The WHO Policy Paper
"Measuring progress in global TB control: WHO policy and recommendations"

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WHO Global Task Force on TB Impact Measurement
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Overview

1. Why write a Policy Paper?

2. What is in the Policy Paper?
   - Structure, source material

3. Policy package

4. Policies and recommendations
   - Prevalence, mortality, incidence

5. Key messages and questions for Task Force discussion
1. Why write a Policy Paper?
Why write a Policy Paper?

1. Clear, comprehensive statement of WHO policy and recommendations on topic of strategic importance

2. One major reference document to which countries and technical/financial agencies can refer for comprehensive guidance and recommendations
   - Responds to demand
   - Facilitates dissemination/promotion
   - Brings together closely-related but separate material
     - E.g. LID paper, Task Force meeting reports

3. Set clear strategic direction for WHO efforts to support countries to measure progress in TB control to 2015 and beyond
2. What is in the Policy Paper?
## Structure of Policy Paper

<table>
<thead>
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<th>Major sections</th>
<th>Page</th>
<th>Source material</th>
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<td>3</td>
<td>WHO global TB control report</td>
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<td>3. WHO Task Force – mandate, membership</td>
<td>4</td>
<td>Concept note (CN)</td>
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<td>4. Evidence base for policy/recommendations</td>
<td>4-5</td>
<td>LID paper, TF meeting reports</td>
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<td>5. Policy Package</td>
<td>6</td>
<td>LID paper, TF meeting reports, CN</td>
</tr>
<tr>
<td>6. Policy/recommendations: TB incidence*</td>
<td>7-18</td>
<td>LID paper; CN; <em>workshop material; further development of ideas by WHO secretariat</em></td>
</tr>
<tr>
<td>9. Producing estimates from 1990 to 2015</td>
<td>30</td>
<td>Discussions of TF subgroup</td>
</tr>
<tr>
<td>10. Measuring the impact of TB control</td>
<td>31-35</td>
<td>LID paper; <em>general M and E literature</em></td>
</tr>
<tr>
<td>(TF membership; ARI/disease prevalence surveys; WHA resolution; extended country list, DP surveys)</td>
<td>37-40</td>
<td></td>
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<tr>
<td></td>
<td>41-49</td>
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</tbody>
</table>

*substructure: definition, measurement methods, policies/recommendations, guidance material, tech/financial support*
3. Policy Package
## Policy Package

| General | 1. Improve routine surveillance so notified TB cases record all incident TB cases, VR data record all TB deaths  
2. Strengthen capacity in M and E  
3. Periodic review and updating of methods used to produce WHO estimates |
| --- | --- |
| **TB incidence** | 4. Periodic analysis of reliability and coverage of TB notification data to estimate total number of incident TB cases and trends in TB incidence  
5. Standard framework + tool for systematic analysis of TB notification data  
6. Certification of TB notification data if analyses using framework/tool show country's notification data close proxy (direct measure) of TB incidence  
7. Cross-validate incidence estimates using TB mortality data from VR systems |
| **TB prevalence** | 8. Disease prevalence surveys in 21 global focus countries, designed + implemented according to WHO guidelines and TF recommendations  
9. Indirect estimates of TB prevalence using estimates of TB incidence and duration of TB disease for countries not implementing DP surveys |
| **TB mortality** | 10. Development/strengthening of VR systems so all TB deaths reliably recorded  
11. Sample VR as interim solution where national VR systems not available  
12. Indirect estimates based on estimates of TB incidence and case fatality rate for countries without reliable national or sample VR |
| **Impact evaluation** | 13. Periodic studies to evaluate impact of TB control on TB incidence, prevalence and mortality |

*See Table 1 p6*
4a. Policies and recommendations: prevalence
WHO policies/recommendations, TB prevalence

Recommendations

1. Disease prevalence surveys in 21 global focus countries between 2008 and 2015
   - Two surveys if no prior survey data

2. Surveys designed/implemented according to WHO guidelines and Task Force recommendations

3. Measure prevalence indirectly elsewhere, from incidence and the duration of disease

Policy

1. Promote implementation of disease prevalence surveys in 21 global focus countries, and assist these countries to access the necessary technical and financial support

See Policy Package p6, Box 6 p20, text p20-24
The 21 global focus countries

AFRO (12)
- Ghana
- Kenya
- Malawi
- Mali
- Mozambique
- Nigeria
- Rwanda
- Sierra Leone
- South Africa
- Uganda
- UR Tanzania
- Zambia

EMRO (1)
- Pakistan

SEARO (4)
- Bangladesh
- Indonesia
- Myanmar
- Thailand

WPRO (4)
- Cambodia
- China
- Philippines
- Viet Nam

See Table 5 p21
WHO policies/recommendations, TB prevalence

Specific recommendations: survey design/implementation

1. Strategy 3 (minimum) for screening (X-rays plus questionnaire)

2. Health-seeking behaviour - ask all diagnosed TB cases

3. HIV testing – offer to all diagnosed TB cases according to national policy and practice
   ■ Question after STAG-TB: should offering HIV testing to all TB suspects or all of the survey population also be recommended? (NB impt to distinguish purpose: research vs. offer of service)

4. Risk factors/socio-economic status – ask about these if won't compromise main survey

5. Drug resistance – DST recommended if appropriate treatment for DR cases available; use results for initial estimate of MDR prevalence if DR survey not yet done

See Box 6 p20, text p23-24; document with response to STAG comments
4b. Policies and recommendations: mortality
WHO policies/recommendations, TB mortality

Recommendations

1. Best way to measure TB deaths is via national vital registration (VR) system. VR systems should be strengthened so that TB deaths, as well as other causes of death, can be reliably measured.

2. If VR systems don’t exist/are weak, use sample vital registration (SVR) combined with verbal autopsy as interim solution.

3. If reliable national/sample VR systems don’t exist, estimate TB mortality indirectly from TB incidence and case fatality rate.

Policy

1. Promote strengthening of VR systems in all countries, as part of more general efforts to improve health information systems.

NB. Review of methods to measure TB mortality currently being finalised.

See Policy Package p6, Box 8 p28, text p28-29.
4c. Policies and recommendations: incidence
**Methods** to measure TB incidence + no. of countries for which they are currently used

<table>
<thead>
<tr>
<th>Absolute value in a particular year</th>
<th>Trends in TB incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Direct from trend in TB notifications (all forms of case)</td>
</tr>
<tr>
<td>1. Direct from TB notification data (mostly 1997)</td>
<td>20</td>
</tr>
<tr>
<td>2. ARI survey</td>
<td>-</td>
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<tr>
<td>3. DP survey</td>
<td>-</td>
</tr>
<tr>
<td>4. Mortality data from VR system</td>
<td>-</td>
</tr>
<tr>
<td>5. Assessment of completeness of notification data (mostly 1997)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

*Prospective cohort study not shown as not used for any countries
Countries (n=9) where no attempt to estimate trend not shown

See Table 2 p8, text p7-9
1. Ideally, incidence would be measured directly from TB notification data – if these data record all cases.

2. For almost all countries, TB incidence is estimated from notification data, but from:
   - Assessment of completeness of TB notification data in 1997 (= estimate of case detection rate).
   - Assumption trends in TB notifications (all forms of case) reflect trends in TB incidence for years before and after 1997:
     - i.e. proportion of cases being notified remains constant.

3. Need for updated approach to estimating incidence from analysis of notification data (for both absolute value and trend):
   - > 10 years since original estimates of TB incidence.
   - Assumption trends in TB notifications = trends in TB incidence increasingly problematic, given efforts to increase case-finding.
   - Now more data + experience to draw upon.

See text p11
WHO recommendations, TB incidence (all countries)

1. Strengthen surveillance systems until TB notifications direct measure (close proxy) of TB incidence

2. Periodic systematic assessment of TB incidence (absolute value, trends)
   - Standard framework and tool for systematically analysing and documenting reliability and coverage of TB notification data
   - Findings used to produce better estimates of TB incidence (absolute value and trend) and CDR
     - and to identify how TB surveillance needs to be strengthened and where TB control needs to be improved

3. Countries with TB notification data that meet specified standards/benchmarks should approach Task Force so data can be certified as providing direct measure of TB incidence

4. Consider cross-validating incidence estimates using mortality data

5. ARI surveys should not be used to measure TB incidence in most countries

See Policy Package p6, Box 6 p10, text p9-17
# Standard framework: a prototype

<table>
<thead>
<tr>
<th>Component</th>
<th>Step</th>
<th>Benchmark</th>
</tr>
</thead>
</table>
| A. Standardized analysis of available TB notification data | 1. Assess completeness of reporting  
2. Check for duplications + misclassifications  
3. Compare standard indicators across geographical areas (sub-national analysis) and over time (internal validity), and with commonly-observed/expected values in TB epidemiology (external validity) | 1. 100% units report  
2. No duplications or misclassifications  
3. Limited variability, consistency with expected values |
| B. Standardized analysis of whether trends in TB notifications are good proxy of trends in TB incidence | 4. Compare trends in TB notifications with trends in variables that can affect trends in TB notifications and trends in TB incidence | 4. Notification trends consistent with trends in variables known to influence incidence, not associated with other factors that can influence notifications |
| C. Standardized assessment of fraction of cases missing from TB notification data | Compile/assess evidence about whether there are:  
5. Cases diagnosed and treated by non-NTP providers but not notified  
6. Cases presenting but not diagnosed at h facilities  
7. Cases with access but not going to h facilities  
8. Cases without access to h facilities | 5. to 8. No or negligible number of cases in any of these categories |

*See Table 3 p13, text p11-12, 14-17*
Standard framework: a prototype

Data Quality
- Reports complete
- No dups, no misclassified
- Data internally consistent
- Data externally consistent

Changes over time
- Measure time-changes in notifications
- Assess changes in case-finding
- Assess changes in TB determinants

Trends in Incidence
- Trends in notifications reflect trends in incidence
- Capture re-capture onion model cross-validation

Incidence
- Notifications ≈ incidence

IMPROVE surveillance system
Entry point to evaluate IMPACT
UPDATED estimates
CERTIFIED

Reports complete
No dups, no misclassified
Data internally consistent
Data externally consistent
Standard framework for systematic assessment of TB incidence

A. Standardized analysis of available TB notification data, basic checks of reliability/completeness
   1) Completeness 2) Duplications/misclassifications 3) Sub-national analysis of key variables across space and time (internal/external consistency)

B. Standardized analysis of available TB notification data to assess whether notifications are a good proxy for trends in TB incidence
   4) Analysis of relationship between core/essential variables (that can affect TB incidence and/or TB notifications) and trends in TB notifications

C. Standardized assessment of number of cases missing from TB notification data
   5) Cases treated by providers not linked to NTP, not notified
   6) Cases presenting to health facilities but not diagnosed
   7) Cases with access but not seeking health care
   8) Cases without access to health care

Benchmarks/standards for certification needed at each step

See Table 3 p13, text p11-12, 14-17
The Onion Model

- Cases with no access to health care
- Have access but don't present to health facilities
- Presenting to health facilities but not diagnosed
- Diagnosed by public or private providers not linked to NTP, not notified
- Diagnosed by NTP or collaborating providers, not recorded in notifications
- Recorded in notification data

Component A: Incomplete recording
Component C: missing from notification data

See Figure 1, p15; Table 4, p16
TB notifications may not reflect TB incidence: an example from Kenya

Predicted from HIV epidemic
Actual notifications

Mansoer et al, Bull WHO, in press
## Policy Package – TB incidence

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See Table 1 p6
5. Key messages and questions for Task Force discussion
Key messages

1. Incidence – systematic analysis of reliability and coverage of TB notification data using standard framework and tool (all countries), with certification for countries that meet defined standards/benchmarks (currently approximately 20 countries)

2. Prevalence – disease prevalence surveys following WHO guidelines and TF recommendations – 21 global focus countries

3. Mortality – strengthen VR systems until death registrations record all TB deaths, as part of wider efforts to strengthen health information systems (all countries)
Questions/issues for discussion

1. Does the Task Force agree with the policies and recommendations, as stated, or are modifications needed?

2. What is the Task Force's view on two specific topics raised by STAG in the context of disease prevalence surveys:
   - HIV testing - should it be offered to a) the whole of the sampled population or b) all TB suspects?
   - Testing for drug resistance – should it be recommended?

3. General comments on Policy Paper
   - E.g. structure, content, style, length