Training workshop for consultants of TB prevalence surveys

Protocol of National TB Prevalence Survey in Cambodia

26 February 2011
Phnom Penh, Cambodia

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Outlines of Survey Protocol

The 2\textsuperscript{nd} National Prevalence Survey in Cambodia, 2010-2011

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Objectives of TB prevalence survey

Primary objective:

• To determine the prevalence of pulmonary TB at a defined time (2010-2011) in Cambodia in population aged 15 years or more:
  – Smear-positive pulmonary TB
  – Bacteriological confirmed pulmonary TB

• To assess a trend in TB prevalence in population aged 15 years or more by comparing 1st survey in 2002
Secondary objectives

To identify

- *Where missing cases by routine service are, and who they are*
- Health seeking behaviour of TB patients and individuals reporting chest symptoms
- Radiological abnormalities suggestive of pulmonary TB
Target Population and Areas

• Population aged 15 yrs or more who have stayed in the selected sites for 2 weeks or more.
• Target Areas: the whole of country, including 4 provinces excluded in the 1st survey
• Target areas are divided into 3 groups (strata)
  – The same part of Cambodia as the 1st survey
    • Area-1: Urban areas
    • Area-2: Rural areas
  – The areas which was not included in the 1st survey
    • Area-3: 4 remote mountainous provinces (Mondul Kiri, Rattanak Kiri, Preah Vihea and Steung Steng)
Sampling methods

- Stratified multistage cluster sampling with probability proportionate to population size
  - Divided the country into 3 Areas
  - Multi-stage within each of areas
    1. Select District
    2. Select Commune
    3. Select Village
    4. Select individuals for the Survey
Exclusion criteria

• Persons living at military and diplomatic compounds, hospitals and hotels and prisons will be excluded.

• Residents in dormitories (e.g. school) and temporary settlements (e.g., accommodation facility for construction workers) will not be excluded as long as they have resided there for 2 weeks prior to the survey.
Sampling and Sample Size (1)

- Requirement for Sample size for area-1 and area-2
  - 1st survey (baseline) prevalence among population aged 15 years or over at 1st survey: 441.7 / 100,000
  - 2nd survey should be able to obtain relative precision of 25% for a probable range of smear-positive prevalence among participants aged 15 years or over
    - Between no change and 58% of 1st survey (corresponding to 50% reduction for 10 years).
Sampling and Sample Size (2)

- Taking into account sampling design and participation rate
  - Cluster size: 640 (based on acceptable workload of 1 week field operation)
  - Design Effect: 1.42 (conservative based on 1st survey results: 1.25)
  - Expected Participation rate: 90%

- Sample size for area-1 and area-2 under the above assumptions:
  - 60 clusters x 640 /cluster = 38,440
Sampling and Sample Size (3)

• Allocation of 60 clusters to area-1 and area-2 proportional to population sizes
  Area-1: 47 sites
  Area-2: 13 sites
• Clusters for area-3 proportional to population sizes
  Area-3: 2 sites
• Total sample size:
  62 clusters x 640 /cluster = 640 x 62
• Sampling is made by using population census data
THE 2nd NATIONAL TB PREVALENCE SURVEY IN CAMBODIA (2010 – 2011)
Procedures (1) Field Operation

• Pre-visit
  – 1\textsuperscript{st} visit: informing community/site assessment
  – 2\textsuperscript{nd} visit: preparation/sub-sampling (selecting a part of village if necessary)/request of household list

• Arrival (Sunday)

• Census (Monday)
  – Household visit
  – Identifying population eligible for survey and invitation of them to the TB screening

• TB screening (Tuesday – Friday)
  – Informed consent
  – TB screening by interview and CXR
  – Sputum collection from the eligible for exam
Census: Confirming eligible population and asking for participation

• Survey team visit households in each of selected areas

• Identify eligible population: people who stay in each of selected areas more than 2 weeks on the survey day

• Explain survey and invite them to participate in the survey
TB Screening Method

• Identify TB suspects:
  – Interview and Chest X-ray to identify TB suspects:
    • TB Symptom: cough $\geq$ 2 weeks and/or Blood sputum
    and/or
    • Abnormal CXR shadow:
      CXR: conventional film system with automatic processor.

• Sputum collection from TB suspects
  – 2 Sputum samples (spot & morning) will be collected from TB suspects for smear, culture and identification.
Interview to participants

- TB related symptoms
- Health seeking behavior if having symptom
  - Action taken
    - e.g. No action, Private, …
    - Reason for not visiting government sectors
- TB Treatment history
  - Current/Previous
  - Treatment Places
Developing film and reading CXR shadow on the Spot

TB symptom
and/or
CXR shadow

Sputum examination
Procedures in central level (1)
Laboratory examination

Collected sputum specimens are shipped to Battambang/CENAT

Smear at Battambang Provincial hospital and CENAT

–First examination: fluorescence microscopy to reduce workload and turn-around time

–Re-examination of all positive slides and 10% negative slides will be made blindly by Ziehl-Neelsen Method: *Comparisons with the 1st survey results*

Culture at Battambang and CENAT

Simple solid culture methods → Identification of isolates at CENAT
Procedures in central level (2)

• Data entry & Cleaning (carried out along with the field operation)
• Feedback of results for treatment of detected cases
• Deciding survey TB cases based on the results of bacteriology with central reading results by central panel
• Analysis
  – Basic estimate: detected cases / participants
  – Compare two results
  – Analysis taking into account missing laboratory results
The End