A handbook for tuberculosis prevalence surveys (2nd edition of the Red Book); rationale, objectives, proposed content, timelines, and major new/updated recommendations

Meeting on national surveys of the prevalence of TB disease in African countries

5-8 October 2010
Addis Ababa, Ethiopia
Overview of presentation

• Rationale for revision

• Objectives of second edition

• Outline & authors

• Timelines

• Major new and updated recommendations
What is the Red Book?

"A publication providing practical guidelines to countries planning population-based surveys to estimate the prevalence of TB disease at a national level"
Rationale for revision

• Countries seeking stronger/clearer recommendations including more practical advice in several topics

• Some chapters needed improvement, others needed update

• A few NEW topics needed to be included

• Platform for sharing valuable lessons learned during recent survey implementation
Objectives of second edition

• Add NEW recommendations, such as on:
  – Collect data to understand how cases are missed
  – Repeat surveys
  – Other types of surveys (sub-national or 'special' populations)

• UPDATE existing recommendations and add practical advice, such as on:
  – Screening
  – Laboratory methods
  – X-ray technologies
  – Analysis

• Showcase recent nationwide prevalence surveys
  – Include examples to illustrate recommendations in practice in every chapter
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<th>Authors</th>
<th>Institutions</th>
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<td>45 authors from 17 institutions</td>
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Overall structure & content

The book is structured in four parts:

- Part I. Introduction and rationale
- Part II. Design & methods
- Part III. Management, organization, logistics & field work
- Part IV. Analysis, reporting & dissemination of results
Part I. Introduction and rationale

- Chapter 1. Introduction
- Chapter 2. Why are surveys important?
- Chapter 3. Survey objectives & indicators
Part II. Design and methods

- Chapter 4. Screening strategies & case definitions
- Chapter 5. Sampling design
- Chapter 6. Interviews
- Chapter 7. Chest radiography
- Chapter 8. Bacteriology
- Chapter 9. Repeat surveys
- Chapter 10. Ethical considerations
- Chapter 11. Medical services to be offered in the context of a survey
- Chapter 12. Protocol development
- Chapter 13. Budgeting and funding
Part III. Management, organization, logistics & field work

- Chapter 14. Survey organization and preparation
- Chapter 15. Field operations
- Chapter 16. Documents & data management
Part IV. Analysis, reporting & dissemination

• Chapter 17. Analysis, reporting and dissemination of results

Appendices:
I. Social determinants and risk factors
II. HIV testing
III. Drug resistance testing
Timelines (2010)

- January: Preparation of outline
- March: Invitation of authors and start-up meeting
- May: Version 1 production cycle
- July: All to revise and 2nd author meeting
- August: Version 2 production cycle
- September: Peer review
- September: Editing and production
- November: Publishing cycle; launch 11 November
New recommendations
Survey objective; data on why cases are missed

- Collect data (typically referred to as "health seeking behaviour") from all eligible for sputum examination at the time of screening in order to understand why cases are missed by the NTPs

- Present a recommended list of minimum questions on this (indicators defined)

- These data will not necessarily inform health systems failure discussion

- Additional data collection/post survey interview from detected patients when they are involved in treatment may provide very important information. However, quality of the interview is a concern
Repeat surveys

• Include clear guidance on when a repeat survey is appropriate

• Include guidance for countries who would like to do repeat surveys

• Include a caution that impact of TB control is slow (allow at least 5 years between surveys) and its magnitude moderate (large sample size required)

• Both new and old technologies should be used to allow for comparisons, where possible

• Meta- or pooled data analysis to estimate the regional or global trend from quality country surveys
Other than national surveys

- In settings where nationwide prevalence surveys are not appropriate/possible, consider other types of surveys (such as sub-national or 'special' populations)

- Include guidance on when sub-national surveys could be useful (security concerns, e.g. Pakistan)

- 'Special' (e.g. prisons, nomads, refugee camps) populations are often excluded from national surveys. Clarify such surveys are a programmatic activity and beyond the scope of the Red Book
Updated recommendations
Survey objectives & indicators

• Recommend prevalence of bacteriologically confirmed (either S+ or C+) as the primary outcome
  – Also maintain S+ as a co-primary outcome, since sample size calculations so far were done based on this
  – Sample size calculations based on S+ are sufficient for the revised primary outcome because $S+ < (S+ \text{ or } C+)$

• Leave the decision to countries for using as secondary outcomes:
  – Prevalence of healed TB (based on chest X-ray)
  – Prevalence of X-ray suggestive of TB
Screening strategies

• Current recommendation for definition of a participant eligible for sputum examination is based on chest X-ray and symptoms screening (strategy 3)

• Current strategy 4, sputum microscopy (without culture) for all, to be dropped

• Adopt the new screening policy with two smears (instead of three) from everyone identified as eligible for sputum examination (one morning)
Eligibility criteria for survey participants

• Eligible=15+ years and all 'resident' in the house (2-4 weeks)

• Recommend a full census of the household members by the survey team

• Prepared enumeration lists (e.g. by village chiefs) are possible only in countries with vital registration system or regular update of population by local authorities
  – Although most countries in Asia have local population/household registration that can be utilized for pre-survey census to define survey sampling area in a cluster village/ward, it may not be applicable in most African settings
Chest radiography; screening definitions

• **Normal CXR** - A normal chest X-ray means clear lung fields and no abnormality detected

• **Abnormal CXR** - An abnormal chest X-ray means any lung abnormality detected on interpretation by the medical officer (ex. opacities, cavitation, fibrosis, pleural effusion, calcification, any unexplained or suspicious shadow, etc.). Bony abnormalities like fractures are excluded by definition as are findings like increased heart size
Chest X-ray; digital or not?

• Base your decision according to these parameters:
  – funding
  – average workload
  – manpower availability and cost
  – accessibility (portable or mountable)
  – infrastructure in the country (e.g. electricity, water)
  – long term use
  – compatibility with existing imaging infrastructure (what happens to these after the survey?) &
  – availability of maintenance service
Definitions of TB case & eligible for sputum examination

• TB case:
  – Definition to be based on bacteriology
  – Use CXR audited reading only as supporting evidence

• Eligible for sputum examination:
  – Definition to be based only on CXR field reading and symptoms (not TB on current treatment, with treatment history, or TB contact)
  – Those with abnormal CXR
  – Those with chronic cough (according to national policy)
A handbook for tuberculosis prevalence surveys; the new, the updated, and the lessons learned

AKA "The book formerly known as the Red Book"