Letter to the editor

Tuberculosis - Republic of Korea, 2021

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Running title: Korean burden of TB, 2021
Tuberculosis (TB) in the Republic of Korea remains a serious public health problem. Based on the national TB survey in Korea, observed prevalence of radiologically active pulmonary TB in 1965 was 5,065 per 100,000 population aged over 5 years, which decreased to 1,032 in 1995. This decrement could be ascribed to its enhanced national TB control program and rapid economic growth between the seventies and eighties. However, Korea still has a disproportionately high burden of TB compared to the high-income countries. It is essential to understand trends of changes of TB burden to aid policy makers to plan, implement, and evaluate the national TB control program. The Korea Disease Control and Prevention Agency (KDCA) publishes the ‘Annual Report on the Notified Tuberculosis in Korea’ to analyze information of TB patient who was diagnosed or treated at the public health centers and private medical facilities. Herein, we described the Korean burden of TB in 2021 based on the most recently updated data of the notified TB patients.

In Korea, TB has been considered a legal communicable disease since 1957 in accordance with the Communicable Disease Control and Prevention Act, which made its reporting mandatory. In 1968, reporting and registration became mandatory based on the Tuberculosis Prevention Act. According to these acts, doctors should report to the public health center when they diagnose bacteriologically confirmed or clinically diagnosed TB cases. In mid-2000, the Korea Institute of Tuberculosis and KDCA launched the Korean TB surveillance System, which collects data of all the notified cases, such as personal information, examination results, treatments, and treatment outcomes. The notified cases in which the diagnosis was changed to other disease, such as non-tuberculous mycobacteria, were excluded.

A total of 22,904 TB cases were notified during 2021, which was 2,446 less than during 2020 (25,350) with a decrease of 9.6% between 2020 and 2021. The overall notification rate of TB cases (per 100,000 population) reduced from 49.4 in 2020 to 44.6 in 2021. The number of new TB cases in 2021 decreased from 19,933 in 2020 to 18,335 in 2021 with a reduction of 8.0% (Table). The overall notification rate of new TB cases (per 100,000) decreased from 38.8 in 2020 to 35.7 in 2021.
Of the all the new TB cases, 10,639 (58.0%) were male and 7,696 (42.0%) were female. The notification rate of new cases in men was 41.6 per 100,000, which was 1.4 times higher than in women (29.9 per 100,000). In all age groups, the number of new TB cases stratified by age groups in 2021 decreased compared to the previous year. Among those aged under 65 years, the notification rate of new cases decreased from 23.5 per 100,000 in 2020 to 20.9 per 100,000 in 2021, with a reduction of 12.0%. The notification rate of new cases among those aged 65 years and over decreased from 120.3 per 100,000 in 2020 to 109.7 per 100,000 in 2021; however, it was 5.2 times higher than that of those under 65 years.

Among all the notified new TB cases, 5.6% occurred among the foreigners in 2021. The total number of new TB cases among the foreigners decreased from 1,076 in 2020 to 1,029 in 2021. The notification rate of new TB cases among the medical aid beneficiaries was 110.5 per 100,000, which was 3.5 times higher, compared to the health insurance beneficiaries (32.0 per 100,000). Despite decrement of number of multidrug-resistant TB cases between 2020 and 2021, its percentage among all the notified patients was slightly increased from 1.57% (399/25,350) in 2020 to 1.62% (371/22,904) in 2021.

In Korea, the notification number of new TB cases decreased by more than half over the decade from 39,557 in 2011 to 18,335 in 2021 with average annual reduction of 7.4%. One of the main reasons for its sharp decline during the last decade could be ascribed to successful implementation of Korea's TB control policy. The government announced the 2030 TB Elimination Plan in 2006 and developed the first National Strategic Plan for TB Control in 2013 with increased mobilization of resources. During this period, a pilot project of public-private partnership, focusing on comprehensive TB patient management, was implemented in 2007 and expanded nationwide in 2011. Korea TB Epidemic Investigation Service was organized in 2013 to support local public health officers conducting contact investigation at congregate settings. However, according to the Global TB Report, Korea still has the highest incidence (49 per 100,000 population) and the third-highest TB mortality rate (3.8 per
100,000 population) among the 38 member countries of the Organization for Economic Co-operation and Development in 2020.

High TB incidence and mortality among elderly populations are the major huddles for controlling TB endemics in Korea. Those who experienced periods of poverty and high TB prevalence after the Korean War in 1950 are reservoirs of latent TB infection and became part of elderly populations in an aged society of Korea in 2020s. The proportion of the elderly aged 65 years and over among all new TB cases has steadily increased every year, accounting for more than half (51.3%) for the first time in 2021. As TB burdens among the elderly continues to increase, it is necessary to establish a diagnosis and treatment strategy suitable for elderly TB patients.

Currently, the Korean government is preparing the third National Strategic Plan for TB Control. In preparing this policy, it is necessary to strengthen active case finding of TB patients and provision of appropriate people-centered TB care services, and encompass the most vulnerable populations, such as foreigners, and medical aid beneficiaries. The World Health Organization predicted that the negative impact of the COVID-19 outbreak on TB prevention and control will become worse in 2022\(^7\). Although Korea was able to mitigate its deleterious effect during the early phase\(^8\)-\(^10\), the government should also strengthen policies through interdisciplinary cooperation and public-private partnership to maintain essential medical services for TB prevention and care during the pandemic.
Authors’ Contributions

Conceptualization: Min J.
Writing - original draft preparation: Min J.
Writing - review and editing: Kim HW, Kim JS.
Approval of final manuscript: all authors.

Conflicts of Interest

All authors declared no conflicts of interest.

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**Table.** New tuberculosis notification cases and rates between 2020 and 2021 in the Republic of Korea

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<thead>
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<th>2020</th>
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<th>2021</th>
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<tbody>
<tr>
<td></td>
<td>Number (%)</td>
<td>Rate*</td>
<td>Number (%)</td>
<td>Rate*</td>
</tr>
<tr>
<td>All the new TB cases</td>
<td>19,933 (100.0%)</td>
<td>38.8</td>
<td>18,335 (100.0%)</td>
<td>35.7</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
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<tr>
<td>Male</td>
<td>11,608 (58.2%)</td>
<td>45.3</td>
<td>10,639 (58.0%)</td>
<td>41.6</td>
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<tr>
<td>Female</td>
<td>8,325 (41.8%)</td>
<td>32.3</td>
<td>7,696 (42.0%)</td>
<td>29.9</td>
</tr>
<tr>
<td>Age</td>
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<tr>
<td>&lt; 65 years</td>
<td>10,151 (50.9%)</td>
<td>23.5</td>
<td>8,929 (48.7%)</td>
<td>20.9</td>
</tr>
<tr>
<td>≤ 65 years</td>
<td>9,782 (49.1%)</td>
<td>120.3</td>
<td>9,406 (51.3%)</td>
<td>109.7</td>
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<tr>
<td>Foreigner</td>
<td>1,076 (5.4%)</td>
<td>93.9†</td>
<td>1,029 (5.6%)</td>
<td>94.6†</td>
</tr>
<tr>
<td>Medical aid beneficiaries</td>
<td>n/a</td>
<td>n/a</td>
<td>1,686 (9.2%)</td>
<td>110.5‡</td>
</tr>
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* Tuberculosis notification rates are obtained by dividing the total number of notified tuberculosis cases by the mid-year population of the year made by Statistics Korea. Their unit is per 100,000 population.

† The rate was calculated using the number of the registered foreigners for each calendar year based on the Statistics Korea

‡ The rate was calculated using the number of the beneficiaries of the National Health Insurance in 2020.
References


