The First Ethiopian National TB Prevalence Survey 2010/11 field operation and role of Survey Coordinator

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Outline of presentation

• Introduction
• Objective
• Study method/design
• Field work procedure
• Timeline of major activities
• Role of survey coordinator
• challenges
1. Introduction

• Prevalence of TB all forms 585/100000 (WHO estimate 2009)
• Prevalence of smear positive TB 284/100000 (2008 WHO estimate)
• Incidence Rate SS+ =163/100000 (WHO 2009 estimate)
• 7th high TB burden country in the world
• 3rd high TB burden country in Africa
Introduction...

TB control  Program performance of Ethiopia

Program achievement  Global target

• Current SS+ CDR=36%  70%
• TSR =84%  85%
Rationale of TB prevalence survey for Ethiopia

• No study is available at population level
• Between 2007 & 2008, WHO estimate of SS+ TB increased from 152 to 168/100,000.
• The case detection rate remain steady between 32-34 % against the expected 70% global target.
• Evidence based approach is essential for plan and decision making.
• TB prevalence survey is one of the most effective tools to monitor the impact of the program.
Introduction

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2. Objectives

General objective:

To understand the epidemiological characteristics of TB and strengthening the national TB control program.
Primary aims and Objectives

primary aim is to estimate the prevalence of pulmonary TB in Ethiopia in 2010/11, as a basis for evaluation of current performance in case detection and as a baseline measurement for subsequent surveys in the future.
Primary objectives

1. To determine the prevalence of smear positive TB
2. To determine the prevalence of culture positive TB
3. To determine the prevalence of symptoms suggestive of TB
4. To determine the prevalence of radiological abnormalities suggestive of TB
Secondary objectives

1. To measure the prevalence of cervical lymphadenitis among study participants
2. To assess the knowledge, attitude, and practice of the population concerning TB
3. To assess health seeking behavior among participants with TB symptoms
3. Method/Survey Design

3.1. study design and sampling technique

- Cross-sectional survey
- Multistage cluster sampling
- Stratified: Urban, rural & pastoral populations
- Sample size: 46,514 (aged ≥ 15)
- Clusters: 85 (Urban: 14; Rural:63; Pastoral:8)
  
  cluster size: 550 subjects
Sampling Stage

- **District**: PPS
  - 85 (63 R, 14 U & 8 P)
- **Kebele**: PPS
  - 1 in each district, total 85
- **Household blocks**: Random selection
  - n blocks, 550 individuals
Sample sites
3.2. Exclusion criteria

Exclusion criteria for sampling frame

• 37 Woredas (less than 3% of the total population) were excluded due to logistic difficulty
Exclusion criteria during Woreda/Kebele sampling

• When the selected woreda is not feasible to conduct the study, substitution was made in the same zone: one woreda Amhara regional state was substituted by another woreda in the same zone.

• Similarly, when the selected Kebele is not accessible substitution was made in the same Woreda. *Three kebele was substituted*
Exclusion criteria in the selected Kebele

In the selected Kebele the following settings were excluded:

• Military compound
• Diplomatic compounds
• Confined setting: Jail/prison, refugee camps
• Hospitals
• Schools and universities
• Orphanages
• Monasteries
• Homeless persons
Individual exclusion eligibility criteria

• Age < 15 years
• Residents who had been away during entire past 14 days from a household
• Visitors who were arrived and stayed in the household less than 14 days prior to the census date
3.3. Individual inclusion criteria

- Age $\geq 15$ years
- Residents who had stayed at least one night in a household during the 14 days prior to the census day
- Visitors who had stayed in a household for at least the past 14 days prior to the census day
The individual inclusion criteria for study participation

• Eligible individuals, based on study criteria
• Consent provided: (adult consent, guardian consent and assent for age 15-17, consent for 15-17 who lives independently in the house).
3.4 Screening and Diagnosis

Symptom

?
Screening...

- Symptom screening
  - Chest X-ray
    - No symptoms
      - No smear microscopy
      - No culture
    - Symptoms or Abnormal chest X-ray
      - Smear microscopy
      - Culture
Symptom Screening

• Cough  14 days or more, weight loss, night sweat, Fever

• Lymph node swelling around the neck

• TB Contact History in the last 1 year
interview
Examination of lymph node swelling
X-ray screening

- Any abnormality in the lung or mediastinum
X-ray machine
Central x-ray reading

- 10% of normal films and all abnormal films in field reading were reviewed by central x-ray panel team (three radiologists)
Eligibility for sputum examination

1. Cough 14 days or more
2. x-ray abnormality
3. both symptom & x-ray abnormality
4. Chest x-ray not done but have one screening symptom or risk factor like weight loss, night sweat, fever, previous TB contact history

• All participants eligible for sputum examination were requested to submit two sputum specimens (Spot and Morning)
Collection of sputum
Bacteriological screening

• Two sputum specimen (morning & spot) were taken from each TB suspects

• Morning specimen for culture and AFB microscopy, and spot for AFB microscopy.
Culture using solid media
AFB smear microscopy using FM
3.5. Survey Operation

There were 5 operational field teams: 3 were in the field at the same time, while 2 will take rest.
Survey team members
Field team composition

The fixed part consists of 12 members as follows:

- one team leader
- census & interviewing group: 3 staff
- mobile X-ray group: 3 staff (1 doctor, 2 technicians)
- laboratory: 1 staff
- clerk/receptinist: 1 staff
- drivers: 3
Local members

include 20-30 members:

- Woreda Health office TB coordinator: 1 staff
- Woreda Administrator: 1 staff
- Woreda Health office Head: 1 staff
- Hospital/Health center staff: 3 staff
- Health Extension worker: 2 staff
- Assistants/Volunteers: 3 staff
- Kebele chair person/manager: 1
- Sub Village (Gote, Gare, kushit) leaders: 6-8 leaders
- Interpreter (optional): 4 staff
- Assistant clerk/receptionist: 1
Field work duration

• One cluster (550 Subjects) was completed within a week.
• Data collected from October 2, 2010-June 25, 2011
Field work
I. Informing authorities

• Two sensitization workshop had been conducted to sensitize and inform local authority

• In the first workshop, District Health office Head, District TB focal person, District administrator and zonal TB Focal person of all selected clusters were participated.

• In the second workshop, Regional Health Bureau head, Regional Health Bureau TB focal person and partners working on TB were participated
II. Pre-survey visit, cluster sensitization and community mobilization

Activities

a. Communicate the local authority: District Administrator, District Health Bureau Head, TB focal person, and Health extension worker
b. Find any available information on population list, map of the sleeted cluster, sub division of the cluster
c. Designate household blocks
Observation of household blocks arrangement at elevated site
Selected household blocks
d. Identify the survey camp site

e. Identify local assistants (20-30)

f. Orient and demonstrate health extension worker to register household members in the selected household

g. Assess accommodation, local bank, water source, ice center
III. Conduct Survey

- Day 0 arrival
- Day 1 Census
- Day 2-5 data collection
- Day 6 Debriefing
- Field report
Work flow at survey camp site

For morning

Exit

IN

Group instruction

Reception

Interviewer

Interviewer

Interviewee

X-ray

Exit

Laboratory Personnel

Team leader

Data Checker

X-ray Reader
3.6. Data management

- Date entered using Cespro version 4.1
- is being analyzed using SPSS
3.7. Ethical consideration

- Ethically reviewed by national review committee and EHNRI IRB
- Consent
- Suspects or cases were referred or linked to the nearby health facility for detail diagnosis and medication
4.C challenges

1. Procurement

• Major procurements of the survey has been done by our procurement agent, UNOPS, there was much delay (seven months) to get procurements at least. This caused a delay in implementation of the survey.
2. Staff turnover

• There was high staff turnover; especially x-ray readers 3 out of 5 terminate their contract. A total of 9 survey staff terminated their contract. This required continuous training of new staff on implementation of the survey.
3. High rate of suspect, 50% increment from the initial estimated

- During planning the suspect rate was expected to be 10% but in practice the suspect rate became 15%. This cause shortage of lab space, shortage of reagents and high load on lab staff. This affected other routine service of TB Laboratory. The MDRTB surveillance has been postponed as a result of lack of lab space and adequate staff.
Challenge...

4. Vehicles shortage affected other program
   • The survey used in average 11 vehicles per week until the field work was accomplished. This significantly affected other activities of the institute like malaria survey, nutrition survey.
5. Low participation rate from urban cluster
6. Transportation of sample from remote area
7. Field team leaders unable to perform pre visit as a result shortage of time for preparation of cluster operation.
5. Role of Survey Coordinator

• Prepare the protocol and SOPS in consultation with technical assistants
• Ensure
• Prepare the schedule
• Conduct pre visit
• Arrangement of vehicle and other logistics for field work
• Arrange field expense and facilitate bank transfer for local payment
• Communicate the team leader for daily progress
• Communicate local authority when team face problem
Role of Survey coordinator...

• Coordinate sample transport from different site and communicate central lab.
• Facilitate replacement or maintenance of x-ray film processor or Generator in case of failure.
• Monitor the speed of field operating team
• Conduct review meeting for each team on return after completing two consecutive clusters operation
• Conduct internal review meeting for all teams together to share experience among different teams
• Take managerial action on misbehaving survey staff (simple advice, verbal warning, written warning, dismissal or firing)
6. Summery result of census and participation rate
Census

- Census done for 95084 individuals
- Total eligible invited to the study = 51664
Survey census result by age group and sex

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male(%)</th>
<th>Female()</th>
<th>Sex Total</th>
<th>Total Eligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15</td>
<td>21125(51.3)</td>
<td>20001</td>
<td>41126</td>
<td>0</td>
</tr>
<tr>
<td>15-24</td>
<td>8853(45.2)</td>
<td>9503</td>
<td>18356</td>
<td>17287</td>
</tr>
<tr>
<td>25-34</td>
<td>6403(49.5)</td>
<td>7773</td>
<td>14176</td>
<td>13588</td>
</tr>
<tr>
<td>35-44</td>
<td>4520(48.9)</td>
<td>4611</td>
<td>9131</td>
<td>8842</td>
</tr>
<tr>
<td>45-54</td>
<td>2832(52.0)</td>
<td>2958</td>
<td>5790</td>
<td>5623</td>
</tr>
<tr>
<td>55-64</td>
<td>1855(54.3)</td>
<td>1715</td>
<td>3570</td>
<td>3471</td>
</tr>
<tr>
<td>65+</td>
<td>1593(54.3)</td>
<td>1342</td>
<td>2935</td>
<td>2853</td>
</tr>
<tr>
<td>Total</td>
<td>47181(49.6)</td>
<td>47903</td>
<td>95084</td>
<td>51664</td>
</tr>
</tbody>
</table>
2. Participation rate
## Participation rate by place of residence and sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Total invited</th>
<th>Total Participated</th>
<th>Participation rate in % percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>24623</td>
<td>21839</td>
<td>88.6935</td>
</tr>
<tr>
<td>Female</td>
<td>27046</td>
<td>24894</td>
<td>92.04319</td>
</tr>
<tr>
<td>Place of Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Rural</td>
<td>38812</td>
<td>35492</td>
<td>91.4</td>
</tr>
<tr>
<td>2 Urban</td>
<td>7400</td>
<td>6404</td>
<td>86.5</td>
</tr>
<tr>
<td>3 Pastoral</td>
<td>5442</td>
<td>4837</td>
<td>88.8</td>
</tr>
<tr>
<td>4 Total</td>
<td>51654</td>
<td>46733</td>
<td>90.5</td>
</tr>
</tbody>
</table>
3. Sputum collected

- A total of 5832 participant submitted sputum
Acknowledgement

• WHO HQ
• WHO CO
• USAID/TBCAP
• GLRA
• Italian government
Thank you