Training workshop for consultants of TB prevalence surveys

Tuberculosis prevalence surveys: a handbook -- 2nd edition

24 February 2011
Phnom Penh, Cambodia

Charalampos (Babis) SISMANIDIS
Overview of presentation

• Rationale for revision

• Objectives of second edition

• Outline & authors

• Timelines

• Major new and updated recommendations
From red to lime book

2007 -- 1st ed.

Assessing TB prevalence through population-based surveys

2011 -- 2nd ed.
Rationale for revision

- Original Red Book; "A publication providing practical guidelines to countries planning population-based surveys to estimate the prevalence of TB disease at a national level"

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

- Some chapters needed improvement, others needed update

- 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)
  – Essential ingredients for a successful survey

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

• Showcase recent nationwide prevalence surveys
  – Include examples to illustrate recommendations in practice in every chapter
50 authors from 15 institutions

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Overall structure and content

The book is structured in five parts:

• Part I. Rationale and objectives
• Part II. Design and methods
• Part III. Management, organization, logistics and field work
• Part IV. Analysis and reporting
• Part V. Appendices

...plus a web appendix
Part I. Introduction and rationale

• Chapter 1. What, why, where and how?

• Chapter 2. Survey goal, objectives and indicators
Part II. Design and methods

• Chapter 3. Protocol development and SOPs
• Chapter 4. Screening strategies and case definitions
• Chapter 5. Sampling design
• Chapter 6. Interviews, data collection tools and informed consent
• Chapter 7. Chest radiography
• Chapter 8. Bacteriology
• Chapter 9. Repeat surveys
• Chapter 10. Ethical considerations
• Chapter 11. TB Treatment, HIV testing & other critical interventions
• Chapter 12. Budgeting and funding
Part III. Management, organization, logistics and field work

- Chapter 13. Survey organization and preparation
- Chapter 14. Field operations
- Chapter 15. Documents & data management

Part IV. Analysis and reporting

- Chapter 16. Analysis and reporting
Part V. Appendices

I. Examples of questionnaires (screening, eligible for sputum examination, why cases are missed?)

II. Chest radiography (fact sheet, staff requirements, interpretation, equipment check-list)

III. Ethical aspects (Ethics Review Committee submission example, obtaining informed consent)

IV. Template example for budget of a prevalence survey

V. Social determinants and risk factors

VI. Drug susceptibility testing in population-based surveys

VII. Institutional affiliations of authors

VIII. Process used to develop the handbook
Timelines (2010)

- Preparation of outline
- Invitation of authors and start-up meeting
- Version 1 production cycle
- All to revise and 2nd author meeting
- Version 2 production cycle
- Peer review
- Editing and production
- 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 survey participants (all, eligible for sputum examination, TB cases) at the time of screening in order to understand why cases are missed by the NTPs

• A recommended list of minimum questions is presented on this (indicators defined)

• 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 could be a concern, unless survey staff are involved
Repeat surveys

- Guidance is provided on when a repeat survey is appropriate to assist countries

- Impact of TB control is slow (allow at least 5 years between surveys) and its magnitude moderate (therefore potentially large sample sizes are required)

- Both "new" and "old" technologies/algorithms should be used to allow for comparisons between repeat surveys, where possible

- Meta- or pooled data analysis to estimate the regional or global trend from good quality individually 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)

- "Special" (e.g. prisons, nomads, refugee camps, military barracks) populations are often excluded from national surveys. Such surveys are a programmatic activity and beyond the scope of the Lime Book (despite obvious similarities in the design)
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+ 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 eligibility for sputum examination & TB case

• Eligibility 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 (over-reading encouraged)
  – Those with chronic cough (according to national policy)

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