

Tuberculosis Annual Report 2009
Series 5. Case finding

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Abstract The mode of detection, delays in detection, patient's occupation and so on were examined using the tuberculosis(TB) surveillance data from 2009.

On the 24,170 TB patients newly notified in 2009, 82.1% were detected at medical institutions. Of those 11.4% were detected during hospitalization with a disease other than TB and 9.2% were detected as outpatients with a disease other than TB.

On the other hand, significant proportion of adolescents and young adults were also detected by active case finding (mass screening + contact examination). For example, 23.0% of TB patients aged 15-19 years were detected by periodic school mass screening, and 23.7% of TB patients aged 25-29 years were detected by periodic health examination for employees. The proportion of TB patients detected by contact examination was only 2.6%; this figure was larger among younger TB patients. For example, 43.9% of those aged 0-14 years were detected by contact examinations.

In terms of the symptoms of 18,912 pulmonary TB patients, 28.0% had only respiratory symptoms, 30.9% had both respiratory and other symptoms, and 16.1% had only non-respiratory symptoms. The proportion of TB patients having only non-respiratory symptoms increased among the elderly. More than 20.0% of symptomatic pulmonary TB patients over 75 years had only non-respiratory symptoms.

Regarding the delay of case detection among 14,511 symptomatic pulmonary TB patients, the patient's delay was shorter while the doctor's delay longer in the older age group, compared with the younger age group. Generally, sputum smear-positive symptomatic pulmonary TB patients showed longer total delays.

The proportion and number of nurses/public health nurses among female patients of 20-59 years were 10.2% and 322, increasing slightly from 9.3% and 300 respectively, in 2008.

Key words: Tuberculosis, Mode of detection, Delay of case finding, Occupation, Sex, Age
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Table1 Proportion of mode of detection among newly notified TB patients, 1998–2009

| Year | Newly notified TB patients | Individual examination | Mass screening | | | | Contact examination | | Clinics/Hospitals | | | Others | Unknown |
|------|----------------------------|------------------------|----------------|-----------|-----------|------------|---------------------|--------|------------------------------|--------------------------------|---------------------------------|--------|---------|
| | | | Schools | Residents | Employees | Facilities | Family | Others | Outpatients with TB symptoms | Inpatients with other diseases | Outpatients with other diseases | | |
| | <i>n</i> | % | % | % | % | % | % | % | % | % | % | % | % |
| 1998 | 41,033 | 2.6 | 1.0 | 3.8 | 7.6 | 0.4 | 1.5 | 1.2 | 78.3 | – | – | 2.7 | 1.0 |
| 1999 | 43,818 | 2.6 | 0.9 | 3.4 | 7.6 | 0.5 | 1.5 | 1.4 | 78.5 | – | – | 2.9 | 0.8 |
| 2000 | 39,384 | 2.3 | 1.1 | 3.6 | 8.3 | 0.5 | 1.4 | 1.2 | 78.3 | – | – | 2.8 | 0.5 |
| 2001 | 35,489 | 2.4 | 1.1 | 3.5 | 8.2 | 0.5 | 1.4 | 1.3 | 78.6 | – | – | 2.7 | 0.3 |
| 2002 | 32,828 | 2.1 | 1.1 | 3.2 | 8.0 | 0.6 | 1.4 | 1.5 | 78.7 | – | – | 2.9 | 0.5 |
| 2003 | 31,638 | 2.0 | 1.0 | 2.8 | 7.7 | 0.6 | 1.4 | 1.4 | 79.7 | – | – | 2.9 | 0.5 |
| 2004 | 29,736 | 2.1 | 1.0 | 2.8 | 7.4 | 0.6 | 1.3 | 1.6 | 79.6 | – | – | 2.8 | 0.9 |
| 2005 | 28,319 | 2.1 | 0.9 | 2.4 | 7.3 | 0.5 | 1.4 | 1.7 | 80.4 | – | – | 2.4 | 0.9 |
| 2006 | 26,384 | 2.1 | 0.9 | 2.3 | 7.6 | 0.6 | 1.3 | 1.2 | 81.2 | – | – | 2.5 | 0.5 |
| 2007 | 25,311 | 2.1 | 0.9 | 2.5 | 7.6 | 0.6 | 1.4 | 1.5 | 67.2 | 8.0 | 6.4 | 1.3 | 0.6 |
| 2008 | 24,760 | 2.6 | 0.8 | 2.0 | 7.6 | 0.6 | 1.3 | 1.7 | 62.0 | 10.8 | 8.5 | 1.3 | 1.0 |
| 2009 | 24,170 | 2.5 | 0.8 | 2.3 | 7.2 | 0.6 | 1.3 | 1.3 | 61.5 | 11.4 | 9.2 | 1.2 | 0.6 |

Table 2 Proportion of mode of detection among newly notified TB patients by age group, 2009

| Age groups | Newly notified TB patients | Individual examination | Mass screening | | | | Contact examination | | Clinics/Hospitals | | | Others | Unknown |
|---|----------------------------|------------------------|----------------|-----------|-----------|------------|---------------------|--------|------------------------------|--------------------------------|---------------------------------|--------|---------|
| | | | Schools | Residents | Employees | Facilities | Family | Others | Outpatients with TB symptoms | Inpatients with other diseases | Outpatients with other diseases | | |
| | <i>n</i> | % | % | % | % | % | % | % | % | % | % | % | % |
| All forms of TB | | | | | | | | | | | | | |
| Total | 24,170 | 2.5 | 0.8 | 2.3 | 7.2 | 0.6 | 1.3 | 1.3 | 61.5 | 11.4 | 9.2 | 1.2 | 0.6 |
| 0–14 | 73 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 32.9 | 11.0 | 45.2 | 5.5 | 0.0 | 4.1 | 0.0 |
| 15–19 | 204 | 4.4 | 23.0 | 0.0 | 2.0 | 0.5 | 6.9 | 7.8 | 52.0 | 0.5 | 0.5 | 1.0 | 1.5 |
| 20–24 | 697 | 3.0 | 14.6 | 0.1 | 19.9 | 0.1 | 2.4 | 2.6 | 52.5 | 1.1 | 1.1 | 1.4 | 0.9 |
| 25–29 | 1,002 | 2.6 | 2.8 | 0.1 | 23.7 | 0.3 | 2.5 | 3.2 | 58.6 | 1.3 | 1.6 | 2.1 | 1.3 |
| 30–34 | 1,052 | 3.9 | 1.0 | 1.0 | 22.7 | 0.8 | 2.7 | 3.4 | 57.2 | 2.4 | 2.3 | 1.4 | 1.2 |
| 35–39 | 1,048 | 4.2 | 0.3 | 1.1 | 22.5 | 0.5 | 1.8 | 3.2 | 58.9 | 2.3 | 2.7 | 1.1 | 1.3 |
| 40–44 | 957 | 4.0 | 0.2 | 2.1 | 18.4 | 0.8 | 1.7 | 2.2 | 62.9 | 1.6 | 3.6 | 1.6 | 1.0 |
| 45–49 | 890 | 2.9 | 0.0 | 1.9 | 20.1 | 0.8 | 1.9 | 2.8 | 58.5 | 4.3 | 5.2 | 1.1 | 0.4 |
| 50–54 | 1,034 | 3.5 | 0.0 | 2.2 | 17.4 | 1.2 | 1.9 | 1.6 | 59.7 | 5.3 | 5.4 | 1.2 | 0.6 |
| 55–59 | 1,442 | 3.1 | 0.0 | 2.7 | 11.1 | 0.6 | 2.0 | 2.1 | 61.1 | 6.9 | 8.0 | 2.1 | 0.3 |
| 60–64 | 1,760 | 4.0 | 0.0 | 2.6 | 7.3 | 0.6 | 1.1 | 1.2 | 62.7 | 8.2 | 9.3 | 2.2 | 0.8 |
| 65–69 | 1,890 | 3.6 | 0.0 | 4.2 | 2.5 | 0.6 | 1.5 | 0.7 | 60.6 | 11.2 | 13.7 | 1.1 | 0.3 |
| 70–74 | 2,160 | 1.9 | 0.0 | 4.1 | 0.7 | 0.6 | 0.7 | 0.4 | 62.6 | 13.4 | 13.8 | 1.3 | 0.5 |
| 75–79 | 2,988 | 1.5 | 0.0 | 3.0 | 0.1 | 0.3 | 0.5 | 0.3 | 61.9 | 16.1 | 14.8 | 0.9 | 0.6 |
| 80–84 | 3,380 | 1.5 | 0.1 | 2.1 | 0.1 | 0.4 | 0.6 | 0.2 | 64.3 | 17.5 | 12.0 | 0.8 | 0.4 |
| 85–89 | 2,320 | 1.3 | 0.0 | 1.8 | 0.0 | 0.6 | 0.6 | 0.2 | 64.5 | 20.2 | 9.5 | 0.9 | 0.4 |
| 90+ | 1,273 | 1.6 | 0.0 | 0.9 | 0.1 | 0.9 | 0.1 | 0.9 | 63.6 | 22.4 | 8.2 | 0.7 | 0.8 |
| (Re-count) Sputum smear positive pulmonary TB | | | | | | | | | | | | | |
| Total | 9,675 | 2.5 | 0.3 | 1.5 | 3.9 | 0.5 | 0.5 | 0.6 | 68.0 | 12.6 | 8.2 | 1.1 | 0.4 |
| 0–14 | 4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 15–19 | 48 | 0.0 | 10.4 | 0.0 | 0.0 | 0.0 | 4.2 | 2.1 | 83.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 20–24 | 204 | 3.9 | 6.4 | 0.0 | 12.3 | 0.0 | 1.0 | 1.0 | 71.1 | 2.0 | 1.0 | 0.5 | 1.0 |
| 25–29 | 322 | 1.2 | 0.6 | 0.0 | 13.4 | 0.3 | 1.9 | 0.9 | 74.5 | 1.9 | 1.9 | 1.9 | 1.6 |
| 30–34 | 331 | 4.8 | 0.9 | 1.2 | 15.4 | 0.0 | 0.9 | 1.2 | 70.4 | 1.5 | 1.5 | 0.9 | 1.2 |
| 35–39 | 352 | 4.3 | 0.3 | 0.6 | 11.6 | 0.9 | 0.9 | 1.1 | 75.0 | 2.0 | 1.7 | 0.6 | 1.1 |
| 40–44 | 354 | 4.0 | 0.3 | 1.7 | 10.5 | 1.1 | 0.6 | 1.1 | 74.3 | 0.8 | 4.0 | 0.8 | 0.8 |
| 45–49 | 366 | 2.7 | 0.0 | 0.8 | 11.2 | 0.8 | 0.3 | 1.4 | 73.2 | 4.1 | 4.1 | 1.4 | 0.0 |
| 50–54 | 432 | 3.9 | 0.0 | 1.2 | 10.9 | 0.7 | 0.5 | 0.9 | 67.4 | 6.5 | 6.0 | 1.9 | 0.2 |
| 55–59 | 591 | 3.4 | 0.0 | 1.9 | 7.6 | 0.2 | 0.8 | 1.2 | 71.1 | 6.9 | 5.1 | 1.9 | 0.0 |
| 60–64 | 698 | 4.6 | 0.0 | 1.0 | 3.9 | 0.3 | 0.4 | 0.3 | 71.6 | 8.6 | 6.7 | 2.1 | 0.4 |
| 65–69 | 762 | 3.5 | 0.0 | 2.0 | 2.2 | 0.4 | 0.9 | 0.4 | 66.0 | 11.7 | 11.8 | 0.8 | 0.3 |
| 70–74 | 772 | 1.4 | 0.0 | 2.8 | 0.1 | 0.5 | 0.5 | 0.3 | 64.9 | 14.4 | 13.6 | 1.3 | 0.1 |
| 75–79 | 1,241 | 1.1 | 0.0 | 2.4 | 0.0 | 0.0 | 0.3 | 0.2 | 63.6 | 18.5 | 12.7 | 0.9 | 0.2 |
| 80–84 | 1,479 | 1.9 | 0.1 | 1.8 | 0.1 | 0.4 | 0.2 | 0.2 | 65.6 | 18.1 | 10.8 | 0.8 | 0.1 |
| 85–89 | 1,091 | 1.5 | 0.0 | 0.9 | 0.0 | 0.7 | 0.4 | 0.1 | 68.2 | 19.7 | 7.9 | 0.5 | 0.2 |
| 90+ | 628 | 2.1 | 0.0 | 0.8 | 0.2 | 1.0 | 0.0 | 1.1 | 64.2 | 21.7 | 7.5 | 0.8 | 0.8 |

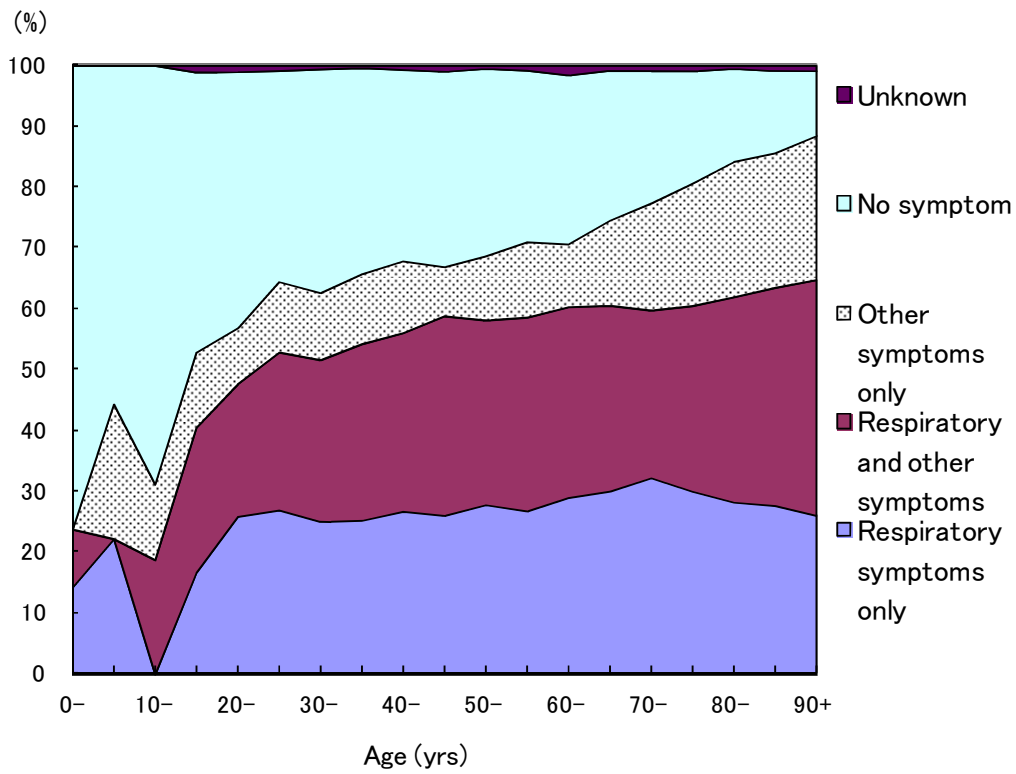


Fig. 1 Proportion of symptoms among newly notified pulmonary TB patients by 5 years age group, 2009

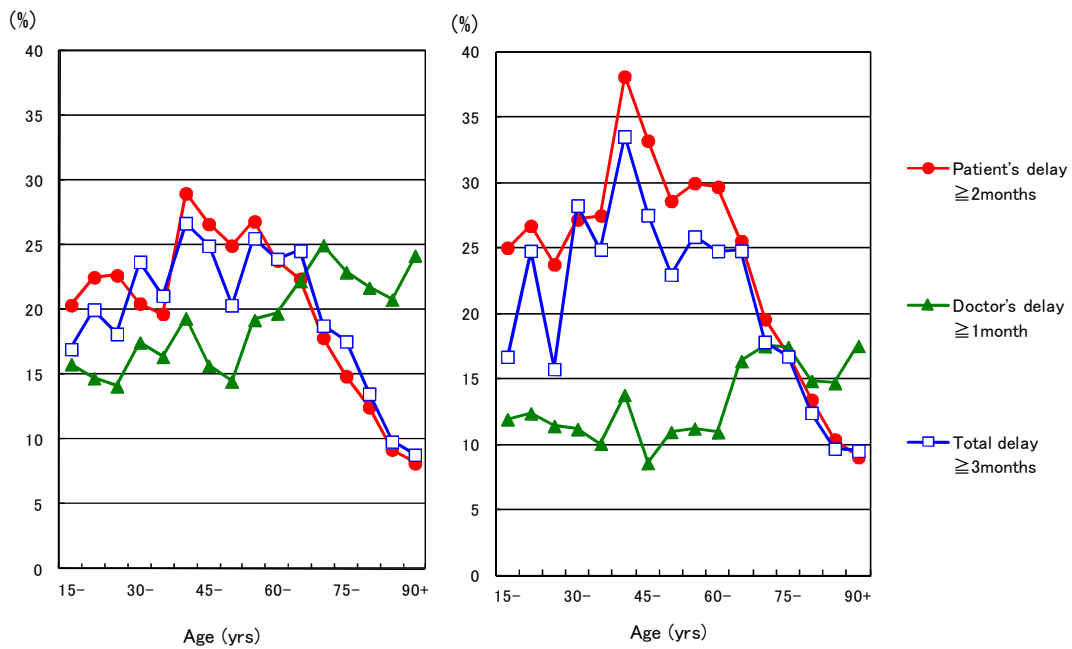


Fig.2 Proportion of patient's delay, doctor's delay and total delay among symptomatic pulmonary TB patients by 5 years age group, 2009

Table 3 Number of newly notified TB patients by occupation, sex and age group, 2009

| Sex/Age group | Total | Service workers | Nurses/ Public health nurses | Medical doctors | Other medical workers | Teachers/ Nursery nurses | Pupils/ Students | Other regular workers | Other temporary/ daily workers | Other self-employed | House-keepers | Infants/ Unemployed/Others | Unknown |
|---------------|--------|-----------------|---------------------------------|-----------------|-----------------------|-----------------------------|---------------------|-----------------------|-----------------------------------|---------------------|---------------|-------------------------------|---------|
| Male | 15,003 | 370 | 20 | 62 | 56 | 41 | 274 | 3,081 | 577 | 1,019 | 28 | 9,077 | 398 |
| 0-14 | 29 | - | - | - | - | - | 13 | - | - | - | - | 16 | - |
| 15-19 | 95 | 1 | - | - | - | - | 70 | 12 | 5 | - | - | 7 | - |
| 20-24 | 378 | 24 | 1 | - | 6 | 3 | 135 | 140 | 26 | 2 | - | 36 | 5 |
| 25-29 | 519 | 46 | 5 | 5 | 7 | 2 | 38 | 296 | 38 | 14 | 1 | 52 | 15 |
| 30-39 | 1,156 | 89 | 9 | 15 | 18 | 8 | 18 | 644 | 76 | 72 | 1 | 172 | 34 |
| 40-49 | 1,172 | 55 | 1 | 11 | 9 | 9 | - | 610 | 76 | 117 | - | 246 | 38 |
| 50-59 | 1,746 | 68 | 4 | 5 | 6 | 9 | - | 729 | 140 | 174 | 1 | 534 | 76 |
| 60-69 | 2,656 | 64 | - | 9 | 6 | 6 | - | 529 | 150 | 304 | 5 | 1,472 | 111 |
| 70-79 | 3,324 | 18 | - | 9 | 3 | 1 | - | 98 | 59 | 218 | 10 | 2,841 | 67 |
| 80+ | 3,928 | 5 | - | 8 | 1 | 3 | - | 23 | 7 | 118 | 10 | 3,701 | 52 |
| Female | 9,167 | 274 | 333 | 16 | 130 | 51 | 260 | 880 | 339 | 178 | 758 | 5,736 | 212 |
| 0-14 | 44 | - | - | - | - | - | 22 | - | - | - | - | 22 | - |
| 15-19 | 109 | 3 | - | - | - | - | 81 | 5 | 8 | - | 2 | 9 | 1 |
| 20-24 | 319 | 28 | 19 | - | 11 | 7 | 102 | 71 | 27 | 1 | 11 | 36 | 6 |
| 25-29 | 483 | 51 | 62 | 5 | 29 | 4 | 38 | 146 | 36 | 9 | 41 | 53 | 9 |
| 30-39 | 944 | 75 | 116 | 4 | 29 | 11 | 16 | 240 | 81 | 14 | 155 | 162 | 41 |
| 40-49 | 675 | 47 | 79 | 6 | 25 | 11 | 1 | 173 | 64 | 26 | 99 | 129 | 15 |
| 50-59 | 730 | 39 | 46 | 1 | 22 | 15 | - | 148 | 63 | 30 | 118 | 224 | 24 |
| 60-69 | 994 | 23 | 8 | - | 11 | 3 | - | 79 | 50 | 48 | 166 | 571 | 35 |
| 70-79 | 1,824 | 5 | 3 | - | 2 | - | - | 12 | 9 | 36 | 112 | 1,603 | 42 |
| 80+ | 3,045 | 3 | - | - | 1 | - | - | 6 | 1 | 14 | 54 | 2,927 | 39 |

Table 4 Proportion of mode of detection among newly notified pulmonary TB patients aged 20-59 years by occupation, 2009

| | Pulmonary TB <i>n</i> | Individual examination % | Mass screening | | | Contact examination | | Clinics/Hospitals | | | Others/ Unknown % |
|------------------------------------|--------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------|-------------|---|---|--|-------------------------|
| | | | Resi- dents % | Employ- ees % | Schools/ Facilities % | Family % | Others % | Outpatients with TB symptoms % | Inpatients with other diseases % | Outpatients with other diseases % | |
| Total | 6,767 | 3.7 | 1.7 | 22.3 | 2.9 | 2.4 | 3.0 | 54.6 | 3.1 | 3.7 | 2.5 |
| Service workers | 452 | 2.9 | 0.7 | 21.7 | 0.0 | 1.3 | 3.1 | 64.4 | 1.8 | 3.3 | 0.9 |
| Medical workers | 480 | 3.1 | 0.6 | 40.6 | 0.8 | 1.5 | 10.2 | 37.7 | 1.3 | 1.5 | 2.7 |
| Teachers/ Nursery nurses | 63 | 7.9 | 0.0 | 54.0 | 0.0 | 1.6 | 0.0 | 33.3 | 0.0 | 0.0 | 3.2 |
| Students | 303 | 4.0 | 0.0 | 2.3 | 44.6 | 2.0 | 3.3 | 37.0 | 1.0 | 1.3 | 4.6 |
| Other regular workers | 2,678 | 2.8 | 0.4 | 37.8 | 0.3 | 1.9 | 2.5 | 47.9 | 1.5 | 2.8 | 1.9 |
| Other temporary / daily workers | 524 | 5.0 | 1.3 | 15.5 | 0.2 | 3.2 | 5.2 | 65.3 | 1.1 | 1.0 | 2.3 |
| Other self-employed | 377 | 3.4 | 3.4 | 7.4 | 0.3 | 2.7 | 1.9 | 70.6 | 3.2 | 6.1 | 1.1 |
| Housekeepers | 321 | 5.6 | 4.4 | 2.2 | 0.3 | 5.9 | 2.2 | 68.5 | 4.7 | 5.0 | 1.2 |
| Jobless/ Others | 1,364 | 3.2 | 4.3 | 2.5 | 3.2 | 3.2 | 1.4 | 63.4 | 8.4 | 6.9 | 3.6 |
| Unknown | 205 | 15.1 | 2.4 | 6.3 | 1.5 | 2.0 | 0.5 | 56.1 | 3.9 | 4.4 | 7.8 |