Progress in implementation of prevalence surveys in the 21 global focus countries: an overview of achievements, challenges and next steps

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Global Task Force on TB Impact Measurement

Task Force meeting, 17 Mar 2010, Geneva
Content

- Background
- The Work of the Task Force
- Achievement: 2009-
- Current status of survey implementation
- Major Bottlenecks
- Role of TA and leading TA agency
- Next steps
Two different but related motivations
- Seek better epidemiological estimation of TB burden: Challenge to current WHO estimation by country
- Measure epidemiological impact of the investment and efforts

TB prevalence is an MDG indicator that can be directly measured in HBCs

Estimation of TB burden using tuberculin surveys no longer applicable in most settings

Funding is available for surveys, and governments and international agencies recognize importance of measuring impact
Countries where surveys are recommended

21 global focus countries
36 additional countries that met basic criteria

Task Force Recommendation in the 2nd meeting, Dec 2007
The Work of the Task Force
To Guide how should surveys be implemented

Assessing TB prevalence through population-based surveys

Follow the guidelines!

SOLD OUT

2nd edition will be published in Nov 2010

1st meeting of writing committee, 16 March 2010
Work of the Task Force

- Sensitizing the Global Focused countries to the importance and value of the survey

- Provide the necessity technical and managerial assistance to plan and implement surveys and to analyse and disseminate the survey results

- Provide external quality assessment/assurance or a form of certification that the survey quality meets internationally recognized standards
Activities: 2009-

- The sub-group meetings including protocol review (12 countries): 28-30 January, Geneva, and 4 December, Cancun

- Workshop for African Countries, 15-16 Oct, Geneva

- Survey Preparatory WS for Ethiopia, 29 June-3 July, Geneva

- Presentations and symposia/workshops in TSRU, DEWG meeting, UNION conference and Regional meetings

- Letter to Ministers of the Global Focus countries

- Technical assistance visits for 18 countries, teleconferences and e-communications
What can be learned from a survey?

As TB prevalence survey has been forgotten except in a part of Asia, We are still in a learning process.
A carefully designed survey can tell us lots more than TB prevalence

- Changes in TB burden and re-estimation of burden
- Performance of strategies for screening of TB suspects
- Health-seeking behaviour of TB patients and individuals reporting chest symptoms
- Where and why are cases missed by the NTP e.g. access to care, role of private sector
- Risk factors
Re-estimation of TB Burden

• Prevalence of Sm+ TB in Cambodia (2002) was a half of previous estimate and previous study results:
• Prevalence of S+ in Yangon, Myanmar, was nearly 3 times previous national estimate (2006)
• Prevalence of S+ in Viet Nam (2007) was 60% more than the previous estimate
• Though DOTS exists, the prevalence of S+ was almost double of annual notification rate of S+ in Cambodia (2002), Philippines (2007), and Viet Nam (2007)

→ Prevalence Surveys can help to revise and improve estimates of disease burden
Strategies for screening TB suspects

40-60% of confirmed cases in surveys do not have chronic cough

<table>
<thead>
<tr>
<th></th>
<th>No Chronic Cough</th>
<th>No symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S+</td>
<td>Bac +</td>
</tr>
<tr>
<td>Cambodia</td>
<td>38%</td>
<td>61%</td>
</tr>
<tr>
<td>Zambia</td>
<td></td>
<td>57%</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>40%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Smear microscopy alone misses >50% of bacteriologically-confirmed TB

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>S+/Bac+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>2002</td>
<td>30%</td>
</tr>
<tr>
<td>Philippines</td>
<td>2007</td>
<td>43%</td>
</tr>
<tr>
<td>Korea</td>
<td>1995</td>
<td>41%</td>
</tr>
<tr>
<td>Africa*</td>
<td>01–05</td>
<td>34%</td>
</tr>
</tbody>
</table>

*Africa 5 sub-national surveys average
# Magnitude of TB: A Comparison of the (3) National TB Prevalence Surveys

<table>
<thead>
<tr>
<th>Measurement</th>
<th>1983 1&lt;sup&gt;st&lt;/sup&gt; NTPS</th>
<th>1997 2&lt;sup&gt;nd&lt;/sup&gt; NTPS</th>
<th>2007 3&lt;sup&gt;rd&lt;/sup&gt; NTPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of Smear (+)/1000</td>
<td>6.6</td>
<td>3.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Prevalence of Culture (+)/1000</td>
<td>8.6</td>
<td>8.1</td>
<td>4.7</td>
</tr>
<tr>
<td>MDRTB among New cases</td>
<td>N/A</td>
<td>1.5</td>
<td>2.1</td>
</tr>
<tr>
<td>MDRTB among Re-treatment cases</td>
<td>N/A</td>
<td>14.5</td>
<td>13.0</td>
</tr>
</tbody>
</table>

(Courtesy: NTP Philippines, Prevalence survey WS, 9 Sept Beijing)
S(+) prevalence rates (aged 10y or more)

-comparison with old studies-

National Prev. Survey
2002
Prevalence Rates of bacteriologically confirmed TB (/100,000)

<table>
<thead>
<tr>
<th>Age</th>
<th>S(+)</th>
<th>Bac(+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-14</td>
<td>64</td>
<td>88</td>
</tr>
<tr>
<td>15-24</td>
<td>130</td>
<td>316</td>
</tr>
<tr>
<td>25-34</td>
<td>301</td>
<td>921</td>
</tr>
<tr>
<td>35-44</td>
<td>468</td>
<td>1487</td>
</tr>
<tr>
<td>45-54</td>
<td>640</td>
<td>2074</td>
</tr>
<tr>
<td>55-64</td>
<td>814</td>
<td>3456</td>
</tr>
<tr>
<td>65+</td>
<td>1512</td>
<td>5944</td>
</tr>
</tbody>
</table>
Prevalence Rate /Notification Rate  
(Smear Positive Cases in 2002)

Although M:F ratio in case detection is almost 1:1,
Where are cases being missed?

Yangon survey, 2006: 1/3 of TB patients being treated by GPs

64 participants were on TB treatment

33 in NTP: around 130/100,000 = 260/100,000/year
In-depth review and lessons from Survey and Surveillance in Viet Nam

We will learn from Dr Hoa tomorrow
Current status of survey implementation:

Keeping a pace in Asia;
Still slow, but start to move in Africa
Achievements and Update (2009-Today)

- **Myanmar** launched the NPS in June 2009, completing most cluster operations (67/70 as of today)

- **Bangladesh** has completed the NPS in 2009

- **Viet Nam** hosted In-depth analysis of the results of 2007 NPS to re-estimate the burden, Sept 2009, Hanoi

- **Pakistan** has nearly completed the preparation with TBCAP supports. Re-assessment of the security situation is planned in March 2010.

- **China** hosted a technical consultation meeting on 26 Nov 2009, inviting WHO. Pilot surveys were completed by the end of December. The field operation will be carried out from April to July 2010.
Achievements and Update (2009-Today)

- **Cambodia** drafted the 2\(^{nd}\) NPS protocol. The Gov of Japan launched a project (JICA-RIT/JATA) to support the survey. The field operation will start 4\(^{th}\) q in 2010.

- **Nigeria** and **Ethiopia** entered the final process of the preparation, training. Field test/Pilot survey will be carried out within a few months.

- **Rwanda**'s survey budget from GF has been released.

- **Ghana** got the support from ORIO (Dutch ODA). The sensitizing WS will be held on 29 April in Accra.

- **Tanzania** revised the protocol, waiting the completion of GF Rd 6 initial phase phase review to re-programme the budget for the 2\(^{nd}\) phase.
Achievements and Update (2009-Today)

- **Uganda** and **Malawi** received TA to finalize their protocols. The funding gap in Malawi is being filled by the Gov.

- **Kenya** got the GF Rd 9, being in process of the Grant negotiation

- **South Africa** expressed that NPS will be carried out by their country budget. The protocol was drafted and reviewed.

- **Zambia**'s protocol was reviewed. However, the GF project has been suspended.

- **Mali** has developed the protocol, however, failed to get Rd 9, seeking to apply Rd 10.
Achievements and Update (2009-Today)

- **Thailand** hosted a coordination meeting with US-CDC, RIT and WHO on 8 Feb 2010. Incomplete survey in 2006 was reviewed.

- **Indonesia, Philippines and Viet Nam** expressed their interests in carrying out next NPS before 2015.

- **Mozambique and Sierra Leone** contacted WHO to seek pre-assessment missions.

- **Countries other than the Global Focus countries** also plan NPS. **Laos** almost completed the preparation, and **Nepal** and **Sudan** has got the GF approval.
What is needed to implement a survey?
Average size of the surveys

(median value of 14 country plans)

- Sample size: 40,000-60,000 (52,500) in HBC
- Cluster size: 500-800 (700) for a weekly operation = 50-85 (70) clusters

- 12-15 staff per field team for 6–10 months, 2-3 team operation at one time
- Lab capacity to accept 250-500 samples a week

- Budget: US$1 million- in Asia, US$2 million in Africa

Capital investment (CXR, Lab, Cars), Human Resource (Salaries), Survey Operation (Field and Central), Pre & Post survey events, technical assistance
Major bottlenecks
Bottlenecks

- International Procurement
  - Specification/Selection
  - Delay
  - Not getting right things
- Lab capacity
  - Slow progress in lab network development of culture service
- Funding Gap
  - Underestimation in the initial planning
  - Shortage of communication with the GF Technical Review Panel
  - Depreciation of US$ and Euro
Bottlenecks

- Human Resources
  - Leadership
  - Field clinical staff
  - Data management (under estimation of the work load)

- Technical Assistance
  - Insufficient coordination within countries
  - Few assistance to management
  - Shortage of experts to assist implementation
However, once Bottlenecks are erased

- Every Component of TB prevalence survey contributes to capacity development to implement STOP TB strategy
  - Knowing community, working with community
  - Active/Intensified Case Detection
  - Transportation of clinical specimen
  - Culture lab network
  - Chest Radiography
  - Individual electrical data management/surveillance
  - Link with research institutes/researchers
  - Development of evidence based policy
National TB Prevalence Survey, Myanmar
June 2009-
50,000 participants in 70 clusters

From pilot survey in Yangon
Background (1)

- A proposal of National TB Prevalence survey and Yangon survey was submitted to MOH by the NTP in 2005 and it was approved.
- However, due to financial and time constraints such as the termination of GF project, the NTP could carry out only Yangon survey in 2006 with some training sessions in Mandalay division.
- The Yangon survey was very successfully carried out by the NTP and local authorities in collaboration with partner agencies such as GF (UNDP), JICA, RIT and WHO. The survey results strongly suggest the necessity of National Survey.
Background (2)

- Despite the extensive expansion of TB service, DOTS, in Yangon, the survey showed high prevalence of smear and bacteriologically positive TB both in urban and rural areas. Prevalence of smear positive TB was 279/100,000 eligible subjects of aged 10 or more (229 in all age). 75% of detected cases by the survey were untreated new cases.

- The survey suggested the serious limitation of TB symptom screening by interview to identify TB cases in community. X-ray examination is essential in prevalence survey. The 1994 National Survey based on symptom screening might underestimate the TB prevalence.

- The NTP has already achieved 100% case detection rate under the current estimation of TB burden based on the 1994 study. It is essential to know nation wide epidemiological situation of TB more accurately.
Please listen to me

- 2006 Termination of GF support
- 2007 Dissemination of lessons of Yangon survey, Re-designing national survey, advocacy, Strengthen PPM (collaboration with MMA)
- 2008 Re-submission of the proposal and the Gov. approval. Fund raising (3DF, JICA, USAID, B&M G through PSI)
- May 2008: Cyclone
- Jan 2009: Protocol Task Force Review
- June 2009: field operation –
- Oct 2009: contributions to the TF WS "writing a history"
- 14 Mar 2010: 67/70 clusters completed
- Mar 2010 Procurement done
Major controversies: discussions on 16 March
Major issues

- Study Design: Size/preciseness/ eligibility/ participations
  - Two surveys with enough power to compare?: Burden especially on small or mid-size countries

- Changing economy and life style: mobile populations to seek jobs, urbanizations

- Does a sub-national survey help?
  - Remote area, non-urban settings
  - High Risk Populations, Slums
Major issues (2)

- Sensitivity of screening/diagnostic methods especially in high HIV setting
  - Combination of quality CXR and traditional symptom screening

- Quality of specimens and capacity of labs

No. of specimens/examinations
Yield by 2\textsuperscript{nd} culture
Major issues (3)

- Changing technologies: Best available data at the time of a survey with the best available technologies or data to compare with the past
  - ZN or LED fluorescent
  - Direct or Concentrated
  - Solid or Liquid
  - Fluoroscopy or Conventional CXR or Digital

- Changing diagnostic practice and case definitions for the programme
  - two spots specimens? ; one smear positive as a case?
- EQA and internal quality control efforts
Major issues (4)

- Ethical clearance
  - External review
  - International review including WHO HQ

- Infection surveys
  - Tuberculin
  - IGRA

- Adjacent studies
  - HIV status
  - Other medical conditions
  - Risk factors
  - Socio Economic conditions
When we should say “no” or advise to “discontinue”.
Technical Assistance:
Role of leading agency
Frustrations both by countries and TA experts/agencies

- TA inputs do not always lead the progress towards survey implementations

- Bottlenecks are not always scientific issues: Revising/re-estimating budget, filling funding gap, selection of equipment, procurement, ethical review, etc

In most countries, comprehensive support is essential to realize quality TB prevalence survey
Recommendation

- Country should identify and designate (with an agreement) a leading technical assistance agency or advisor to take a leading role in country supports and coordinate and synchronize available technical and managerial supports to realize a quality survey.
Next steps
In 2010 (1)

- Comprehensive Assistance to African Countries
  - TA visits led by a leading partner
  - A follow up workshop, (Addis Ababa, Early Oct)
  - Facilitate A-A Collaboration

- Assurance of quality surveys in Asia
  - Analysis of Myanmar survey
  - Implementation in China, Pakistan and Cambodia
  - Preparation of next rounds: Thailand, Viet Nam, Indonesia, and Philippines
In 2010 (2)

- Advocacy activities and Coordination with the GF
- A mini training course for data managers
- Development of informal guidance documents such as procurement guide, CXR standard images
In 2010 (3) onwards

- A field training course for consultants and country survey coordinator/manager (Cambodia, early 2011)

- A workshop to review the surveys by 2010 (Asia, 2011)

- Support at least 5-6 Countries in Africa to launch surveys by the mid 2010
Thank you