2015 (Figure 16, see also Table s21).

Fig 16. Treatment outcomes of drug sensitive cohort (aged 0-64), 2006-2015



Tx = treatment, LTFU = lost to follow-up

TB outcomes for the drug sensitive HIV positive cohort

Of the 24 HIV positive pulmonary cases, whose treatment outcomes at the end of 12 months were available, 45.8% (11 / 24) had either completed treatment or were cured (Table 16). Of the 3 cases who had died, 2 were aged 75 and above.

Table 16. Treatment outcomes at 12 months for HIV positive drug sensitive cases notified in 2015

Tx outcomes	n	%
Cured	0	0.0
Completed	11	45.8
Died	3	12.5
Failed	1	4.2
LTFU	1	4.2
Still on tx	3	12.5
Transferred-out	2	8.3
Not evaluated	3	12.5
Total	24	100.0

Tx = treatment, LTFU = lost to follow-up

Characteristics of those who have died (entire drug sensitive cohort)

Characteristics of those who have died among the entire drug sensitive cohort are summarized in Table 17. 67.3% (1,599 / 2,376) were males, 95.3% (2,264 / 2,376) were aged 65 and above, and 95.2% (2,263 / 2,376) were Japan-born. Proportions with the social risk factors among those aged between 25 and 64, and who have died (n=111) were also calculated: 8.9% (4 / 45) were homeless, 64.9% were unemployed (72 / 111), and 27.0% (30 / 111) were receiving social welfare.

Table 17. Characteristics of those who have died among the entire drug sensitive cohort in 2015

	n	%
Sex		
Male	1,599	67.3
Female	777	32.7
Age groups		
0-14	0	0.0
15-64	112	4.7
65+	2,264	95.3
Country of birth		
Japan-born	2,263	95.2
Foreign-born	9	0.4
COB unknown	104	4.4
Social risk factor (aged 25-64, n=111)		
Homeless*	4	8.9
Unemployed	72	64.9
On social welfare	30	27.0
No insurance	6	5.4

*Note: total of homeless excludes those whose information on the state of homelessness is unknown, i.e. total n=45
COB = country of birth

Characteristics of those who were lost to follow-up (entire drug sensitive cohort)

Characteristics of those who were lost to follow-up among the entire drug sensitive cohort are summarized in Table 18. 61.8% (485 / 785) were males, 62.3% (489 / 785) were aged 65 and above, and 88.9% (698 / 785) were Japan-born. Proportions with the social risk factors among those aged between 25 and 64, and who were LTFU (n=259) were also calculated: 1.5% (2 / 135) were homeless, 22.0% were unemployed (57 / 259), and 5.8% (15 / 259) were receiving social welfare.

Table 18. Characteristics of those lost to follow-up among the entire drug sensitive cohort in 2015

	n	%
Sex		
Male	485	61.8
Female	300	38.2
Age groups		
0-14	1	0.1
15-64	295	37.6
65+	489	62.3
Country of birth		
Japan-born	698	88.9
Foreign-born	65	8.3
COB unknown	22	2.8
Social risk factor (aged 25-64, n=259)		
Homeless*	2	1.5
Unemployed	57	22.0
On social welfare	15	5.8
No insurance	3	1.2

*Note: total of homeless excludes those whose information on the state of homelessness is unknown, i.e. total n=135
COB = country of birth

Chapter 9: Latent tuberculosis Infection

Notification of latent tuberculosis infection (LTBI) has been mandatory since 2006. In 2016, 7,477 cases of LTBI were newly notified. The number of new cases has reached a peak in 2011 and decreased in the next two years. However, it has remained relatively stable since 2013. On the other hand, proportion of foreign-born among the total LTBI cases notified has been increasing, notably from 2011 (Figure 17, see also Table s22).

Figure 17. LTBI notification, 2007-2016

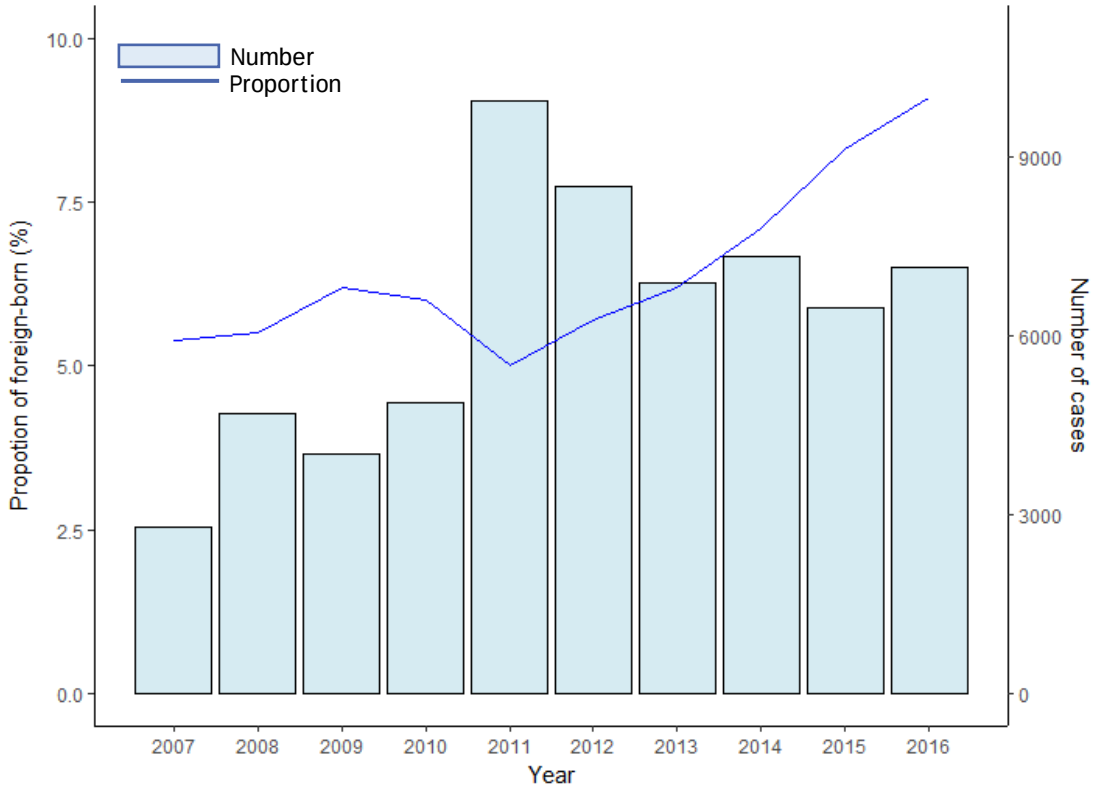


Table 19 summarizes the LTBI case notifications by sex and age groups. Breaking down the cases by age groups, the largest number of cases were diagnosed among those aged 55-64 (1,194 cases), followed by those aged 45-54 (1,191 cases). More LTBI is notified among female, especially among those aged 25-54.

Table 19. LTBI notification by age and sex, 2016

Age groups	Total		Male		Female	
	n	%	n	%	n	%
0-4	419	5.6	203	5.6	216	5.6
5-14	179	2.4	94	2.6	85	2.2
15-24	565	7.6	282	7.8	283	7.3
25-34	938	12.5	427	11.8	511	13.2
35-44	984	13.2	411	11.4	573	14.8
45-54	1,191	15.9	508	14.1	683	17.6
55-64	1,194	16.0	571	15.8	623	16.1
65-74	1,142	15.3	642	17.8	500	12.9
75-84	659	8.8	370	10.3	289	7.5
85+	206	2.8	97	2.7	109	2.8
TOTAL	7,477	100.0	3,605	100.0	3,872	100.0

Mode of detecting LTBI

While 66.5% (4,974 / 7,477) of the notified LTBI cases were detected upon contact investigation (Figure 18, see also Table s23), its proportion out of the total cases has been declining, while the proportion of those detected at hospital settings (i.e. during medical check-up for other diseases) has increased from 6.9% in 2007 to 21.2% in 2016 (Figure 19a & 19b, see also Table s24).

Figure 18. Mode of detection of notified LTBI, 2016

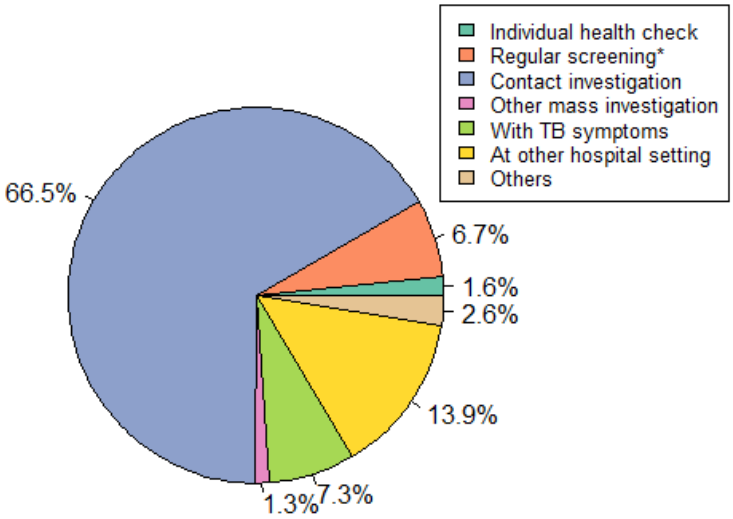


Figure 19a. Mode of detection of notified LTBI, 2007-2016

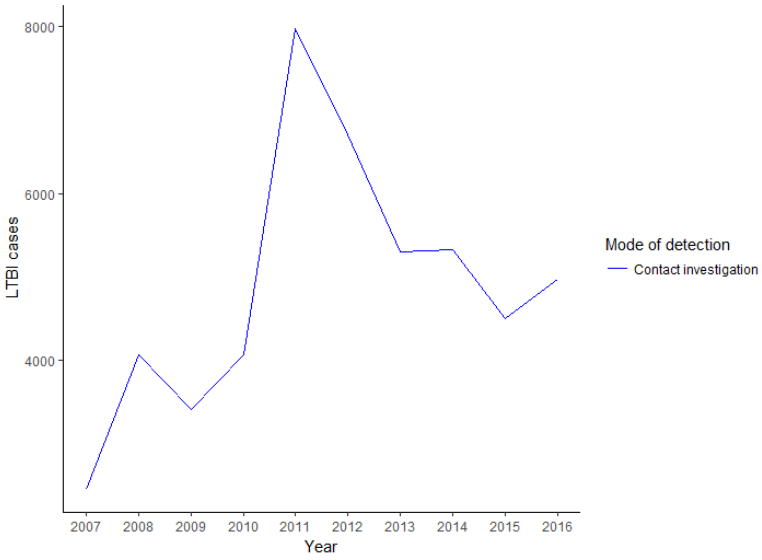
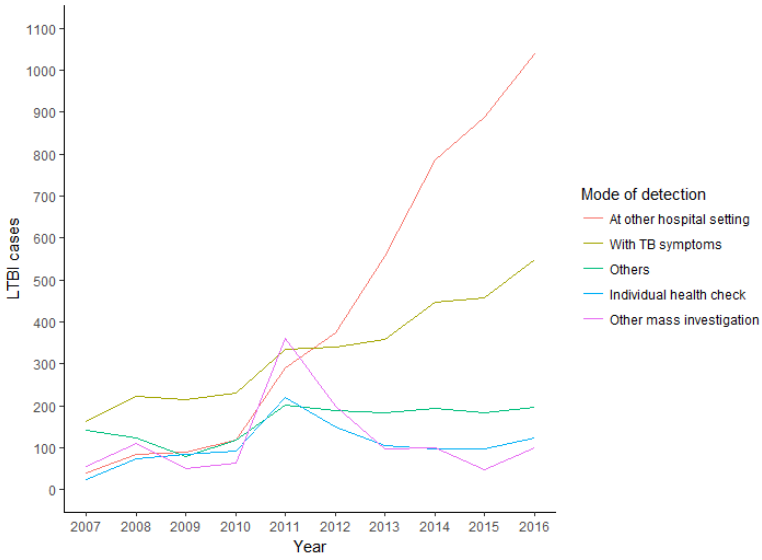


Figure 19b. Mode of detection of notified LTBI, 2007-2016



Outcome of LTBI treatment (2015 cohort)

As mentioned earlier, the current JTBS only summarizes the treatment outcomes of PTB. The outcomes of LTBI cases notified in 2015 were therefore calculated manually, using the data regarding “reasons for terminating TB treatment” from cohort data. Only the outcomes of those cases who have received isoniazid monotherapy were summarized, and “treatment completion” was defined as having “treatment completed” recorded as the reasons for terminating TB treatment, and having 180 days or longer recorded as treatment duration.

In 2015, 6,675 LTBI cases were newly notified, of which treatment outcome was available for 99.6% (6,645 / 6,675). Of the 6,645 cases, 6,400 had started isoniazid monotherapy. 5,370 had “treatment completed” recorded as reasons for terminating treatment, however, only 4,743 had treatment duration of 180 days or longer (Table 20).

Table 20. Outcomes at 12 months of LTBI cases notified in 2015

Tx outcomes		n	%
Treatment completed	Tx duration sufficient	4,743	74.1
	Tx duration insufficient	627	9.8
Tx terminated due to adverse events		438	6.8
Tx terminated as instructed by physician for reasons other than adverse events		85	1.3
Tx terminated due to patients unwillingness		83	1.3
Lost to follow up		3	0.0
Gone back to home country		18	0.3
TB death		1	0.0
non-TB death		71	1.1
Unknown		331	5.2
TOTAL		6,400	100.0

Tx = treatment

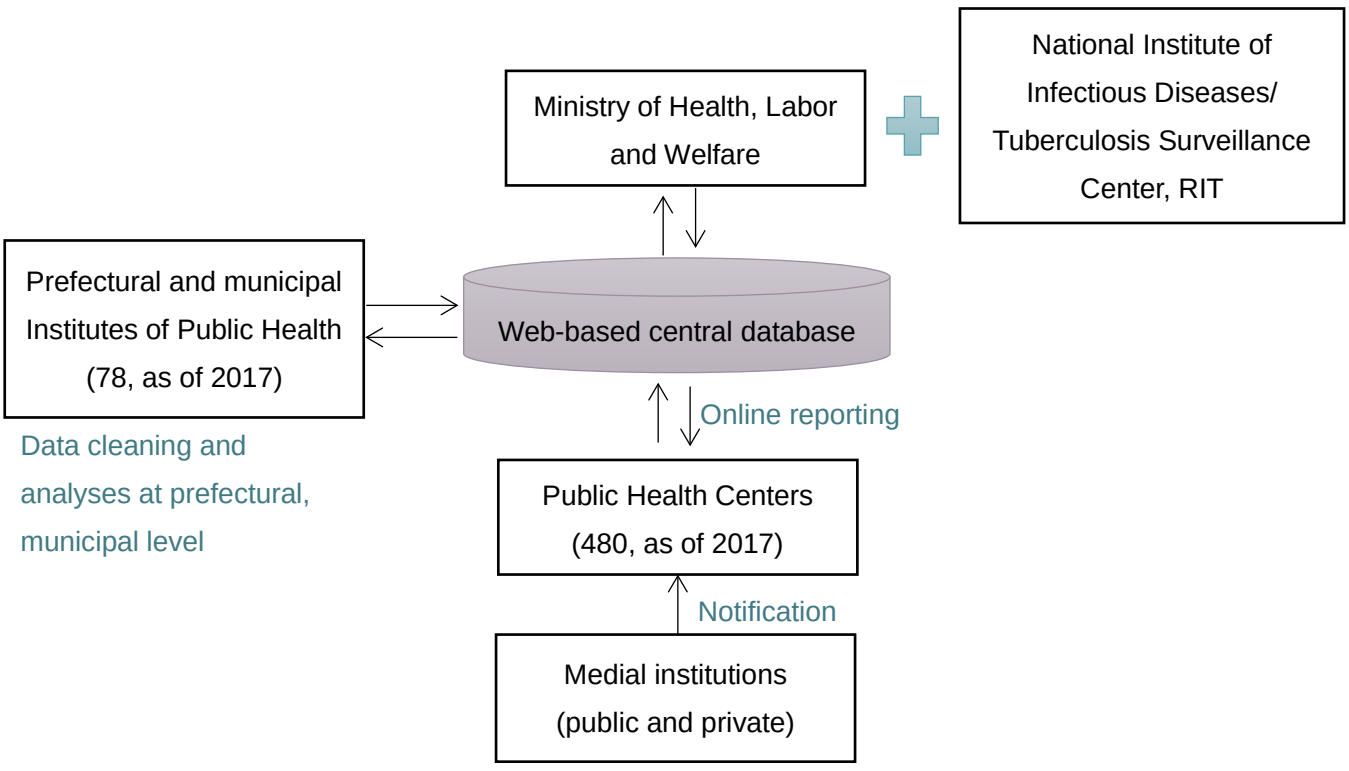
Appendix I: Notes on TB surveillance system in Japan

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 surveillance in Japan



Appendix II: Methods

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" as of 31 December each year (Immigration Bureau, Ministry of Justice, Japan).

Terms of definitions and reporting years:

The overall trend is analyzed from 2000. However, the JTBS underwent a major system restructuring in 2007 with new or changed categories for several key items. Thus, all other trends are analyzed from 2007, 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 competing treatment for TB/LTBI.

Treatment outcomes of drug susceptible TB

Cohort classification has undergone a major revision in 2007, and therefore the trend since 2007 is analyzed. The definitions of the treatment outcomes used in Japan are as follows;

Cure. A pulmonary TB patient who has undergone treatment of sufficient duration (no longer than 12 months), who was culture-negative on two consecutive occasions, with one within three months of treatment completion and another on previous occasion.

Completed treatment: A pulmonary TB patient who has undergone treatment of sufficient duration (no longer than 12 months) and either whose last culture test was negative on at least one occasion, or whose culture test result could not confirmed.

Died: A pulmonary TB patient who has died from any cause during treatment.

Failure: A pulmonary TB patient whose culture test was positive at month 5 or later during treatment.

Lost to follow-up: A pulmonary TB patient whose treatment was interrupted for 60 consecutive days or more, or for two consecutive months, or whose treatment duration is deemed insufficient.

Transferred out: A pulmonary TB patient who has moved out of the catchment area of a public health center during treatment.

Still on treatment: A pulmonary TB patient who is still on treatment at month 12.

Not evaluated: A pulmonary TB patient whose treatment outcome could not be evaluated for one or more of the following reasons – the patient did not start treatment or has died prior to starting the treatment, the treatment regimen was unknown, the treatment regimen was not the standard regimen, either isoniazid, rifampicin or both were discontinued during the treatment.

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.

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:

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

$$\text{Occupation} \quad \frac{\text{All active TB – occupation unknown}}{\text{All active TB}} \times 100$$

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

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

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

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

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

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

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

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

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

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

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

The denominators are summarized in Table iii.b.

Table iii.a
Data capture rate, 2016

Prefecture	Country of birth	Occupation	Homeless-ness	Treatment history	Previous treatment regimen	Total delay
1	99.2	98.3	28.2	99.4	100.0	76.8
2	99.4	100.0	59.1	98.2	100.0	61.5
3	99.2	98.5	57.3	96.9	100.0	58.7
4	99.5	98.9	53.0	97.3	100.0	48.3
5	100.0	100.0	48.8	97.7	100.0	60.0
6	96.3	98.8	70.0	97.5	100.0	81.8
7	100.0	100.0	57.1	100.0	100.0	93.9
8	99.2	98.3	57.1	98.3	90.0	47.6
9	92.7	89.9	20.6	100.0	100.0	51.4
10	100.0	98.9	50.8	100.0	91.7	88.3
11	94.8	97.3	46.1	97.4	91.3	25.7
12	94.7	92.7	48.5	98.1	88.9	61.6
13	99.9	97.9	64.3	98.3	87.4	64.3
14	93.4	95.6	29.1	98.4	94.4	47.5
15	94.0	99.1	39.4	98.1	90.9	63.3
16	100.0	97.4	16.2	99.1	100.0	72.1
17	95.2	99.2	74.6	100.0	83.3	88.2
18	100.0	100.0	86.2	98.9	100.0	40.4
19	91.7	97.2	62.5	97.2	66.7	45.5
20	100.0	100.0	27.9	100.0	100.0	77.4
21	99.7	97.9	55.9	97.9	93.8	78.6
22	99.8	99.5	49.6	99.5	100.0	38.2
23	98.2	99.2	77.2	99.4	93.2	90.1
24	99.6	99.2	33.6	98.8	100.0	56.9
25	94.1	100.0	49.3	100.0	81.8	43.6
26	97.8	100.0	75.6	99.0	100.0	82.3
27	84.8	93.7	41.4	98.6	99.2	96.1
28	89.0	98.7	24.3	99.3	90.5	75.9
29	100.0	100.0	88.0	100.0	93.3	79.8
30	100.0	100.0	77.1	98.5	100.0	97.4
31	100.0	100.0	3.0	98.5	100.0	7.4
32	85.1	100.0	13.8	98.9	100.0	51.2
33	100.0	100.0	15.9	100.0	100.0	71.1
34	93.8	97.8	32.7	99.1	94.4	26.2
35	98.3	98.3	41.6	98.3	83.3	44.9
36	100.0	98.3	13.3	100.0	100.0	22.9
37	100.0	99.3	31.9	99.3	100.0	67.1
38	98.5	100.0	66.9	100.0	93.3	87.5
39	98.9	98.9	54.3	98.9	100.0	75.0
40	93.8	99.0	48.2	98.8	94.1	81.8
41	99.1	99.1	10.4	97.2	100.0	72.6
42	94.5	100.0	44.5	99.5	100.0	64.3
43	92.2	99.6	28.4	96.1	75.0	50.0
44	99.5	93.0	18.4	98.4	100.0	68.1
45	100.0	99.3	78.3	97.2	100.0	50.6
46	99.6	100.0	49.0	98.8	80.0	61.5
47	100.0	99.0	75.4	99.5	100.0	94.9
Total	95.6	97.5	48.5	98.7	93.7	67.1

(cont.)

Prefecture	DM	HIV statuss	HIV testing status	Culture known TB	Culture known PTB	DST known TB	DST known PTB
1	87.5	35.7	51.7	80.1	87.4	67.0	68.2
2	84.8	0.0	51.5	69.0	72.5	30.7	32.1
3	82.4	0.8	52.7	96.2	98.9	56.5	58.4
4	97.3	0.5	27.0	84.3	90.1	50.0	51.8
5	77.9	0.0	26.7	75.6	83.3	50.9	52.9
6	81.3	1.3	7.5	92.5	95.0	91.7	92.5
7	89.0	1.8	47.2	93.3	96.7	82.8	82.2
8	88.4	0.3	40.1	84.7	89.0	51.5	50.8
9	80.3	14.7	48.6	88.1	89.4	81.3	82.5
10	88.0	1.1	30.1	95.1	99.3	65.4	68.0
11	88.5	3.5	39.0	71.7	74.8	53.9	55.1
12	83.7	1.3	24.8	88.2	90.6	81.6	82.8
13	92.6	41.6	67.4	95.0	97.6	88.1	89.2
14	80.6	2.0	19.9	87.5	89.8	75.3	76.1
15	84.7	5.6	38.4	63.9	74.4	9.6	7.7
16	88.9	4.3	60.7	98.3	100.0	88.2	91.0
17	99.2	7.1	49.2	97.6	100.0	91.1	90.0
18	96.6	0.0	5.7	75.9	81.8	73.5	75.0
19	86.1	4.2	45.8	84.7	89.6	69.8	74.3
20	95.8	7.3	22.4	89.1	98.2	83.8	84.6
21	88.1	0.3	15.8	86.3	92.6	84.2	85.1
22	94.6	1.4	32.9	78.6	84.9	52.2	53.4
23	93.5	3.7	26.1	96.9	98.7	91.9	91.8
24	88.8	2.1	18.3	59.8	65.0	34.7	34.4
25	94.7	0.0	49.3	79.6	85.3	70.7	68.5
26	96.6	0.5	29.8	92.7	94.3	91.7	92.6
27	90.9	3.1	41.1	93.8	95.7	93.2	94.6
28	92.9	1.2	31.5	88.7	93.0	87.2	88.5
29	94.2	1.6	39.3	99.0	98.8	88.0	88.3
30	98.5	0.0	45.0	97.7	100.0	94.5	98.7
31	97.0	0.0	13.6	37.9	39.2	27.3	31.6
32	96.6	0.0	9.2	87.4	90.5	62.1	59.6
33	92.8	1.0	41.3	89.4	92.6	82.7	83.5
34	73.1	11.7	49.7	78.1	83.5	39.4	38.4
35	87.1	2.2	23.6	58.4	68.3	65.8	67.6
36	81.7	0.0	15.8	79.2	83.5	60.0	59.4
37	71.0	9.4	21.7	93.5	96.0	67.3	68.9
38	94.7	3.8	42.9	82.0	84.6	58.7	62.7
39	92.4	0.0	18.5	85.9	88.1	75.0	77.4
40	87.8	0.8	8.2	83.6	87.9	82.1	83.4
41	91.5	0.9	1.9	83.0	82.8	78.7	80.4
42	93.6	0.5	21.1	74.8	75.0	71.5	69.4
43	94.4	33.2	47.4	51.3	56.8	29.0	30.5
44	92.4	1.6	58.9	91.9	95.3	87.5	88.1
45	97.2	0.7	49.7	97.2	100.0	94.2	95.7
46	86.5	1.2	37.6	76.7	83.2	47.9	48.1
47	97.5	0.5	26.6	75.9	81.4	81.5	84.6
Total	89.6	9.1	37.1	86.5	90.1	77.5	78.3

Table iii.b Denominators used to calculate the capture rate, 2016

Prefecture	Active TB	Total PTB	Active TB, retreatment cases	Symptomatic PTB	Culture positive PTB	Culture positive TB
1	518	373	23	306	261	291
2	171	131	6	109	81	88
3	131	95	5	75	77	92
4	185	142	8	118	114	126
5	86	66	2	45	51	57
6	80	60	4	44	53	60
7	163	123	13	98	101	116
8	354	283	20	191	179	196
9	218	180	6	138	126	139
10	183	144	12	111	122	133
11	979	778	46	612	472	516
12	906	702	36	476	487	554
13	2,340	1,878	127	1,236	1,438	1,614
14	1,192	947	36	669	699	782
15	216	164	22	128	104	114
16	117	91	7	68	78	93
17	126	97	6	76	80	90
18	87	66	4	52	44	49
19	72	48	3	33	35	43
20	165	114	10	93	91	111
21	329	243	16	168	181	209
22	425	332	27	251	238	255
23	1,270	969	73	737	815	927
24	241	177	18	123	93	101
25	152	116	11	78	73	82
26	410	299	23	215	215	252
27	1,945	1,595	119	1,194	1,159	1,271
28	844	614	42	497	494	587
29	191	160	15	124	128	142
30	131	94	6	76	78	91
31	66	51	2	27	19	22
32	87	63	3	43	47	58
33	208	162	7	114	115	127
34	324	242	18	195	159	188
35	178	126	6	89	68	79
36	120	85	3	70	64	75
37	138	101	8	82	90	98
38	133	104	15	80	67	75
39	92	67	5	52	53	64
40	720	521	34	363	361	419
41	106	87	2	73	56	61
42	218	168	10	143	108	123
43	232	176	12	138	82	93
44	185	149	5	113	109	120
45	143	111	9	85	93	103
46	245	185	10	156	129	146
47	203	129	13	99	91	119
Total	17,625	13,608	908	10,063	9,878	11,151

Appendix IV: Supplementary tables

Table s1. Number of all active TB notifications, 2000-2016

Notification year	No.cases	Percentage change in cases	Notification rate per 100,000	Percentage change in rate
2000	39,384	NA	31.0	NA
2001	35,489	9.9	27.9	10.0
2002	32,828	7.5	25.8	7.5
2003	31,638	3.6	24.8	3.9
2004	29,736	6.0	23.3	6.0
2005	28,319	4.8	22.2	4.9
2006	26,384	6.8	20.6	7.1
2007	25,311	4.1	19.8	3.9
2008	24,760	2.2	19.4	2.0
2009	24,170	2.4	19.0	2.1
2010	23,261	3.8	18.2	4.2
2011	22,681	2.5	17.7	2.5
2012	21,283	6.2	16.7	5.9
2013	20,495	3.7	16.1	3.6
2014	19,615	4.3	15.4	4.1
2015	18,280	6.8	14.4	6.7
2016	17,625	3.6	13.9	3.5

Table s2. Number of bacteriologically positive TB notifications, 2000-2016

Notification year	No. bac+ cases	Percentage change in bac+ cases	Notification rate per 100,000	Percentage change in rate
2000	19,347	NA	15.2	NA
2001	18,284	5.5	14.4	5.8
2002	17,534	4.1	13.8	4.2
2003	17,316	1.2	13.6	1.4
2004	16,721	3.4	13.1	3.5
2005	16,313	2.4	12.8	2.4
2006	15,315	6.1	12.0	6.2
2007	16,170	-5.6	12.6	-5.5
2008	15,882	1.8	12.4	1.8
2009	15,635	1.6	12.2	1.5
2010	15,297	2.2	11.9	2.2
2011	14,425	5.7	11.3	5.5
2012	13,923	3.5	10.9	3.3
2013	13,589	2.4	10.7	2.3
2014	12,917	4.9	10.2	4.8
2015	12,249	5.2	9.6	5.1
2016	11,668	4.7	9.2	4.6

bac+ = bacteriologically positive

Table s3. Number of TB notifications by age group and sex, 2016

Age group	Total		Male		Female	
	n	rate per 100,000	n	rate per 100,000	n	rate per 100,000
0-4	26	0.5	14	0.6	12	0.5
5-9	11	0.2	7	0.3	4	0.2
10-14	22	0.4	10	0.4	12	0.4
15-19	190	3.1	108	3.5	82	2.8
20-24	630	10.2	384	12.1	246	8.2
25-29	605	9.5	322	9.9	283	9.1
30-34	516	7.1	270	7.3	246	6.9
35-39	488	6	274	6.7	214	5.3
40-44	572	5.9	332	6.7	240	5
45-49	656	7.1	406	8.7	250	5.4
50-54	602	7.6	409	10.3	193	4.9
55-59	693	9.2	477	12.7	216	5.7
60-64	872	10.7	620	15.4	252	6.1
65-69	1,341	13.1	960	19.3	381	7.2
70-74	1,406	19	958	27.8	448	11.3
75-79	2,001	30.7	1,280	44.1	721	19.9
80-84	2,579	49.8	1,517	72.4	1,062	34.4
85-89	2,559	78.1	1,396	124.6	1,163	54
90+	1,856	96.3	850	187.2	1,006	68.3
Total	17,625	13.9	10,594	17.2	7,031	10.8

Table s4. Number of TB notification among those aged 65 and above, 2000-2016

Notification year	Age group		
	65-74	75-84	85+
2000	8,393	7,494	3,148
2001	7,323	7,068	3,078
2002	6,598	6,995	2,935
2003	6,174	7,064	3,157
2004	5,482	6,847	3,151
2005	5,067	6,715	3,176
2006	4,715	6,475	3,190
2007	4,490	6,418	3,181
2008	4,420	6,265	3,359
2009	4,050	6,368	3,593
2010	3,918	6,102	3,725
2011	3,566	6,166	4,024
2012	3,459	5,711	4,137
2013	3,322	5,589	4,316
2014	3,205	5,171	4,447
2015	3,037	4,877	4,252
2016	2,747	4,580	4,415

Table s5. Number and proportion of TB notifications by sex and occupation (aged 25-64), 2016

Occupation	Total		Male		Female	
	n	%	n	%	n	%
Doctors	26	100.0	21	80.8	5	19.2
Nurses	169	100.0	14	8.3	155	91.7
Other HCWs	203	100.0	55	27.1	148	72.9
Full- and part-time employed	1,917	100.0	1,473	76.8	444	23.2
Service industry	304	100.0	172	56.6	132	43.4
Teachers	59	100.0	21	35.6	38	64.4
Temporary employed	431	100.0	256	59.4	175	40.6
Self-employed	244	100.0	204	83.6	40	16.4
Houseworkers	156	100.0	1	0.6	155	99.4
Students	154	100.0	93	60.4	61	39.6
Unemployed	1,167	100.0	689	59.0	478	41.0
Unknown	174	100.0	111	63.8	63	36.2

Table s6.a. Number and proportion of those homeless among TB notifications, 2016

	Homless (a)	Not homeless (b)	Unknown (c)	Total (d)	Total excluding unknown (d-c)	Proportion of homeless (a/(d-c)*100) (%)
Total	184	8,326	1,811	10,321	8,510	2.2
Sex						
Male	177	4,890	1,181	6,248	5,067	3.5
Female	7	3,436	630	4,073	3,443	0.2
Age group						
15-24	1	460	91	552	461	0.2
25-34	4	573	136	713	577	0.7
35-44	13	525	125	663	538	2.4
45-54	33	629	138	800	662	5.0
55-64	50	673	174	897	723	6.9
65+	83	5,466	1,147	6,696	5,549	1.5
Country of birth						
Japan-born	1	636	250	887	637	0.2
Foreign-born	174	7,570	1,292	9,036	7,744	2.2
COB unknown	9	120	269	398	129	7.0

COB = country of birth

Table s6.b. Number and proportion of those unemployed among TB notifications, 2016

	Unemployed (a)	Employed (b)	Unknown (c)	Total (d)	Total excluding unknown (d-c)	Proportion of unemployed (a/(d-c)*100) (%)
Total	1,167	3,663	174	5,004	4,830	24.2
Sex						
Male	689	2,310	111	3,110	2,999	23.0
Female	478	1,353	63	1,894	1,831	26.1
Age group						
15-24	NA	NA	NA	NA	NA	NA
25-34	144	957	20	1,121	1,101	13.1
35-44	172	856	32	1,060	1,028	16.7
45-54	281	925	52	1,258	1,206	23.3
55-64	570	925	70	1,565	1,495	38.1
65+	NA	NA	NA	NA	NA	NA
Country of birth						
Japan-born	149	626	31	806	775	19.2
Foreign-born	975	2,890	121	3,986	3,865	25.2
COB unknown	43	147	22	212	190	22.6

COB = country of birth

Table s6.c. Number and proportion of those on social welfare among TB notifications, 2016

	On social welfare (a)	Not on social welfare (b)	Unknown (c)	Total (d)	Total excluding unknown (d-c)	Proportion of those on social welfare (a/(d-c)*100) (%)
Total	1,192	16,123	251	17,566	17,315	6.9
Sex						
Male	935	9,463	165	10,563	10,398	9.0
Female	257	6,660	86	7,003	6,917	3.7
Age group						
15-24	8	795	17	820	803	1.0
25-34	14	1,087	20	1,121	1,101	1.3
35-44	34	1,010	16	1,060	1,044	3.3
45-54	112	1,131	15	1,258	1,243	9.0
55-64	220	1,313	32	1,565	1,533	14.4
65+	804	10,787	151	11,742	11,591	6.9
Country of birth						
Japan-born	33	1,251	42	1,326	1,284	2.6
Foreign-born	1,082	14,187	188	15,457	15,269	7.1
COB unknown	77	685	21	783	762	10.1

COB = country of birth

Table s6.d. Number and proportion of those without health insurance among TB notifications, 2016

	No insurance (a)	With insurance (b)	Unknown (c)	Total (d)	Total excluding unknown (d-c)	Proportion of those with no insurance (a/(d-c)*100) (%)
Total	79	17,236	251	17,566	17,315	0.5
Sex						
Male	74	10,324	165	10,563	10,398	0.7
Female	5	6,912	86	7,003	6,917	0.1
Age group						
15-24	2	801	17	820	803	0.2
25-34	3	1,098	20	1,121	1,101	0.3
35-44	4	1,040	16	1,060	1,044	0.4
45-54	13	1,230	15	1,258	1,243	1.0
55-64	28	1,505	32	1,565	1,533	1.8
65+	29	11,562	151	11,742	11,591	0.3
Country of birth						
Japan-born	2	1,282	42	1,326	1,284	0.2
Foreign-born	73	15,196	188	15,457	15,269	0.5
COB unknown	4	758	21	783	762	0.5

COB = country of birth

Table s7. Clinical characteristics of TB notifications by age groups, 2016

Age group	exPTB bac	exPTB clin	PTB bac	PTB clin	TOTAL
0-4	2	7	7	10	26
5-14	3	6	8	16	33
15-24	33	60	458	269	820
25-34	96	86	677	262	1,121
35-44	78	113	650	219	1,060
45-54	108	150	809	191	1,258
55-64	129	185	1,035	216	1,565
65-74	303	432	1,724	288	2,747
75-84	555	679	3,054	292	4,580
85+	468	524	3,246	177	4,415
TOTAL	1,775	2,242	11,668	1,940	17,625

Table s8. Number and rate per 100,000 of foreign-born TB, 2007-2016

Notification year	No.cases	Rate per 100,000
2007	842	40.7
2008	945	44.1
2009	938	44.1
2010	952	45.6
2011	921	45
2012	1,069	52.6
2013	1,064	51.5
2014	1,101	51.9
2015	1,164	50.1
2016	1,338	56.2

Table s9 Number and proportion* of foreign-born TB by age group, 2007-2016

Notification year	Total		0-14		15-24		25-34		35-44		45-55		55+	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
2007	842	3.5	9	10.5	231	23.8	321	14.6	155	7.7	69	3.5	57	0.3
2008	945	3.9	5	5.4	246	27.0	384	18.3	165	8.2	76	3.9	69	0.4
2009	938	4.0	3	4.3	253	28.5	375	18.6	157	8.0	63	3.3	87	0.5
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	1069	5.2	7	11.1	304	42.2	357	25.4	196	12.1	106	7.1	99	0.6
2013	1064	5.4	7	10.8	319	46.8	361	28.7	177	12.6	97	6.8	103	0.7
2014	1101	5.8	8	17.0	339	47.9	376	31.0	180	13.9	115	8.4	83	0.6
2015	1164	6.6	9	18.4	353	52.6	423	38.5	174	14.1	101	8.0	104	0.8
2016	1338	7.9	12	20.3	471	58.6	478	43.6	175	17.1	107	8.9	95	0.8

* Note: the denominator excludes those whose country of birth is unknown

Table s10. Number and rate per 100,000 of foreign-born TB, 2007-2016

Country name	No.cases	Proportion (%)
The Philippines	318	23.8
China	272	20.3
Vietnam	212	15.8
Nepal	135	10.1
Indonesia	90	6.7
Unknown	82	6.1
Myanmar	58	4.3
Sout Korea	45	3.4
Thailand	19	1.4
Mongolia	16	1.2
Brazil	14	1.0
India	12	0.9
Bangladesh	7	0.5
Peru	7	0.5
Cambodia	6	0.4
Taiwan	6	0.4
USA	4	0.3
Laos	3	0.2
Sri Lanka	3	0.2
Pakistan	3	0.2
Russia	3	0.2
Bolivia	2	0.1
Ethiopia	2	0.1
Kenya	2	0.1
Madagascar	2	0.1
Malaysia	2	0.1
Senegal	2	0.1
Uzbekistan	2	0.1
France	1	0.1
Ghana	1	0.1
Mozambique	1	0.1
Palaw	1	0.1
DPR Korea	1	0.1
Rwanda	1	0.1
Tuvalu	1	0.1
Uganda	1	0.1
South Africa	1	0.1
TOTAL	1,338	100.0

Table s11. Foreign-born TB by selected countries of birth, 2007-2016

Notification year	China	the Philippines	Nepal	Vietnam
2007	225	195	18	29
2008	263	234	27	36
2009	267	221	28	44
2010	273	216	39	24
2011	273	219	38	52
2012	294	290	42	63
2013	292	258	65	68
2014	261	292	88	109
2015	249	284	108	135
2016	272	318	135	212

Note: the numbers have been updated since the previous year and may differ from the last year's report for some countries, and for some years

Table s12. Foreign-born TB by year of entry to Japan, 2012-2016

Notification year	0-1 year ago	2-4 years ago	5-9 years ago	More than 10 years ago
2012	250	150	105	140
2013	280	152	104	141
2014	299	138	86	151
2015	333	172	76	137
2016	429	179	76	152

Table s13. TB notification among children aged 0-14 by country of birth, 2000-2016

Notification year	Total no.cases	Of which Japan-born	Of which foreign-born	Of which COB unknown
2000	220	183	16	21
2001	195	177	6	12
2002	155	137	6	12
2003	127	100	12	15
2004	117	99	6	12
2005	117	103	9	5
2006	85	74	6	5
2007	92	77	9	6
2008	95	87	5	3
2009	73	66	3	4
2010	89	77	9	3
2011	84	75	8	1
2012	63	56	7	0
2013	66	58	7	1
2014	49	39	8	2
2015	51	40	9	2
2016	59	47	12	0

COB = country of birth

Table s14.a. Source of infection of childhood TB by country of birth, 2016

Country of birth	Father	Mother	Grandparents	Others	School	Unknown	TOTAL
Japan-born	6	5	4	1	4	27	47
Foreign-born	0	0	0	0	0	12	12
COB* unknown	0	0	0	0	0	0	0

COB = country of birth

Table s14.b. Mode of detection of childhood TB by country of birth, 2016

Country of birth	Screening at school	Contact investigation (family)	Contact investigation (casual)	Visit hospital with symptoms	Visit hospital for other diseases	Others	TOTAL
Japan-born	0	16	6	20	2	3	47
Foreign-born	2	0	1	8	0	1	12
COB* unknown	0	0	0	0	0	0	0

COB = country of birth

Table s15. Number of PTB and culture confirmed PTB, 2007-2016

Notification year	PTB	Of which culture confirmed	Proportion of culture confirmed
2007	19,893	9,983	50.2
2008	19,393	9,480	48.9
2009	18,912	10,902	57.6
2010	18,328	11,495	62.7
2011	17,519	10,915	62.3
2012	16,432	11,261	68.5
2013	15,972	10,523	65.9
2014	15,149	10,259	67.7
2015	14,123	10,035	71.1
2016	13,608	9,878	72.6

PTB = pulmonary tuberculosis

Table s16. Number and proportion of cases with DST results to INH and RFP known, 2012-2016

Notification year	**Culture confirmed cases**	**Of which DST results to INH and RFP known**	
		n	%
2012	12,420	9,134	73.5
2013	11,698	8,409	71.9
2014	11,484	8,439	73.5
2015	11,283	8,511	75.4
2016	11,151	8,638	77.5

DST= drug susceptibility test, INH = isoniazid, RFP = rifampicin

Table s17. Number and proportion of cases with RR/MDR by country of birth, 2012-2016

Notification year	DST results known (total)	Of which RR/MDR (total)		DST results known (Japan-born)	Of which RR/MDR (Japan-born)		DST results known (Foreign-born)	Of which RR/MDR (Foreign-born)	
		n	%		n	%		n	%
2012	9,134	79	0.9	8,471	59	0.7	382	16	4.2
2013	8,409	69	0.8	7,692	48	0.6	404	19	4.7
2014	8,439	81	1.0	7,728	54	0.7	397	22	5.5
2015	8,511	78	0.9	7,710	52	0.7	453	22	4.9
2016	8,638	78	0.9	7,692	54	0.7	562	20	3.6

RR = rifampicin resistant, MDR = multi-drug resistance
Note: total includes those country of birth unknown. No. of DST results known and of which RR/MDR among those country of birth unknown are not shown in the table.

Table s18. Number and proportion of cases with INH resistance by country of birth, 2012-2016

Notification year	DST results known (total)	Of which resistant to INH (total)		DST results known (Japan-born)	Of which resistant to INH (Japan-born)		DST results known (Foreign-born)	Of which resistant to INH (Foreign-born)	
		n	%		n	%		n	%
2012	9,134	407	4.5	8,471	346	4.1	382	47	12.3
2013	8,409	389	4.6	7,692	332	4.3	404	50	12.4
2014	8,439	370	4.4	7,728	312	4.0	397	47	11.8
2015	8,511	400	4.7	7,710	335	4.3	453	49	10.8
2016	8,638	392	4.5	7,692	300	3.9	562	76	13.5

INH = isoniazid
Note: total includes those country of birth unknown. No. of DST results known and of which RR/MDR among those country of birth unknown are not shown in the table.

Table s19. Number and proportion of those with delay among symptomatic pulmonary TB, 2007-2016

Notification	Patient delay			Doctor delay			Total delay		
year	Total	n	%	Total	n	%	Total	n	%
2007	10,368	1,871	18.0	12,830	2,789	21.7	10,315	1,905	18.5
2008	8,981	1,637	18.2	13,449	2,677	19.9	9,081	1,642	18.1
2009	8,691	1,553	17.9	13,369	2,729	20.4	8,767	1,599	18.2
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

*Note: total excluding those cases without data on delay

Table s20 Treatment outcomes of drug sensitive cohort, 2006-2015

Notification	Cured		Completed		Died		Failed		LTFU		Still on tx		Transferred-out		Not evaluated		TOTAL
year	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
2006	2,687	13.2	7,188	35.4	2,776	13.7	191	0.9	1,960	9.6	2,144	10.6	521	2.6	2,849	14.0	20,316
2007	2,554	12.9	6,799	34.3	2,687	13.6	153	0.8	1,928	9.7	2,062	10.4	499	2.5	3,138	15.8	19,820
2008	2,682	13.9	7,048	36.6	2,724	14.1	151	0.8	1,515	7.9	1,967	10.2	498	2.6	2,689	14.0	19,274
2009	2,919	15.7	7,286	39.1	2,641	14.2	114	0.6	1,355	7.3	1,745	9.4	517	2.8	2,056	11.0	18,633
2010	2,716	14.9	7,441	40.7	2,791	15.3	108	0.6	1,051	5.8	1,543	8.4	503	2.8	2,124	11.6	18,277
2011	2,764	15.8	6,786	38.9	2,754	15.8	173	1.0	1,004	5.8	1,671	9.6	513	2.9	1,784	10.2	17,449
2012	2,469	15.0	6,407	39.0	2,716	16.5	81	0.5	1,093	6.7	1,437	8.8	473	2.9	1,735	10.6	16,411
2013	2,362	14.8	6,192	38.8	2,632	16.5	65	0.4	1,101	6.9	1,469	9.2	498	3.1	1,622	10.2	15,941
2014	2,170	14.3	5,811	38.4	2,567	17.0	59	0.4	949	6.3	1,122	7.4	501	3.3	1,951	12.9	15,130
2015	2,034	14.6	5,344	38.3	2,376	17.0	60	0.4	785	5.6	1,099	7.9	518	3.7	1,755	12.6	13,971

Table s21. Treatment outcomes of drug sensitive cohort aged 0 to 64, 2006-2015

Notification	**Cured**		**Completed**		**Died**		**Failed**		**LTFU**		**Still on tx**		**Transferred-out**		**Not evaluated**		**TOTAL**
year	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
2006	1,528	15.7	4,181	42.8	341	3.5	92	0.9	997	10.2	952	9.8	425	4.4	1,245	12.8	9,761
2007	1,408	15.3	3,932	42.6	283	3.1	77	0.8	960	10.4	873	9.5	370	4.0	1,322	14.3	9,225
2008	1,490	16.9	3,939	44.7	246	2.8	80	0.9	749	8.5	836	9.5	386	4.4	1,079	12.3	8,805
2009	1,492	18.0	4,055	49.0	219	2.6	54	0.7	627	7.6	707	8.5	390	4.7	738	8.9	8,282
2010	1,393	17.8	3,993	50.9	215	2.7	46	0.6	475	6.1	579	7.4	372	4.7	772	9.8	7,845
2011	1,413	19.4	3,604	49.6	186	2.6	82	1.1	443	6.1	604	8.3	371	5.1	562	7.7	7,265
2012	1,205	18.7	3,236	50.1	163	2.5	38	0.6	478	7.4	506	7.8	345	5.3	483	7.5	6,454
2013	1,171	19.5	3,048	50.8	164	2.7	33	0.5	417	6.9	456	7.6	330	5.5	382	6.4	6,001
2014	1,019	18.4	2,785	50.3	137	2.5	25	0.5	364	6.6	321	5.8	339	6.1	547	9.9	5,537
2015	945	19.2	2,468	50.1	112	2.3	27	0.5	296	6.0	294	6.0	345	7.0	442	9.0	4,929

Table s22. Number of LTBI notifications by country of birth, 2007-2016

Notification year	Total no. cases	Of which Japan-born	Of which foreign-born	Of which COB unknown
2007	2,959	2,654	152	153
2008	4,832	4,449	257	126
2009	4,119	3,782	249	88
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

COB = country of birth

Table s23. Mode of detection of LTBI cases, 2016

Mode of detection	n	%
Individual health check	122	1.6
Regular screening	500	6.7
Contact investigation	4,974	66.5
Other mass investigation	99	1.3
At hospital setting	1,586	21.2
Others	174	2.3
Unknown	16	0.2
During follow-up for TB	6	0.1
TOTAL	7,477	100.0

Table s24 Trend in the mode of detection of LTBI cases, 2007-2016

Notification year	Individual health check		Regular screening		Contact investigation		Other mass investigation		At hospital setting		Others		TOTAL
	n	%	n	%	n	%	n	%	n	%	n	%	n
2007	25	0.8	79	2.7	2,455	83.0	55	1.9	204	6.9	141	4.8	2,959
2008	74	1.5	153	3.2	4,066	84.1	111	2.3	306	6.3	122	2.5	4,832
2009	84	2.0	183	4.4	3,417	83.0	50	1.2	305	7.4	80	1.9	4,119
2010	93	1.9	241	4.9	4,065	82.5	64	1.3	348	7.1	119	2.4	4,930
2011	219	2.2	660	6.6	7,979	79.4	360	3.6	626	6.2	202	2.0	10,046
2012	149	1.7	817	9.3	6,705	76.4	198	2.3	714	8.1	188	2.1	8,771
2013	106	1.5	552	7.7	5,295	74.1	98	1.4	914	12.8	182	2.5	7,147
2014	98	1.3	605	8.0	5,333	70.5	101	1.3	1,232	16.3	193	2.6	7,562
2015	96	1.4	496	7.4	4,507	67.5	47	0.7	1,345	20.1	184	2.8	6,675
2016	122	1.6	500	6.7	4,974	66.5	99	1.3	1,586	21.2	196	2.6	7,477

Appendix V: Supplementary data

Table sd1. Population used to calculate the notification rates, 2016

Age group	Total	Male	Female
0-4	4,963,456	2,540,085	2,423,371
5-9	5,303,217	2,717,466	2,585,751
10-14	5,513,694	2,823,086	2,690,608
15-19	6,039,755	3,103,162	2,936,593
20-24	6,149,846	3,160,846	2,989,000
25-29	6,393,392	3,267,976	3,125,416
30-34	7,257,157	3,684,903	3,572,254
35-39	8,117,441	4,116,140	4,001,301
40-44	9,712,523	4,920,801	4,791,722
45-49	9,281,561	4,685,260	4,596,301
50-54	7,903,730	3,968,404	3,935,326
55-59	7,546,092	3,759,759	3,786,333
60-64	8,160,297	4,019,079	4,141,218
65-69	10,274,614	4,971,499	5,303,115
70-74	7,407,783	3,451,827	3,955,956
75-79	6,525,518	2,905,502	3,620,016
80-84	5,180,705	2,095,642	3,085,063
85-89	3,274,655	1,119,945	2,154,710
90+	1,927,336	454,121	1,473,215
Total	127,000,000	61,765,503	65,167,269

Source: Population as of October 1, 2016. Current population estimates, Statistics Bureau, Ministry of Internal Affairs and Communications http://www.stat.go.jp/data/jinsui/
Note: The age group specific population does not necessarily add up to TOTAL as the numbers are based on population census. For details, please contact the Ministry of Internal Affairs and Communications, Japan.

Table sd2. Population used to calculate the notification rates among the foreign-born, 2007-2016

Notification year	Population of foreign-born
2007	2,069,065
2008	2,144,682
2009	2,125,571
2010	2,087,261
2011	2,047,349
2012	2,033,656
2013	2,066,445
2014	2,121,831
2015	2,323,189
2016	2,382,822

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