Sampling and screening methods of China TB Prevalence Surveys: 2000 and 2010

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Phnom Penh, 2012.2.8
Outline

• Sampling design
• Screening tools
• Screening procedure
• Data entry
• Adjacent studies
Sample size calculation

• In 2000: national population 1.2 billion
  survey participants 365,097
  SS+ prevalence 122/100,000

• In 2010: national population 1.3 billion
  SS+ prevalence (>=15, 2000) 160/100000
  SS+ prevalence decline rate per year
  (1990 to 2000) 3.2%
  Estimate SS+ prevalence 116/100,000
  Sample size 264,000
Survey clusters

• In 2000 257 clusters
  1500 people per cluster
*: 1500 is the average residents number of a village.

• In 2010 176 clusters
  1500 people per cluster
Sampling method

- Multi-stage stratified, clustered sampling
- Proportional to population size (PPS)

Country ➔ Province(31) ➔ Prefecture(176) ➔ County(176) ➔ Township(176) ➔ Village(176)
Sampling method

- In 2010

176 clusters: 77 urban clusters
99 rural clusters

Counties to be chosen were stratified into 2 strata by urban/rural based on urban/rural population number.

Participants: urban 47.1%
             rural 52.9%
## Screening tools

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>First screening (Type of radiography)</td>
<td>full size Chest X-ray</td>
<td>Fluoroscopy for &gt;=15yrs; Tuberculin test for &lt;15yrs.</td>
</tr>
<tr>
<td></td>
<td>• Symptom (cough and expectoration, hemoptysis) for 2 weeks</td>
<td>• Symptom for 3 weeks</td>
</tr>
<tr>
<td></td>
<td>• Abnormal finding by Chest X-ray</td>
<td>• Abnormal finding by fluoroscopy</td>
</tr>
<tr>
<td></td>
<td>• Known TB cases</td>
<td>• Known TB cases</td>
</tr>
<tr>
<td>Second screening criteria</td>
<td>Smear and culture</td>
<td>full size Chest X-ray, smear and culture</td>
</tr>
<tr>
<td>No. of smear examination</td>
<td>3 Direct smear</td>
<td>3 Direct smear</td>
</tr>
<tr>
<td>No. of culture examination</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Culture method</td>
<td>Acid LJ</td>
<td>Acid LJ</td>
</tr>
</tbody>
</table>
Screening procedure

• In 2000
Screening procedure

• In 2010

15 years or older individuals resident at investigation point

Normal chest radiograph and no tuberculosis symptoms
People with abnormal chest radiograph results
People with tuberculosis symptoms
Known tuberculosis patients
Pregnant woman or people with limited mobility

Sputum smear and culture

Smear negative and culture negative
Culture positive
Smear positive and culture negative

Non tuberculous mycobacteria
M. tuberculosis complex

Not Lab confirmed Tuberculosis
Lab confirmed Tuberculosis

Lab confirmed Tuberculosis

M.tuberclosis complex

Culture positive

Non tuberculous mycobacteria

Smear negative and culture negative

Tuberculosis

Not Lab confirmed Tuberculosis

Lab confirmed Tuberculosis
Quality Assurance of field operations

• Identify the eligible people who should attend the survey
  ➢ Door by door visit to verify the eligible people firstly
• TB awareness investigation and TB symptoms screening
  ➢ Re-check the relevant materials everyday, and input the information/data into the computer timely
• Chest X-ray
  ➢ An unqualified chest X-ray should be repeated by the second one
Quality Assurance of field operations

- **Bacteriological examination**
  - A trained person was responsible for teaching the people to produce the qualified sputum specimens
  - Smear should be performed within **24 hours** after the sputum was collected
  - Culture should be performed within **7 days** after the sputum was collected.
  - **NRL** was responsible for NTM and DST

- **Diagnosis**
  - All chest X-ray films should be read by the field joint diagnostic team and the final diagnosis was made by the national experts group

- Participating mobilization to make sure the attendance rate of the survey should reached **95%** at least.
Data entry software

- Input restriction
- Click to select answer
- Double entry check
Epidemiological Dynamic Data Collection platform (EDDC)

- Dynamic Data Collection means the complete process, which include input or get data through computer or information system, and deliver data to special information system for data management and statistical analysis.

- Dynamic data collection system is flexible and user customizable, which is based on computer and network.
Epidemiological Dynamic Data Collection platform (EDDC)

Real-time online input

Automatic procedure
- Rapidly customize questionnaire
- Dynamic data collection
- Online data input

Data exchange in computer

Dynamic analysis, visualization and share
Epidemiological Dynamic Data Collection platform (EDDC)

Chinese Version, 2011

- Supports customized localized language versions

- http://eddc.chinacdc.cn

English Version, 2011
Adjacent studies

In 2000:
• TB infection rate
• TB specific mortality

In 2000 and 2010:
• TB control measures evaluation
• Social- economical features of TB patients
• Primary strain identification and DST
• Awareness rate of TB among the public
THANKS!