Standards and Benchmarks for TB Surveillance and Vital Registration Systems: An Update

Emily Bloss

WHO Global Task Force on TB Impact Measurement
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Goals of TB surveillance

- Monitor disease for action
  - Quantify the burden and trends of TB
  - Focus interventions against disease
  - Monitor effectiveness of control programs
Garbage In, Garbage Out

Your analysis is only as good as your data
Why strengthen surveillance?

- Estimates of disease burden are currently highly reliant on expert opinion
  - Three million people with TB are “missed”
    - TB cases are not diagnosed
    - TB cases are diagnosed but not reported

- Vital registration data not frequently used by National TB Programs

- No systematic method for assessing data quality and coverage
Task Force strategic areas of work

- **Strengthening routine surveillance**
  of cases and deaths in all countries, with ultimate goal of directly measuring TB burden from notification and vital registration data.

- **Surveys of the prevalence of TB disease**
  in ≥ 21 global focus countries

- **Methods to estimate disease burden**
  used to translate surveillance and survey data into estimates of disease burden
The Checklist

- TB surveillance checklist was developed
- Defines the standards and benchmarks needed to be met to use notification and vital registration data to directly measure TB incidence and mortality
The Checklist: Purpose

- How well can the surveillance system measure TB cases and deaths?
- Inform TB programme staff, policy-makers, and partners about aspects of surveillance systems that need to be strengthened to improve TB control.
Surveillance Checklist

Identify gaps in surveillance

Monitoring and Evaluation Investment Plan

Strengthening Impact Measurement
<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimated Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital registration – maintaining and scaling up the SRS</td>
<td>Costs between USD $0.5-$1 per capita in the areas covered</td>
</tr>
<tr>
<td>Inventory study to measure the level of under-reporting</td>
<td>US$ 200,000</td>
</tr>
<tr>
<td>Capacity building for data management and statistical analysis – through attending courses and extra staffing at the central level</td>
<td>US$ 115,901</td>
</tr>
<tr>
<td>Health facility data quality assessment</td>
<td>US$ 100,000</td>
</tr>
<tr>
<td>Assessment of the SITT Phase 2 in 2014</td>
<td>US$ 38,575</td>
</tr>
<tr>
<td>Implementing mandatory notification policy</td>
<td>US$ 99,518</td>
</tr>
<tr>
<td>Analysis of available mortality data</td>
<td>US$ 10,000</td>
</tr>
<tr>
<td>Drug resistance survey or sentinel surveillance</td>
<td>US$ 278,806</td>
</tr>
<tr>
<td>Nationally representative survey of HIV prevalence among TB patients</td>
<td>US$ 56,548</td>
</tr>
<tr>
<td>Corrective actions required to compile all the reports from Province 2</td>
<td>US$ 16,000</td>
</tr>
</tbody>
</table>
Which countries have undertaken the Checklist?

24

15 / 22 high burden TB countries
Standards and benchmarks (S&Bs): Definitions

- **Standards** are general statements about the characteristics that define a high-performance TB surveillance system.

- **Benchmarks** define in quantitative terms wherever possible the level of performance that is considered good enough to meet the standard.
What is the Checklist?

- 13 standards and associated benchmarks:
  - Data quality
  - System coverage
  - TB mortality
  - Drug-resistant TB
  - TB/HIV
  - TB in children
## Data Quality

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>✔️</th>
<th>❑</th>
<th>✗</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Case definitions are consistent with WHO guidelines</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. TB surveillance system is designed to capture a minimum set of variables for all reported TB cases</td>
<td>16</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>3. All scheduled periodic data submissions, e.g. electronic data files or quarterly paper reports, have been received and processed at the national level</td>
<td>11</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>4. Data in quarterly reports (or equivalent) are accurate, complete and internally consistent <em>(For paper-based systems only)</em></td>
<td>2</td>
<td>9</td>
<td>9</td>
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</table>

*(4NA)*
## Data Quality

<table>
<thead>
<tr>
<th>STANDARDS</th>
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<th>✗</th>
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<tbody>
<tr>
<td>5. Data in national database are accurate, complete, internally consistent and free of duplicates (<em>For electronic case-based or patient-based systems only</em>)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. TB surveillance data are externally consistent</th>
<th>17</th>
<th>1</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Number of reported TB cases is internally consistent (within country)</td>
<td>4</td>
<td>6</td>
<td>13</td>
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(18 NA)
## Coverage

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>1</th>
<th>5</th>
<th>12</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. All diagnosed cases of TB are reported</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9. Population has good access to health care</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STANDARDS</td>
<td>✔</td>
<td>⬜</td>
<td>✗</td>
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</tr>
<tr>
<td><strong>10.</strong> Vital registration system has high national coverage and quality</td>
<td>1</td>
<td>1</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>
# DR-TB, TB/HIV and children

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>11. Surveillance data provide a direct measure of drug resistant TB in new cases</th>
<th>✔</th>
<th>12 4 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Surveillance data provide a direct measure of the prevalence of HIV infection in TB cases</td>
<td></td>
<td>12 3 9</td>
</tr>
<tr>
<td>13.</td>
<td>Surveillance data for children reported with TB (defined as ages 0-14 years) are reliable and accurate or all diagnosed childhood TB cases are reported</td>
<td>1 2 21</td>
<td></td>
</tr>
</tbody>
</table>
Common findings

- Sub-optimal or unknown data quality at facility/district levels, difficult to assess within a limited timeframe:
  - Need to conduct national level data quality audits (e.g. SARA\(^1\) tool)
  - Need to transition to electronic reporting systems

- Limited use and analysis of TB surveillance data:
  - Guidance (TB surveillance data analysis handbook) is developed

\(^1\) Service Availability and Readiness Assessment
Common findings

- **Limited understanding of level of under-reporting of TB**
  - Inventory studies can be used to measure unreported cases

- **Poor measurement of TB mortality**
  - Need to strengthen vital registration systems and coding of causes of death
Practical outcomes: Uganda

- Hiring epidemiologist/data manager to assist data analysis and compiling the annual report
- Developed SOPs, data quality training materials, and data audit tools
- Conducted data quality assessment - SARA tool
- Strengthened the TB module in DHIS
Practical outcomes: Pakistan

- Updated national guidelines by 2014 to be in line with the new case definitions
- Support the scale-up in electronic systems in TB and PMDT treatment centers and in reference laboratories (2015)
- Introduce sample vital registration system with sentinel sites in each province (2016)
- A representative study of HIV prevalence among TB patients (2015)
Next steps?

- Continued use of the checklist, especially in high TB burden countries
  - Linked to TB program reviews and “epi stage” for preparing concept notes for the Global Fund

- Update the checklist based on lessons learned
  - Internal and external consistency
Acknowledgements

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