LTBI Programme in Korea

- Progress, Challenges and Lessons Learned -

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PROBLEMS

- Korea faces a considerable TB burden
- About 31,000 people falling ill with TB
  2,200 people dying of the disease each year
SOLUTIONS

Recommendations from International consultation in 2011 (WHO)

1. Government commitment
2. Information system strengthening
3. Public-public and public-private links strengthening
4. Diagnosis and laboratory network strengthening
5. Treatment, care and patient support
6. Support for MDR-TB
7. Expansion of management programme for vulnerable and high risk groups (contacts, immigrants, prisoners, etc...)
8. Research
Korea TB Epidemic Investigation Service; KTEIS (2013)

- 27 field investigators of KCDC arranged across country
- to support and implement contact investigation performed since 2013
Investigation Response Vehicle

• **Rapid contact investigation** by operation of investigation response vehicles
Contact Investigation in Household contacts

Household contacts of AFB(+) index cases (2016)

- No. of total contacts : 15,449
- **No. of new TB cases detected** : 109 (0.7%)
- No. of contacts **LTBI tested** : 8,068
- **No. of LTBI diagnosed** : 2,497 (30.9%)
Contact Investigation in Congregate Settings

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Investigation</th>
<th>No. of Contacts examined</th>
<th>No. of Cases detected</th>
<th>No. of Latent TB infection(Rate,%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2,639</td>
<td>130,838</td>
<td>272</td>
<td>13,252 (14.5%)</td>
</tr>
<tr>
<td>2016</td>
<td>3,502</td>
<td>146,911</td>
<td>202</td>
<td>12,707 (18.5%)</td>
</tr>
</tbody>
</table>
Contact Investigation in Child-care centers

• Index TB cases in Child-care centers

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Total institutions</th>
<th>No. of institutions TB detected</th>
<th>No. of TB cases</th>
<th>Proportion of staff cases among TB cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>50,071</td>
<td>46 (0.1%)</td>
<td>46</td>
<td>45 (97.8%)</td>
</tr>
</tbody>
</table>

• Results of Contact Investigation

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of CI</th>
<th>No. of Contacts investigated</th>
<th>No. of Cases found</th>
<th>No. of Latent TB infection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>46</td>
<td>3,179</td>
<td>0</td>
<td>296 (15.1%)</td>
</tr>
</tbody>
</table>
### Contact Investigation in Schools (1)  
( Elementary to high schools )

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of CI</th>
<th>No. of Contacts investigated</th>
<th>No. of cases detected</th>
<th>LTBI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>323</td>
<td>53,827</td>
<td>66</td>
<td>3,531 (7.4%)</td>
</tr>
<tr>
<td>2016</td>
<td>305</td>
<td>55,765</td>
<td>44</td>
<td>2,222 (8.2%)</td>
</tr>
</tbody>
</table>
## Contact Investigation in Schools (2)
(Secondary to high schools)

### Number of schools with TB cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Elementary School</th>
<th>Middle School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of total school</td>
<td>No. of School detected TB</td>
<td>%</td>
</tr>
<tr>
<td>2016</td>
<td>6,001</td>
<td>20</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Contact Investigation in Schools (2)
### LTBI treatment completion rate by treatment regimen (2013-2014)

<table>
<thead>
<tr>
<th>Regimens</th>
<th>Number of initiation of treatment among LTBI cases</th>
<th>Number of completed LTBI treatment</th>
<th>Treatment completion rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>10,822</td>
<td>8,985</td>
<td><strong>83.0</strong></td>
</tr>
<tr>
<td>3HR</td>
<td>3,157</td>
<td>2,791</td>
<td><strong>88.4</strong></td>
</tr>
<tr>
<td>4R</td>
<td>930</td>
<td>820</td>
<td><strong>88.2</strong></td>
</tr>
<tr>
<td>9H</td>
<td>6,735</td>
<td>5,374</td>
<td><strong>79.8</strong></td>
</tr>
</tbody>
</table>
**IMPACTS**(1)

New TB notification rate by type of TB (2011-2016)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Decrease rate during 2013 - 2016 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New TB notification</td>
<td>78.9</td>
<td>78.5</td>
<td>71.4</td>
<td>68.7</td>
<td>63.2</td>
<td>60.4</td>
<td>△5.4</td>
</tr>
<tr>
<td>Pulmonary TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>△5.3</td>
</tr>
<tr>
<td>Total</td>
<td>60.1</td>
<td>61.7</td>
<td>56.8</td>
<td>55.0</td>
<td>50.1</td>
<td>48.3</td>
<td>△7.9</td>
</tr>
<tr>
<td>Smear positive pulmonary TB</td>
<td>23.4</td>
<td>24.1</td>
<td>22.0</td>
<td>20.6</td>
<td>18.3</td>
<td>17.2</td>
<td>△6.1</td>
</tr>
<tr>
<td>Extra Pulmonary TB</td>
<td>18.9</td>
<td>16.8</td>
<td>14.6</td>
<td>13.7</td>
<td>13.0</td>
<td>12.1</td>
<td>△6.1</td>
</tr>
</tbody>
</table>
IMPACTS (2)

New TB notification rate by age group from 2011 to 2016

< Decrease tendency >
- prominent in 15-24 years old.
- Most significant in 15-19 years old
- Newly reported TB cases in 2016 was one third level of 2011
- 2,030(2011) -> 750(2016)
LTBI screening for high school students in outbreak setting

• In 2011, 44 TB patients, Ansan city among high school students
• LTBI screening performed for 34,000 students in March 2012
  LTBI Test : TST, IGRA test (when TST is positive)
• LTBI rate : 4.3% (1,454 / 34,058), Detected additional 3 TB patients
• Tx completion rate (with 3HR): 91.9% (1,337 completed Tx)

• Comparison of decrease tendency in 15-19 age group

<table>
<thead>
<tr>
<th>Year</th>
<th>'10 → '11</th>
<th>'11 → '12</th>
<th>'12 → '13</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>△ 2.0%</td>
<td>△19.7%</td>
<td>△ 21.4%</td>
</tr>
<tr>
<td>Ansan city</td>
<td>+ 91.9%</td>
<td>△49.3%</td>
<td>△ 61.1%</td>
</tr>
</tbody>
</table>
PROGRESS(1) in year 2015 to 2017

1. Support treatment cost for LTBI

- Free for treatment of LTBI (Since July 2015)
- Strengthen application & management
  - Register the results of the LTBI test and treatment records
  - Development of registration system (1st half 2016)
PROGRESS(1) in year 2015 to 2017

2. Legal framework for LTBI screening in congregate settings has adopted in 2016

• Health care workers
• Workers in maternity units
• Teachers in educational institutions
  (including child-care centers, schools)

(Tuberculosis Prevention Act, Article 11, August 2016)
PROGRESS(2) in year 2016 to 2017

3. LTBI Screening Program (‘TB FREE KOREA’)

- About 1 million persons are being screened for LTBI in 2017

- Health care workers 120,000
- Workers at child-care centers 140,000
- Workers at welfare facilities 118,000
- Military conscripts 340,000
- High school students (1st grade) 320,000
- Correctional institutes 39,000
PROGRESS of LTBI Programme

Contact investigation

Household Contacts

Contacts in congregate settings
- Child-care centers / Schools
- Military units
- Hospitals
- Correctional institutions

2004 - 2012

2013 (PROBLEMS)

Screening for high risk groups

• Workers in congregate settings
  - Daycare centers, kindergartens, schools
  - Hospitals and clinics
  - Social welfare facilities

• High risk groups
  - Correctional institutions
  - Military conscripts
  - High school freshmen

2017 (SOLUTIONS)
CHALLENGES

1. Need for better diagnostics with more accuracy

2. Need for improvements in LTBI treatment regimens
   • Shorter duration of treatment with less adverse events

3. Difficulties in communication with public and health care professionals on LTBI
   • Difficult to understand what is LTBI, need for treatment etc
     (‘Latent’ is epidemiologic term)
LESSONS LEARNED

1. **Political commitment** is critical

2. **Set a clear target** for TB reduction
   - Clear targets: 100 per 100 000 persons in 2011 to 50 per 100 000 persons

3. **Contact investigation: highest priorities**
   - **Detect/Find** where the problems are
   - **TB Contact Investigation Team** is powerful
   - **IMPACT**: Decrease of incidence rate by **20% from 2011 to 2015**
     (100/100 thousands **in 2011** -> **80/100 thousands** in **2015**)
LESSONS LEARNED

4. Support for cost of examination & treatment facilitates the implementation of LTBI programme

5. Importance of communication with public and doctors

6. Need research and development
   - better diagnosis and treatment, operational issues
Thank you !