NATIONAL TUBERCULOSIS PREVALENCE SURVEY

GENERIC TRAINING MANUAL

Prepared by
KNCV Tuberculosis Foundation, The Hague, the Netherlands
October 2010
Foreword

This document is a generic training module for national tuberculosis (TB) prevalence surveys prepared with the aim to assist countries conducting TB prevalence surveys in training their staff. The manual was developed by the Research Unit and Human Resource Development cluster of KNCV Tuberculosis Foundation with input from external experts.

A group of 21 countries is advised by the World Health Organisation (WHO) to carry out at least one TB prevalence survey before 2015. Several of these countries are preparing to conduct a TB prevalence survey in their country in 2010-2012. When providing technical assistance (TA) to countries for TB prevalence surveys we received several questions from country staff about training content and procedures.

Quality training is a key for good data collection. TB prevalence surveys are huge undertakings and streamlined processes of data collection are essential. Training ensures that there are standardised procedures throughout the survey, while taking into account the specific survey conditions (van Leth, 2008). Adequate training helps managing workload more effectively and is an overall investment in the local human resources.

We felt it would be useful to develop a generic training manual for countries planning and conducting TB prevalence surveys. The content of this manual can be adjusted by each country to reflect their country specific setting and resources and hopefully provide assistance in developing and conducting the training.

The recommended strategy for prevalence surveys by WHO is screening by chest X-ray and symptoms questionnaire for all persons and sputum for smear microscopy, culture and drugs susceptibility testing is submitted by those with either symptoms or an abnormal chest X-ray as per the new developed guidelines (WHO, 2010). Although alternative strategies for TB prevalence surveys exist, this training manual is based on use of the WHO recommended screening strategy being in the survey. If an alternative strategy has been chosen, only part of the modules might be applicable and the manual should be adapted accordingly. The integration of a tuberculin survey into the TB prevalence survey has not been taken into account in this training manual as this is not longer recommended.

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List of abbreviations

CBS Central Bureau of Statistics
CDC Centers for Disease Control and Prevention
CPC Cetylpyridinium chloride
CTRL Central Tuberculosis Reference Laboratory
DST Drug Susceptibility Testing
EQA External Quality Assurance
FM Fluorescence microscopy
HIV Human Immunodeficiency Virus
HRD Human Resource Department
ID Identification
KEMRI Kenya Medical Research Institute
KNCV Royal Dutch Tuberculosis Foundation
NTP National Tuberculosis Program
PI Principal investigator
QA Quality assurance
SNRL Supra National Reference Laboratory
SOPs Standard Operation Procedures
TAG Technical Advisory Group
TB Tuberculosis
VCT Voluntary Counselling and Testing (for HIV status)
WHO World Health Organization
ZN Ziehl Neelsen
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Introduction

A tuberculosis prevalence survey is a large undertaking. For some countries sample sizes of up to 100,000 persons are required. Clusters of up to a thousand adults need to be screened for TB disease within the short time frame of 1-2 weeks. Within a country, several teams operate simultaneously to collect data often in over 50 different clusters spread all over the country. In order to accomplish this successfully and collect quality data, it is essential that the many different tasks in the field are carried out in a standardized, accurate and efficient manner. This implies that all individuals involved in the study are properly trained and supervised. This manual describes the generic training needs, the organizational set up and the necessary outcomes of the training of the different staff involved in the survey. This manual is generic and needs to be adapted to country-specific circumstances to make it a country training manual. This means details of training should be worked out like detailed content, location, timing, duration, facilitators etc; where appropriate additional models might need to be added.

Survey teams

The overall prevalence survey team can be divided in two groups, a central level team and a group of several field teams that conduct the survey at cluster level.

Central team (central level)
The central level team should perform activities at central level (e.g. data entry, central reading of chest X-rays for final diagnosis, specimen processing for culture and DST, quality assurance of field level laboratory and X-ray procedures) and should also conduct monitoring & evaluation visits during the field work. Training modules applicable for the central level team can be found in table 1. The central level team should be trained before the field level staff as often they provide part of the field level training.

Field team (cluster level)
The field activities in the survey are performed by multiple field teams each operating at cluster level. The number of field teams varies between countries and depends, for example, on overall sample size, number of X-ray machines available and time period available for the survey. The field teams can either be fixed or flexible. Fixed teams consist of team members recruited for the full duration of the survey who move from cluster to cluster. In flexible teams, part of the team is fixed while the other part is cluster specific, such that some persons are added to the team for the survey of a specific cluster. If flexible team members are part of the field team, it is important to think in advance about when and where the flexible team members are trained. Furthermore, it should be planned in advance when, where, and by whom refreshment training might be provided for the field teams. This training manual assumes that, for each task conducted during the field work, in the specific clusters, at least one fixed team member is trained during a general survey training week. However, specific modules can also be applied when performing the training at cluster level for the flexible team members. A specific part of the field team (referred to as a sub-team) is responsible for the different tasks to be performed during the field work (census, interview, sputum collection, X-ray etc). For each sub-team there are one or more specific training modules. A suggestion for training modules applicable for the different sub-teams in the field can be found in table 2.

Development/Set up of training

The training modules outlined in this manual are designed to serve as a basis for the development of a country specific training manual. The document consists of a set of
training modules and for each module essential components to be included are listed and described. Technical training, i.e. how to operate the X-ray machine and how to perform a smear or culture, are not covered in detail in this manual. A basic knowledge of these skills is a prerequisite for undertaking the survey. Training on the operation of the X-ray machines should be negotiated within the sales contract for the machines. The modules outlined in this manual focus on the additional skills, besides regular X-ray reading and laboratory procedures, that are required to conduct the survey up. General refresher and assessment of reading consistency among staff is part of the training. Tables 3 to 6 provide examples of training schedules for the different sub teams of the field level. We want to emphasize that these 5-days schedules are serving as examples of when and how long the different sub teams are trained on the specific modules. Depending on the background knowledge of the survey staff training time might need to be increased. It is advised to have all staff trained together at the same time period so they can interact and survey team spirit is created. The first day is a session for all survey staff combined, followed by sub-team specific trainings of 3 to 4 days. Part of the final day is reserved for another full group session to be used for feedback from the training and/or a team building activity. The Standard Operating Procedures (SOPs) developed for the survey are the basis for the training and need to be finalize before the training manual can be developed. The training needs will differ per country and the manual should be adapted accordingly to develop a country specific training manual. Ethiopia started their prevalence survey in October 2010 and used a trainer of trainer (ToT) approach in their training. One team was trained during a separate training and started the survey, during field work in the first clusters the other teams where trained on the job.

Timing of the training
The training should be completed shortly before the start of the pilot. It is not desirable to have more than 4 weeks between the completion of the training and the start of the pilot. If the period between completion of training and start of field work is much longer there might be need for refresher training or part of the trained survey staff might have found other job opportunities and additional staff needs to be trained.

Responsible for training
The prevalence survey team should identify qualified and eligible trainers for the specific modules. These trainers may be recruited from e.g. the National Bureau of Statistics, radiology departments, institutes who have been involved in conducting Demographic Health Survey’s, national reference laboratories, universities and other organisations. Depending on the available in country expertise it can be decided to involve international technical assistance (TA) in either the development of the training modules or in conducting the training.
Table 1 Overview of training modules for central level teams.

<table>
<thead>
<tr>
<th>Sub teams</th>
<th>Key tasks</th>
<th>Level</th>
<th>Module A</th>
<th>Module B</th>
<th>Module C</th>
<th>Module D</th>
<th>Module E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey coordinator and assistants</td>
<td>Coordination &amp; monitoring survey procedures</td>
<td>Cluster &amp; central</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Monitoring team *</td>
<td>Monitoring &amp; quality control of procedures and data</td>
<td>Cluster &amp; central</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Data management team</td>
<td>Data entry &amp; management &amp; interim analysis</td>
<td>Central</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Central level –lab #</td>
<td>Quality assurance field lab; Culture EQA §; (Smear diagnosis optional)</td>
<td>Central</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central level- X-ray</td>
<td>Quality assurance field X-ray; Final reading X-rays</td>
<td>Central</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The monitoring team needs to select specific parts of training modules which are relevant in light of monitoring tasks; # This trainings module assumes that smear staining and diagnosis are done in the field. If staining is performed at central level, the central level team requires training; § external quality assurance.
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Census team *</td>
<td>Census taking</td>
<td>Cluster</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Interview team #</td>
<td>Conduct interviews</td>
<td>Cluster</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Field X-ray team</td>
<td>X-ray taking and reading (normal/abnormal)</td>
<td>Cluster</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Field sputum collection team</td>
<td>Sputum collection</td>
<td>Cluster</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Field laboratory team §¶</td>
<td>Smear staining, diagnosis</td>
<td>Cluster/Central</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Field team leaders †</td>
<td>Overall management</td>
<td>Cluster</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Monitoring team ‡</td>
<td>Monitoring &amp; quality control of procedures and data</td>
<td>Cluster &amp; central</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* This training module assumes that the census team is not involved in taking informed consent; while in some countries the census team is involved in taking informed consent; # This training module assumes that the interview team is not be involved in census taking, while in some countries the interview team is involved in census taking to ensure timely completion of census; § This trainings module assumes that smear staining and diagnosis is done in the field, but in some countries all laboratory procedures take place at central level and the field team only collects sputum samples; † Field team leaders should participate in all modules that are related to the field work; ‡ The monitoring team needs to select specific parts of training modules which are relevant in light of monitoring tasks.
Table 3 Example of schedule for training **fixed census & interviewing team** in prevalence survey:

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Plenary *</td>
<td>Census team #</td>
<td>Interview team §</td>
<td>Interview team</td>
<td>Interview team</td>
</tr>
<tr>
<td>9:00</td>
<td><strong>Module A</strong></td>
<td>Module F1</td>
<td>Module F1</td>
<td>Module F4</td>
<td>Module J</td>
</tr>
<tr>
<td></td>
<td>Introduction participants</td>
<td>Ethics,</td>
<td>Ethics,</td>
<td>General interview</td>
<td>Feedback and</td>
</tr>
<tr>
<td></td>
<td>Introduction to prevalence</td>
<td>procedures</td>
<td>procedures</td>
<td>technique</td>
<td>teambuilding</td>
</tr>
<tr>
<td></td>
<td>survey</td>
<td>household</td>
<td>household surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>surveys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Break</strong></td>
<td>break</td>
<td>break</td>
<td>break</td>
<td>break</td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Module A</strong></td>
<td>Module F2</td>
<td>Module F3</td>
<td>Module F4</td>
<td>Module F4</td>
</tr>
<tr>
<td></td>
<td>Tasks to be performed in</td>
<td>Introduction</td>
<td>Inclusion criteria,</td>
<td>General interview</td>
<td>Practicing the</td>
</tr>
<tr>
<td></td>
<td>prevalence survey; Data</td>
<td>to census</td>
<td>informed consent,</td>
<td>technique</td>
<td>questionnaires</td>
</tr>
<tr>
<td></td>
<td>collection methods</td>
<td>taking</td>
<td>enrolment procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td><strong>Lunch</strong></td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
</tr>
<tr>
<td>13:30</td>
<td><strong>Module A</strong></td>
<td>Module F2</td>
<td>Module F3</td>
<td>Module F4</td>
<td>Module F5</td>
</tr>
<tr>
<td></td>
<td>Role of SOPs</td>
<td>Exercise</td>
<td>Understanding the</td>
<td>Practicing the</td>
<td>Exercise in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>questionnaires</td>
<td>questionnaires</td>
<td>‘dummy households’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Break</strong></td>
<td>break</td>
<td>break</td>
<td>break</td>
<td>Summary &amp; questions</td>
</tr>
<tr>
<td>16:00</td>
<td>Summary &amp; Questions</td>
<td>Module F2</td>
<td>Module F4</td>
<td>Module F4</td>
<td>Closure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exercise</td>
<td>Overview tasks</td>
<td>Understanding the</td>
<td>Feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>interview team</td>
<td>questionnaires</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Closure</td>
<td>Closure</td>
<td>Summary &amp; Questions</td>
<td>Summary &amp; Questions</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td>Closure</td>
<td></td>
<td>Closure</td>
<td></td>
</tr>
</tbody>
</table>

* The plenary training will be provided for all team members together at the same day; #If census team is involved in taking informed consent, they should follow module F3; § If interview team is involved in taking census, they should also follow module F1.
Table 4 Example of schedule for training **fixed field Chest X ray team** in prevalence survey:

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Plenary *</td>
<td>Chest X ray team</td>
<td>Chest X ray team</td>
<td>Chest X ray team</td>
<td>Plenary</td>
</tr>
<tr>
<td>9:00</td>
<td><strong>Module A</strong></td>
<td><strong>Module G1,G2</strong></td>
<td><strong>Module G6</strong></td>
<td><strong>Module G6</strong></td>
<td><strong>Module J</strong></td>
</tr>
<tr>
<td></td>
<td>Introduction participants</td>
<td>Introduction</td>
<td>Exercise scoring chest X rays in field #</td>
<td>Exercise scoring chest X rays in field #</td>
<td>Feedback and teambuilding</td>
</tr>
<tr>
<td></td>
<td>Introduction to prevalence survey</td>
<td>General organization flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Break</strong></td>
<td><strong>break</strong></td>
<td><strong>break</strong></td>
<td><strong>break</strong></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>Tasks to be performed in prevalence survey</td>
<td><strong>Module G3</strong></td>
<td><strong>Module G6</strong></td>
<td><strong>Module G7</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data collection methods</td>
<td>Client care, conduct X ray</td>
<td>Exercise scoring chest X rays in field #</td>
<td>Record keeping</td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td><strong>Lunch</strong></td>
<td><strong>lunch</strong></td>
<td><strong>lunch</strong></td>
<td><strong>lunch</strong></td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td><strong>Module A</strong></td>
<td><strong>Module G3</strong></td>
<td><strong>Module G6</strong></td>
<td><strong>Module G8</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Role of SOPs</td>
<td>Exercise</td>
<td>Exercise scoring chest X rays in field #</td>
<td>Skills assessment</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Break</strong></td>
<td><strong>Break</strong></td>
<td><strong>Break</strong></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Summary &amp; Questions</td>
<td><strong>Module G4,G5</strong></td>
<td><strong>Module G6</strong></td>
<td><strong>Module G9</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hygiene &amp; safety</td>
<td>Exercise</td>
<td>Exercise scoring chest X rays in field #</td>
<td>Quality assurance</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Closure</td>
<td>Summary &amp; Questions</td>
<td>Summary &amp; Questions</td>
<td>Summary &amp; Questions</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Closure</td>
<td>Closure</td>
<td>Closure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The plenary training will be provided for all team members together at the same day; # Depending on the level of training of the field X-ray readers, the exercise scoring chest X rays in field should be trained within two or three days. If field readers are less experienced it is advised to take three days for training for module G1, if readers are highly experience two days for module G1 might be sufficient.
Table 5 Example of schedule* for training **fixed field sputum collection and laboratory team** in prevalence survey:

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Plenary #</td>
<td>Laboratory team §</td>
<td>Laboratory team §</td>
<td>Laboratory team §</td>
<td>Plenary</td>
</tr>
<tr>
<td>9:00</td>
<td><strong>Module A</strong>&lt;br&gt;Introduction participants &lt;br&gt;Introduction to prevalence survey</td>
<td><strong>Module H1</strong>&lt;br&gt;Introduction General organization flow</td>
<td><strong>Module H2</strong>&lt;br&gt;Prepare field laboratory site</td>
<td><strong>Module H3 †</strong>&lt;br&gt;Purpose &amp; ethics of HIV testing</td>
<td><strong>Module J</strong>&lt;br&gt;Feedback and teambuilding</td>
</tr>
<tr>
<td>10:30</td>
<td>Break</td>
<td>break</td>
<td>break</td>
<td>break</td>
<td>break</td>
</tr>
<tr>
<td>11:00</td>
<td>Tasks to be performed in prevalence survey; data collection methods</td>
<td><strong>Module H1</strong>&lt;br&gt;Sputum collection</td>
<td><strong>Module H2</strong>&lt;br&gt;Performing smear microscopy</td>
<td><strong>Module H3</strong>&lt;br&gt;Methodology</td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td>Lunch</td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td><strong>Module A</strong>&lt;br&gt;Role of SOPs</td>
<td><strong>Module H1</strong>&lt;br&gt;Packaging &amp; transport of sputum samples</td>
<td><strong>Module H2</strong>&lt;br&gt;Safety, hygiene and waste disposal</td>
<td><strong>Module H3</strong>&lt;br&gt;Exercise</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Break</td>
<td>break</td>
<td>break</td>
<td>break</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Summary &amp; Questions</td>
<td><strong>Module H1</strong>&lt;br&gt;Exercise</td>
<td><strong>Module H2</strong>&lt;br&gt;Exercise</td>
<td>Summary &amp; Questions</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Closure</td>
<td>Summary &amp; Questions</td>
<td>Summary &amp; Questions</td>
<td>Closure</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Closure</td>
<td>Closure</td>
<td></td>
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</tr>
</tbody>
</table>

* Duration of training depends on the level of experience and may take longer than one week for those less experienced; # The plenary training will be provided for all team members together at the same day; § The laboratory team may include the sputum collection team, but this depends on the team composition; † Optional module if HIV testing is included;.
MODULE A
Introduction prevalence survey
Module A General introduction prevalence survey training

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants should:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Have started to get to know each other</td>
</tr>
<tr>
<td></td>
<td>- Have had the opportunity to express their expectations of the training</td>
</tr>
<tr>
<td></td>
<td>- Be aware of the role of the facilitator</td>
</tr>
<tr>
<td></td>
<td>- Understand the need for active participation in the training</td>
</tr>
<tr>
<td></td>
<td>- Describe the purpose of the prevalence survey</td>
</tr>
<tr>
<td></td>
<td>- Indicate the roles and responsibilities of the different teams in the prevalence survey</td>
</tr>
<tr>
<td></td>
<td>- Understand basic principles of research ethics</td>
</tr>
<tr>
<td></td>
<td>- Understand the importance of collecting data using standardized methods</td>
</tr>
<tr>
<td></td>
<td>- Understand the role of Standard Operating Procedures (SOPs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies/powerpoint presentation, flip chart, handouts, video,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Prevalence survey coordinator + technical assistance</td>
</tr>
<tr>
<td>Methodology</td>
<td>- Joint training for all members of the field teams</td>
</tr>
<tr>
<td></td>
<td>- Training by presentations, discussion, and group work</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of field teams and number of fixed members per field team</td>
</tr>
<tr>
<td>Timing</td>
<td>During the field survey training</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day</td>
</tr>
<tr>
<td>Background materials</td>
<td>Synopsis protocol; survey SOPs</td>
</tr>
</tbody>
</table>

1. Introduction of participants
- Welcome participants and introduce the training staff present
- Explain the objectives of the training
- Inform of break schedule, restroom location, use of mobile phones
- Initiate an ice breaker to get to know each other within the course, a few examples are included in annex 1 (West, 1999; Scannel, 1998)

2. Introduction to the prevalence survey
Training participants should be well informed about the purpose and methodology of the prevalence survey. Key topics to be discussed include:
- Introduction to TB epidemiology in the country
- Introduction to prevalence survey
  - Purpose & justification of prevalence survey
  - Study design of the prevalence survey, special emphasis should be given to the fact that X-ray and symptom questionnaires are a screening tool and that not all persons who submit sputum are ill; this is to avoid the possibility of stigmatizing persons that need to go for sputum collection.
  - Examples of prevalence survey conducted by other countries with (scientific) lessons learned in these countries; if available show short video of prevalence surveys that have been conducted (e.g. Vietnam, Cambodia). Material available from the WHO prevalence task force (Dr Ikushi Onozaki or the respective countries).
3. Tasks to be performed in the prevalence survey
Training participants should be well informed about the tasks to be performed by the different persons involved in the survey.

- Provide a general overview of the tasks to be performed in the prevalence survey by the different sub-teams (e.g. X-ray, interview, laboratory, quality assurance, data management, cluster & central level)
- Provide an overview of the survey organization using the organizational framework specific for the prevalence survey and filled with names of persons dedicated to the specific task
- Explain the tasks and responsibilities of the different team members (Refer to the country specific survey SOPs)
- Provide an overview and timeline of the steps after data collection is finished, i.e. data analysis, reporting and results dissemination

4. Research ethics
Training participants should be well informed about the goals and principles of human subject protection in research.

- The trainer will explain what basic ethics in the conduct of research are and also refer to the Helsinki Declaration
- The trainer will discuss data confidentiality and how this is ensured within the survey.
- The participants will discuss in small groups what potential ethical issues there are in the prevalence survey
- The trainer will discuss plenary how the research ethics are taken into consideration during implementation of the study

5. Standardized methods for data collection
Training participants should be well informed about the importance of using standardized methods for data collection.

- Ask the participants to discuss in small groups what it means if data are collected using a standardized method, why it is important to collect data in a standardized manner and which types of data should be collected in a standardized manner.
- Ask the small groups to present the results of their discussion and relate this to the rationale of standardized data collection (The purpose of standardized data collection is to achieve objective results within the different clusters of the prevalence survey and to compare the results within the same country at different points in time, but also to compare results with other countries).
- Explain the different types of information collected and forms administered during the prevalence survey:
  - Informed consent
  - Standardized questionnaires
  - Chest radiographs
  - Sputum specimens
  - Monitoring forms
  - Tuberculin skin test (optional)
  - HIV test (optional)

6. Role of Standard Operating Procedures
Training participants should be well informed about the importance of following the SOPs and not deviating from the SOPs and the study protocol.

- Ask the participants to discuss in small groups what can happen if the different teams are not following the SOPs and how differences can influence the results of the prevalence survey. (Deviation from the SOPs could impact data quality if different teams collect data in a different manner)
• Ask the participants to present their results and discuss them in a plenary session
• Emphasize that the individual team members should always follow the SOPs and that they cannot make any deviations from the prevalence survey protocol and SOPs. If some aspects appear not to be feasible (e.g. problems with collection or transport of sputum) these problems should be communicated to the team leader who can further discuss with the study coordinator. The study coordinator is the only person who can give permission for changing procedures outlined in the SOPs. If procedures are adapted as determined by the study coordinator this should be well documented.
• The pilot study serves to test the SOPs in practice and some adaptations might need to be made after the pilot study

7. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- A **plenary group session** in which the trainer summarizes the main points and provides additional explanations were needed
- **Assessment of knowledge by means of test:** A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
CENTRAL LEVEL TRAINING
MODULE B
Laboratory procedures at central level
### Module B Laboratory procedures at central level

**Objectives**

At the end of this session the participants should be able to:

- Accurately register samples arriving from the field using the transportation form
- To streamline the large number of samples arriving in the lab
- To calculate the maximum number of samples that can be processed in one day in their setting
- Interpret the obtained lab results
- Provide feedback of final lab results to the field
- Perform quality assurance (QA) for the field laboratory sites
- Fill the lab results form for the survey
- Perform all laboratory procedures for the survey following the survey SOPs
- Send samples for external quality assurance (EQA) to the supra national reference laboratory (SNRL)
- Perform standardized reading of slides.

**Training materials**

Transparencies, power point, forms & registers; test slides

**Responsible for training**

Head of the Central TB reference Laboratory (CTRL) with external laboratory expert if needed

**Methodology**

Discussion, presentations, practice

**Number of participants**

Depending on the sample size and central level lab team involved, all persons assisting the prevalence survey at central laboratory level should be aware of the survey and the procedures involved.

**Timing**

Before the field lab training

**Duration**

1 day, depending on the current level of training of the laboratory staff

**Background materials**

Survey SOPs – laboratory section

**Requirements**

Participants should be familiar with the standard lab procedures for diagnosing TB and should have been formally trained in these

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**Note:** The exact content of the training depends on the laboratory set up. For example:

- Will smears be done at cluster level (either in field or in neighbouring regional/district lab) and culture at central level?
- Will culture be done at different locations or at one central facility?
- Will both smears and culture be done at central level or at regional level?

The current outline of the training module assumes that smear staining & reading will be done in the field. Culture & drug susceptibility testing (DST) of samples will be done at central level. QA of the field laboratory activities takes place as well as preparation of samples for EQA by the SNRL. Survey procedures are always slightly different than routine laboratory procedures and the survey SOPs need to be followed closely for all survey samples. QA procedures need to be familiarized and roles and responsibilities of the central laboratory team need to be defined and clarified.
1. **Introduction**
- Welcome participants and introduce the training staff present.
- Explain the objectives of the training.
- Inform of break schedule, restroom location and use of mobile phones.
- Initiate an ice breaker (see annex for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. **Survey overview**
Present and depict the flow of the sputum samples from the field to the lab, including:
- Short summary of lab procedures at field level.
- Flow of samples from field to lab.
- Importance of time between submission and processing and keeping samples in cold chain
- Expected numbers of samples that will arrive from the different field teams.
- Set up of the transport system.
- Roles and responsibilities of central level team.

3. **Arrival & registering of sputum samples**
**Exercise**
The participants will be divided into subgroups and asked to discuss and write on a flip chart the steps that need to be followed when a sample arrives in the lab.

- After general discussion the trainer explains the correct steps following the survey SOPS. These steps include:
  - Checking the samples for quality and leakage.
  - Checking the list of sample ID numbers (transportation form) versus the actual number arriving.
  - Register samples in the prevalence survey register.
  - Confirm arrival of samples following SOPs.

4. **Processing of samples for culture and DST**
- Discuss in a plenary session any aspects where the processing of samples following the survey SOPs differs from the regular laboratory procedures.
- Discuss the flow of samples.
- Explain how the laboratory results will be recorded in the prevalence survey lab register following the survey SOPs
- How to interpret the results
- How to feed back results to field team

5. **QA of samples of the field laboratory teams**
The central level laboratory team is responsible for QA of the field laboratory teams. Following the survey SOPs discuss:
- The importance of QA of field laboratory teams.
- How frequent QA of field laboratory will be performed.
- Which samples will be selected for QA.
- The details of the QA procedures.
- When and to whom the results of the QA should be reported.

**Exercise**
The participants will practice the standardized reading of smear microscopy by using test slides.
- Explain that in each session 25 smear positive and smear negative slides will be presented. Participants will not be given any other information about the individual from whom the sputum was collected. According to the criteria as reported in the SOP, the participants are asked to score the slides. For each of the slides participants should score using the scoring options mentioned in the SOP. After participants have completed the scoring sheets, results should be collected and answers compiled on a summary sheet (transparency) (suggestion: do this during coffee break). Go again through all the slides and discuss the outcomes. Invite participants to discuss their findings and argue for or against certain outcomes. The number of sessions depends on the experience of the central level staff.

6. Sending samples for external quality assurance
Following the survey SOPs part of the samples will be sent for EQA. In this section, it will be discussed:
• Which samples will be sent for EQA and how they are selected (as described in the survey SOPs).
• Appropriate packing and labelling of samples sent for EQA following safety guidelines as outlined in the survey SOPs.
• Registering of samples sent for EQA and recording of results of EQA when received.

7. Bio-Safety, Good laboratory practise and waste disposal
Participants will be refreshed on the biosafety procedures, Good laboratory practise (GLP) and waste disposal of infectious material following the procedures described in the survey SOPs.

8. Practice
Following the theoretical component of the training, participants should practice all procedures, i.e. the registering of samples, processing samples, identification of culture, performing DST, packaging of samples for (E)QA using sputum cups filled with water, and standardized reading and recording of results by using test slides, interpretation of results and feed back to field team.

It could be practical to design a training form containing all essential steps of the SOPs that could be used to observe the labworker to ensure that all steps are performed according to SOP.

9. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- A plenary group session in which the trainer summarizes the main points and provides additional explanations were needed;
- Assessment of knowledge by means of test: A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
MODULE C
Chest X-ray procedures at central level
Module C Chest X-ray procedures at central level

<table>
<thead>
<tr>
<th>Objectives</th>
<th>At the end of this session the participants should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Register x-ray images arriving from the field</td>
</tr>
<tr>
<td></td>
<td>- Streamline the large number of x-ray images arriving at central level</td>
</tr>
<tr>
<td></td>
<td>- Provide feedback on final X-ray results to the field</td>
</tr>
<tr>
<td></td>
<td>- Perform QA for the field sites</td>
</tr>
<tr>
<td></td>
<td>- Fill the final result form of the survey</td>
</tr>
<tr>
<td></td>
<td>- Send samples for EQA</td>
</tr>
<tr>
<td></td>
<td>- Report overview of results to survey coordinator</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies, powerpoints, X-rays, forms &amp; registers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Chief radiologist, with external assistance, if needed</td>
</tr>
<tr>
<td>Methodology</td>
<td>Discussion, presentations, practice</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depending on the sample size and the number of radiologists, it should be decided how many persons at central level need to be involved and trained.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the field lab training</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day depending on the level of training of survey staff. This training is not designed for learning how to read X-ray but to learn survey procedures for those capable of reading X-rays</td>
</tr>
<tr>
<td>Background materials</td>
<td>Survey SOPs – X-ray section</td>
</tr>
<tr>
<td>Requirements</td>
<td>Participants should have been trained in reading and reporting of chest radiographs, and in recognizing features of TB</td>
</tr>
</tbody>
</table>

1. **Introduction**
   - Welcome participants and introduce the training staff present
   - Explain the objectives of the training
   - Inform of break schedule, restroom location and use of mobile phones
   - Initiate an ice breaker (see annex for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. **Arrival & registering of X-ray images**
The trainer explains which steps need to be taken when the batches of X-ray images from the field are sent to the central level following the study specific SOPs. In general, at least the following steps should be discussed:
   - How to register X-ray images arriving at central level
   - How to crosscheck X-ray images arriving at central level
   - How to appropriately handle images arriving following SOPs
   - How to store X-rays arriving at central level
   - How to check completeness of forms filled

3. **QA of X-ray images of the field teams**
The central level X-ray team is responsible for QA of the field X-rays teams. Following the survey SOPs discuss:
   - Methodology of re-reading at central level of abnormal and normal X-rays
   - Importance of QA of field X-ray teams
   - How frequent QA of field X-ray teams will be performed
   - Which images will be sent for QA
• Details of the QA procedures
• When and to whom the results of the QA should be reported
• Importance of blinding of the field X-ray results for persons involved with quality assurance at central level
• Importance of proper recording of the result
• Which coding forms will be used at central level

4. Full reading of X-ray images
Note full reading of X-ray images is not undertaken in all countries
The trainer explains which X-ray images are fully read at central level following the survey SOPs and for what purpose.

Exercise
- Explain that in each session 25 normal and abnormal chest X-rays will be presented. Participants will not be given any other information about the individual from whom the chest X-ray was obtained. According to the criteria as reported in the SOPs, ask the participants to score the abnormalities seen on the X-ray. For each of the X-rays participants should score using the scoring options mentioned in the SOP. After participants have completed the scoring sheets, collect results and compile answers on a summary sheet (transparency) (suggestion: do this during coffee break). Go through all X-ray examples in a plenary and discuss the outcomes. Invite participants to discuss their findings and argue for or against certain categories. The number of training sessions needed like this depends on the experience of the central level staff.
- Discuss reporting of results to field level, where applicable.
- Depending on the training level of the X-ray readers, several of such sessions should be held until the results are satisfactory, i.e. detection of all abnormal X-rays.

5. Sending samples for EQA
Depending on the available radiological capacity in the country a group of international experts could serve as EQA for X-ray. Where applicable, discuss following the SOPs:
• Which samples will be sent for EQA and how they are selected (as described in the survey SOPs).
• Registering of samples sent for EQA and recording of results of EQA when received.

6. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- A plenary group session in which the trainer summarizes the main points and provides additional explanations were needed;
- Assessment of knowledge by means of test: A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
MODULE D
Overall survey management & monitoring
Module D Overall survey management & monitoring

<table>
<thead>
<tr>
<th>Objectives</th>
<th>At the end of this session the participants should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Perform monitoring visits using the monitoring checklist and filling the monitoring report</td>
</tr>
<tr>
<td></td>
<td>- Identify and solve problems in the field</td>
</tr>
<tr>
<td></td>
<td>- Keep records from field visit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies, powerpoint, X-rays, forms &amp; registers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Principle investigator(s)</td>
</tr>
<tr>
<td>Methodology</td>
<td>Discussion, presentations, practice</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Survey coordinator and, where applicable, his/her assistant and the monitoring team</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the field lab training</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day</td>
</tr>
<tr>
<td>Background materials</td>
<td>Survey SOPs</td>
</tr>
</tbody>
</table>

1. Introduction
- Welcome participants and introduce the training staff present
- Explain the objectives of the training
- Inform of break schedule, restroom location and use of mobile phones
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. Monitoring survey procedures & record keeping from field activities
Monitoring of the field teams (all subteams, i.e. census, interviewing, laboratory and X-ray) by a central monitoring team is essential for ensuring adherence to protocol and SOPs and for identifying problems occurring during the fieldwork. The trainer will explain:
- The importance of monitoring of procedures (to ensure all procedures as agreed upon are followed correctly and that reliable data are being collected which will lead to reliable results)
- How the field procedures will be monitored
- The purpose (to identify any inconsistencies) of cross-checking of forms and registers filled out during the field work
- How to identify missing data and inconsistencies
- What to do in case of inconsistencies
- What the lines of responsibility with respect to data verification are
- How to report inconsistencies & observations made
- The contents of the monitoring report at the end of each field visit

Exercise
After the theoretical part of the training is completed it should be verified during a practical session if all procedures are well understood. Practice forms and registers (with some errors) should be prepared in advance and then used to practice the procedures. A role playing exercise can assist in practicing monitoring of a field situation. Correct identification of errors and the proposed solution to these errors can be used as a post test for those trained.

3. Problem solving during the survey
One of the key challenges for the survey coordinator will be ad hoc problem solving. During any field survey unexpected situations occur and it is good to anticipate how
to react in different situations. Challenging situations can have to do with broken
down equipment, disagreements within the survey teams, problems with the local
population etc. Although not all challenges can be foreseen, discussing solutions to
different potential problems serves as training by finding creative solutions to
unexpected survey situations.

**Exercise**

- Using the SOPs, ask participants in small groups to make a list of different
problems that could be anticipated while in the field. When a list of issues is
identified, give each group 3-5 problems for which to find a solution to solve the
problem. These are then discussed in a group session.
- Depending on the issues raised the trainer may present additional problem-
solving situations for discussion. Some examples from previous surveys are
described below:

**Example problem: Be aware of unlikely high rates (participation rates, suspect
proportion) in the survey**

**Identification of problem:** Compare rates between clusters, compare participation
rates across household surveys in the country, check
rates during monitoring visits.

**Prevention of problem:** Emphasize during training the importance of protocol
and SOP adherence.

**Lesson learned:** Do not focus on targets but emphasize during training on
adherence to protocol and SOPs

**Example problem: Field team is unable to visit some households in selected clusters
because the households are inaccessible (e.g. due to flooding)**

**Identification of problem:** Without consulting the survey coordinator, a team is
conducting interviews in a village that is not selected as part of the sampling. This may introduce bias in the
sampling.

**Prevention of problem:** Emphasize during training that a team should always
consult the survey coordinator when selected households
as part of the sampling frame are inaccessible.

**Lesson learned:** Do not focus on targets but emphasize during training
adherence to study design, protocol and SOPs

For each situation, discuss the correct decision process and who should be consulted
in different situations.

Other skills which need to be trained include:

- How to motivate team members
- How to deal with conflicts
- Negotiation and communication skills
- Decision-making skills
- Community mobilization skills
Exercise
To train managerial skills the exercise will include examples of situations and the trainees will be asked to discuss how they would response in such situations (“What if scenario’s“)

4. Monitoring survey procedures & record keeping from field activities at central level
In addition to monitoring the field teams, the monitoring team is also responsible for monitoring the procedures at central level. Discuss and demonstrate these procedures and practice following the monitoring procedures and checklist outlined in the survey SOPs.

5. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- A plenary group session in which the trainer summarizes the main points and provides additional explanations were needed;
- Assessment of knowledge by means of test: A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
MODULE E
Data entry, cleaning and validation
## Module E Training data entry, cleaning and validation

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session the participants should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Process all the data operator tasks following the Data Management Plan (DMP)</td>
</tr>
<tr>
<td></td>
<td>- Sort, count, number and file/retrieve the forms and registers included in the prevalence survey</td>
</tr>
<tr>
<td></td>
<td>- Data enter all forms/registers in predefined digital data entry files</td>
</tr>
<tr>
<td></td>
<td>- Store and prepare backups of digital data files.</td>
</tr>
<tr>
<td></td>
<td>- Correct the contents of digital data entry files based on predefined reports</td>
</tr>
<tr>
<td></td>
<td>- Report inconsistencies on the forms/registers to the data manager</td>
</tr>
<tr>
<td></td>
<td>- Assist the data manager to fill in the data management registration sheets to monitor the data management process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies/powerpoint, forms and registers, computers, database format, related software (EpiData, Excel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Data manager</td>
</tr>
<tr>
<td>Methodology</td>
<td>Presentation, discussion, group work, exercises</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depending on the number of data entry operators</td>
</tr>
<tr>
<td>Timing</td>
<td>Separate training course before the field pilot takes place</td>
</tr>
<tr>
<td>Duration</td>
<td>3 days</td>
</tr>
<tr>
<td>Background materials</td>
<td>Prevalence survey SOPs and data management plan</td>
</tr>
</tbody>
</table>

### 1. Introduction
- Welcome participants and introduce the training staff present
- Explain the objectives of the training
- Inform of break schedule, restroom location and use of mobile phones
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

### 2. Importance of accurate data management
The trainer explains the importance of:
- Accurate data management
- Adequate planning of data processing
- The trainer discusses the contents of the DMP

### 3. Introduction of the tasks of the data operators
The trainer explains:
- Tasks of the data operators following the DMP
- Forms and registers included in the DMP
- Procedures of sorting, counting, numbering and filing/retrieving the forms and registers
- Procedures for checking the forms before data entry
- Procedures for data entry (systematic entry of data into predefined electronic files)
- Procedures of single entry and double data entry of the forms and registers
- How to check for inconsistencies, report and correct after (double) data entry
• Procedures for storage and backup procedures of digital data files
• Procedures to assist the data manager to fill in the data management registration sheets to monitor the data management processes

**Exercise**
After each theoretical training component, include practical exercises in the training of the data entry operators. For example, the data manager prepares the digital data entry files and some example forms and registers. These examples can be used by the data entry operators to practise data entry by using the digital data entry files. A checklist should be developed to be used for the evaluation of the training and skills.

**4. Wrap up discussion**
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- **A plenary group session** in which the trainer summarizes the main points and provides additional explanations were needed;
- **Assessment of knowledge by means of test:** A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
FIELD LEVEL TRAINING
Module F

Census taking & Interview

Module F1 Ethics and procedures in household surveys
Module F2 Census taking
Module F3 Informed consent & Enrolment
Module F4 Interviewing techniques
Module F5 Practicing in dummy households
Module F1 Ethics and procedures in household surveys

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants should:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Be aware of and are able to apply the correct ethical rules and procedures when approaching households</td>
</tr>
<tr>
<td></td>
<td>- Know the basic ethics about conducting interviews</td>
</tr>
<tr>
<td></td>
<td>- Apply the inclusion and exclusion criteria for survey participation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies, powerpoint presentation, flip chart, hand outs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Survey coordinator/trainers from National Bureau of Statistics / TA</td>
</tr>
<tr>
<td>Methodology</td>
<td>Training by presentations, discussion and practical exercises</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of field teams and number of census takers per field team</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members Prior to field work in specific cluster for flexible team members</td>
</tr>
<tr>
<td>Duration</td>
<td>3 hours</td>
</tr>
<tr>
<td>Background materials</td>
<td>Survey SOPs</td>
</tr>
</tbody>
</table>

Note: depending on the background of the surveyors a basic session on TB could be added before this module.

1. Introduction of participants
   - Welcome participants and introduce the training staff present.
   - Explain the objectives of the training.
   - Inform of break schedule, restroom location and use of mobile phones.
   - Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.
   - Explain that the participants that will be assessed during the training and that there is a chance that in case of underperforming they need additional training to be able to become part of the interview team. In case of gross underperformance they might not be allowed to continue as survey team member.

2. Approaching and entering households
   Both the census team and interview team (who in some countries are combined) visit many households during the survey. To receive maximum cooperation of the households, occupants should be approached in a professional manner. Community sensitization should take place before the start of the survey and reference can be made to this event.

   Exercise:
   The participants are divided into subgroups. Each subgroup receives a set of rules of do’s and don’ts when entering a household to conduct a survey. The subgroups should identify the chronological order of the different steps.

   The participants should be instructed on the correct procedures for approaching and entering households, using the following steps:
   - Ask permission from the head of the household or his/her representative to enter the household
   - Introduce themselves, their mission and the survey clearly
   - Make reference to the community sensitization activities that have taken place
   - Inform study participants thoroughly about the purpose of the interviews and the household members’ right to refuse to participate
   - Respect rules and regulations as outlined in the basic ethics of conducting interviews (see below)
Exercise:
Organize a role play of a field team approaching and entering a household using some incorrect procedures. This role play exercise can either be performed live or by showing a video. Ask the participants to identify things that should have been done differently.

3. Basic ethics about conducting interviews
The facilitator explains the steps and ethical issues that should be considered when approaching the households to obtain census information or to conduct interviews.

- Ask participants to discuss in subgroups to come up with as many basic rules as they can.
- Discuss the results and compare with the following rules which an interviewer has to comply with when in contact with the population:
  - Introduce yourself in a friendly and clear way
  - Be very kind and polite with persons in the household, no matter what the respondent says to you
  - Avoid making any promises, or getting any benefits from the position of surveyor
  - Be able to explain the purpose of the visit and tasks
  - Explain to the head of the household the importance of the survey and that all data collected will be kept confidential
  - Emphasize the respondent’s importance to the study
  - Respect the culture, religion and personal opinion of everyone
  - Ensure confidentiality of all answers provided and create a confidential atmosphere wherein the respondent can answer the questions
  - Show a professional attitude and respect all instructions and follow standard procedures as taught in the training
  - Create a good working atmosphere and help persons to collaborate in the survey
  - Be able to get adequate answers (note there are no right or wrong answers…) in a professional way
  - Do not judge or discuss answers given by the respondent, the opinion of the respondent is what should be recorded
  - Know how to check whether a reported factual answer is correct if it appears to be incorrect. For example someone who looks like a male is reported to be a female or someone who looks 60 years old is said to be 10 years)
  - Record all problems that may occur during the field work in order to be able to discuss them later with the supervisor and the study coordinator
  - Keep away curious village dwellers not living in the same household
  - Never hurry an interview. Keep an even pace
  - Remain objective—do not indicate surprise, pleasure, or disapproval at any respondent’s answers
  - Be prepared to probe when necessary
  - Be professional and positive
  - Clothing should be culturally acceptable
  - Always use common sense
  - Never allow persons escorting you (local authorities, neighbours…) or a translator to get involved in your work by asking questions, translating questions or answers, or to interfere otherwise in the survey. Preferably these persons should also not be present during the interview (or sit at a discrete distance) as they might influence the answer given by the participant. In case this becomes a problem call the supervisor or the study coordinator for help.
The outcome of this exercise is an agreed list of basic ethical rules which have to be followed when approaching households.

4. **Wrap up discussion**
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points in a plenary group session. A combined test to assess knowledge and skills should be developed for the whole module F, see F5 practicing in dummy households.
Module F2 Census taking

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- List all household members in the cluster as per SOP</td>
</tr>
<tr>
<td></td>
<td>- Properly keep and validate records</td>
</tr>
<tr>
<td>Training materials</td>
<td>Power point presentation, hand-outs</td>
</tr>
<tr>
<td>Responsible for training</td>
<td>Survey coordinator/trainers from National Bureau of Statistics / TA</td>
</tr>
<tr>
<td>Methodology</td>
<td>Training by presentations, discussion and practical exercises</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of field teams and number of census takers per field team</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members Prior to field work in specific cluster for flexible team members</td>
</tr>
<tr>
<td>Duration</td>
<td>4.5 hours</td>
</tr>
<tr>
<td>Background materials</td>
<td>Survey SOPs</td>
</tr>
</tbody>
</table>

1. Introduction of participants
- Welcome participants and introduce the training staff present.
- Explain the objectives of the training.
- Inform of break schedule, restroom location and use of mobile phones.
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. Introduction to census taking
- The trainer explains when census taking takes place in the survey. In some countries the census team is part of the cluster field team and census is done first, after which, the rest of the field work starts immediately. In other countries census taking is done several weeks prior to the technical field team starts to work in the cluster.
- The trainer explains the objective of census taking. The objective of taking a census in a population survey is to obtain a denominator for calculation of TB prevalence in the population living per cluster. It is important to know the total number of persons living in the selected cluster who are eligible to participate in the survey. Whether the eligible persons participate or not will be assessed during the second step by the interview team. The total number of eligible individuals is important to assess the non-response rate and investigate if bias has occurred.
- The trainer explains which information needs to be recorded on the census register by using the survey specific register. Basic information (sex, age etc) needs to be known for all eligible persons living in the selected cluster, to assess if the non-responders are different from the responders (participants). In some surveys more information is collected during the census, for example socio-economic status. Depending on the amount and type of information collected during the census the informed consent procedure might need to be done before.
- The trainer emphasizes that, in addition to the adults (≥15 years), all children (<15 years) living in eligible households need to be registered. The number of children will be used in the final analysis to estimate TB prevalence in the overall population in the selected clusters and nationwide.
- The trainer explains that it is important to take the census in the complete cluster and according to the SOPs. Deviation from the SOPs may result in a non-representative sample of the population and in improper estimation of TB prevalence.
The trainer explains how households within a cluster are selected as outlined in the SOPS. This procedures needs sufficient time and practice so all trainees are well trained how to do this.

3. Identifying eligible household members for census taking

- The trainer explains how to determine the exact number of eligible persons in each household. This will depend on the definition used (e.g. eligible persons are resident of the household who are living there since at least 2-4 weeks). It should be discussed how to distinguish an actual household member (a resident) from an occasional visitor. Occasional visitors should be excluded from the census list.
- The trainer explains the definition of “household” in the specific setting.
- The trainer explains how to use the population list as basis for the census (if available). Items which should be explained include the following:
  - The population list might not be fully up to date.
  - When to add individuals who are not on the population list to the census and vice versa, for example a newborn child, a family that has moved in to the study area and qualifies according to the eligibility criteria.
  - When to exclude an individual who is on the population list from the census, for example a person that has moved from the area since the census was done, a person that has died, a person that does not qualify classified as eligible anymore following the definition in the SOPs.

4. Record keeping

- The trainer discusses the importance of record keeping. The records compiled by the census takers form the backbone of the survey. Proper record keeping is therefore essential.
- The trainer explains what and how to record eligible persons.
- The trainer explains that all eligible persons need to be recorded whether or not the person already indicates willingness to participate in the study or to not participate.
- Teach the trainees that a separate register should be kept for individuals below 15 years of age and individuals 15 years and above to facilitate the use of the register during the survey (Note: most surveys only investigate persons of 15 years and above but the population under 15 years is taken into account in the denominator for the final prevalence estimate.)
- Discuss what to do if households do not want to participate in the census (this needs to be described in the SOPs and can include e.g. the recording of at least age and sex but leave out all other potential information).

5. Practice

The practical consists of three parts. First, selection of household to make up the required cluster size will be practiced. Second, filling out the census registers, to practice, the facilitators pretend to be imaginary household members and the participants have to decide who to list from the household. Several persons in the household can have disputable eligibility. Third, the census taking as will be practiced when visiting the dummy household (see module F5).

6. Wrap up discussion

At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points in a plenary group session. A combined test to assess knowledge and skills should be developed for the whole module F, see F5 practicing in dummy households.
Module F3 Informed consent & Enrolment

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Understand the reason and importance of asking informed consent</td>
</tr>
<tr>
<td></td>
<td>- Know the importance of asking for informed consent</td>
</tr>
<tr>
<td></td>
<td>- Understand how to enrol participants in the survey</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Power point presentation, hand-outs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Survey coordinator/trainers from National Bureau of Statistics / TA</td>
</tr>
<tr>
<td>Methodology</td>
<td>Training by presentations, discussion and practical exercises.</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of field teams and number of census takers per field team</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members. Prior to field work in specific cluster for flexible team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>3.5 hours</td>
</tr>
<tr>
<td>Background materials</td>
<td>Survey SOPs</td>
</tr>
</tbody>
</table>

Note: It depends on the survey design where and by whom informed consent will be asked. For example, this can be done by the census team during the census taking or by the interview team before conducting the screening questionnaire. This depends on the amount and type of information collected, if more information than basic census information is collected during the census, the informed consent procedure should be done before this information is collected.

1. Introduction of participants
   - Welcome participants and introduce the training staff present
   - Explain the objectives of the training
   - Inform of break schedule, restroom location and use of mobile phones
   - Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. Eligibility, Inclusion criteria
   - Explain to participants that not all persons living in the households will be eligible to participate in the prevalence survey, following the survey specific SOPs. For example children aged < 15 years in most countries are not included in the survey; while pregnant woman may be excluded from chest X rays but included for other examinations.
   - Discuss the list of inclusion and exclusion criteria that will be used in the prevalence survey and discuss which persons will be asked to participate in the study as outlined in the SOPs.

Exercise
Show several examples of hypothetical individuals with information about:
- Where the individual lives (check if location is within sampling frame)
- Setting (e.g. household, refugee camp, military camp)
- Age (check if ≥15 years)
- How long the person has been living in the area

Ask the participants to discuss if the individuals in the different examples are eligible for the survey or not.
3. Informed consent and enrolment

Informed consent procedures

- Ask participants if they know what ‘asking for informed consent’ means. Let them discuss and come with a definition. (Informed consent is ....)
- Then ask participants why they think asking for informed consent is important. Let a few of them answer and then discuss their answers while showing a slide including the goal and elements of the informed consent procedures. *(The goal of asking informed consent is to ensure that the study participant is informed about the study so that he/she can make a truly autonomous choice about participating.)*
- Ask participants when they think informed consent should be asked in a prevalence survey and discuss their answers while showing a slide including different moments of data collection. *(The informed consent procedure should be completed before the study participants will be interviewed for symptom screening, X-ray and, if eligible, for sputum collection.)*
- Explain the most important elements of the informed consent procedure including:
  - Use of lay terminology at a 6th grade level when talking about the study to increase understanding of the study by the study participants.
  - Deliver information in small pieces.
  - Ask the participant to repeat the information back in their own words to make sure that the participant understands the information.
  - Encourage the participant to ask questions, and then repeat what you thought you heard.
  - Listen for misunderstandings the participant might have then correct and verify
- Provide the participants with the informed consent form (in the SOPs) and assess if all participants have understood the text in the informed consent form.
- Train participants to perform the informed consent procedure by the following approaches:
  - A short role playing exercise in which one or more training facilitators acts as the interviewer and participants acts as household members.
  - A short role playing exercise in which a participant asks for informed consent from the training facilitators who act as household members.

*NOTE: Depending on the level of experience of the training participants it can be decided if role plays will be included.*

4. Enrolment procedure and survey

- After the informed consent procedure those who were willing to participate and signed the forms are enrolled in the survey
- Explain the procedures for handing out of survey ID cards to all participants and discuss amongst others:
  - The importance of ID numbers. Note: each eligible person is given an ID number regardless of intention to participate.
  - Why each ID number is a unique number and two persons can never have the same number
  - How to fill out the survey ID card for each participating household member who has been enrolled in the survey (fulfilling eligibility criteria and given informed consent).
  - Clear instructions to the enrolled household members where and when they should show up at the study site for symptom interview and X-ray and what form they should present there.
5. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points in a plenary group session. A combined test to assess knowledge and skills should be developed for the whole module F, see F5 practicing in dummy households.
Module F4 Interviewing techniques

Objectives

By the end of this session participants:
- Know how to approach households
- Are able to administer questionnaires
- Know the importance of checking questionnaires for completeness and consistency
- Fully understand the meaning of each question in the questionnaire
- Know and have practiced how to ask the questions
- Are aware of the data confidentiality procedures of the survey and the importance thereof

Training materials

Transparencies/powerpoint presentation, flip chart, hand outs, copies of questionnaires for practicing,

Responsible for training

Survey coordinator/trainers from National Bureau of Statistics / TA

Methodology

Training by presentations, discussion and practical exercises.

Number of participants

Depends on number of field teams and number of interviewers per field team

Timing

During the general survey training for the fixed team members. Prior to field work in specific cluster for flexible team members.

Duration

2 days

Methodology

Presentation, discussion, exercises, group work, role play

Background materials

Questionnaires, SOPs prevalence survey

1. Introduction

- Welcome participants and introduce the training staff present
- Explain the objectives of the training
- Inform of break schedule, restroom location and use of mobile phones
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.

2. Overview of the tasks of the interview team

- Show a slide including the different moments in the prevalence survey when the interviewing team will conduct interviews and how many persons will be involved in taking interviews and how the specific task could be divided if needed;
- Explain the purpose, general structure and the target group (e.g. all eligible household members versus TB suspects) of each questionnaire (e.g. TB symptom screening questionnaire, suspect questionnaire).

3. General interviewing technique and questionnaire administration

In a prevalence survey multiple interviews will be conducted with the study participants. The interviewers need to ask these questions using a standardized methodology. Questionnaires should be administered only by trained interviewers. Study participants should be well informed about the purpose of the interview and the way they should answer specific questions.

The following aspects should be explained to the training participants:
- The survey must be done in time (as planned). The interviewer should not ask questions or explain things which are not related to the survey. Give persons enough time to answer the questions.
- The quality of the answers depends on how the questions are being asked. Questions must be asked in a very easy way, to allow everybody to understand what is being asked. It is essential to follow the pre-structured questionnaire to prevent different interviewers using their own interpretation of what is meant by
the question. When translating questions into the local language from translation and back translation should be done to avoid changing the meaning of questions. That is why every interviewer must understand very well the meaning and reason for every question and know how every question can be explained (this will be done during the training see module F4.3).

For example consider the following question: How long does it take you to get to the nearest treatment facility? (i.e. as an indicator of distance). In this question it needs to be clear if this is walking time, cycling time or time in public transport or by car. If not, each participant can answer using his/her transport method which makes it impossible to compare between the different participants. The same goes for questions asking for costs (which currency?), age (in years or months, date according to lunar or solar calendar, etc).

- Explain some important elements of asking questions including:
  - For the interview to identify persons eligible for sputum examination participants should learn how to probe for answers when the answers given are not clear or seem to be different from the observations made by the interviewer. For example: the interviewer observes that the respondent is coughing during the interview. If the respondent answers that he or she is not coughing, the interviewer should probe to obtain an accurate answer of the coughing symptoms. This should be done in a sensitive matter and the interviewer cannot just say you are coughing but say you are not. The purpose of this questionnaire is to screen individuals for possible TB symptoms and therefore this interview needs to have a low threshold for identifying persons eligible for sputum examination. Strict adherence to the SOPs and trained procedures is essential to avoid introducing bias.
  - For the interview of persons eligible for sputum examination a structured questionnaire about health-seeking behaviour from TB suspects is being asked and it is important that all questions are asked exactly as worded in the questionnaire. Probing for answers or giving hints on answers needs to be avoided. Good answers reflect the person’s perception on the questions, not necessarily how correctly they answer them. For example in questions on knowledge about TB, if a person believes TB is spread by the sun that is his/her answer. The SOP will contain information on what to do when interviewers observe a high level of ‘wrong’ knowledge in specific clusters as these persons are at the highest priority to receive TB education messages.
  - Some questions do not need to be asked, the answer can be obtained from observation in the household. E.g: type of house, or gender of interviewee.
  - Data to be recorded in the questionnaire should be obtained from an adult person who is capable of answering the questions.
  - Do not assume or anticipate answers unless those answers can be obtained from observation in the household.
  - Information about symptoms should never be obtained from another person than the interviewee him or herself. Note: all persons in the survey are ≥15 year of age and should be capable of answering this question themselves.
  - Be patient and let the household member finish their answers.
  - Record respondent’s answer accurately.
  - Assure confidentiality.
  - Encourage patients to answer questions frankly. Beware of your own attitude (take care not to show your personal opinion at any moment!)
  - Questionnaires must be filled out clearly and completely.
Refusal of interview completion

- There may be times when respondents refuse to complete an interview. Invite the participants to brainstorm on how they would deal with respondents who refuse to complete an interview.
  - Explain that the best defense against the discouragement of refusals is to realize that the rejection is usually an expression of the respondent's own stress, fear, or resistance and not a negative judgment of your competence.
  - Explain that the interviewer, when facing a respondent who does not want to complete the interview, should not be afraid to be assertive and polite with hesitant respondents and that the interviewer should use all of their powers of persuasion to complete the interview, including calling the team leader for assistance.

Sensitive questions

- Some respondents may believe interviewers are trained healthcare professionals, and may ask for medical advice. Others may get very emotional describing events of their lives. Discuss with participants how to deal with these situations and give some guidance using the following suggestions:
  - Politely emphasize that you are not a healthcare professional and advise the respondent to talk with their doctor.
  - It is appropriate to express compassion at the end of the interview and to apologize for triggering any upset.
  - The team leader will have a list of local health facilities and counseling centers prepared in case a respondent needs this kind of help.

4. Verifying if all eligible household members have been approached and interviewed

- Ask the participants why it is important that all eligible household members have been approached and interviewed.
- Discuss the relevance of ensuring that all eligible household members have been approached and interviewed by referring to the survey set up. Explain how it will be checked in the field if all eligible household members have been interviewed. This will be done by checking with the census list.
- The interviewers need to check if all persons in the household that are listed as eligible have been approached. In case persons were missed or absent they should revisit the household. At the end of the day the field team leader will also cross-check if all eligible persons have been approached for enrolment.

5. Understanding the questionnaires for the survey (symptom interviews, in-depth interviews of those eligible for sputum examination, case interview).

Note: For each interview conducted during the survey a separate session should be organized to train and practices the understanding of the questionnaire even if the same people are conducting the questionnaires this to avoid mix up of different questionnaires.

Preparation:

- Give the participants sufficient time to go through the questionnaire individually and let them briefly discuss any questions, suggestions, remarks they have in small groups.

Plenary discussion:

- Go through the whole questionnaire, question by question; discuss the meaning of each question, how it should be interpreted and why the question is asked. If
local language is used, it should be ensured that the questionnaire is also available in the local language. Discuss potential answers. **Note: it is important that the surveyors understand the questions, their meaning and why they are asked so they can answer questions of respondents where necessary and understand the importance of the survey and the importance of standardized collection.**

- At the end of the session ask if all questions are clear and discuss any outstanding issues. Also discuss which questions are thought to be difficult and why and how these questions are best handled. (For example questions on sexual behaviour and/or HIV status are difficult for respondents as well as surveyors and proper introduction of sensitive parts of the questionnaire should be done to make the respondents feel at ease.)

6. **Checking the questionnaires for completeness and consistency**

- Ask participants to brainstorm why it is important to check questionnaires for completeness and consistency and when they think these checks should be performed. Give examples of inconsistencies (e.g. does not smoke but for type, cigarettes is filled in) (Before leaving the interview location, the interviewer should check to see if the answers to all questions have been reported, so that the interviewee can still provide answers to forgotten questions or resolve inconsistencies. During the field work, the field team leader will also cross-check the questionnaires for completeness and consistency at the end of the day.)
- Discuss the outcome of the brainstorm and conclude.
- Discuss the checks to be performed as listed in the SOPs.

7. **Practicing the questionnaires administration (census, symptom interviews, in-depth interviews of those eligible for sputum examination, case interview etc.):**
   a) After all questions are explained and discussed (see F4.5 above), divide the group in small groups of 3 persons to practice asking the questions. One person conducts the interview, one is the interviewee and one is an observer. They take turns so each person gets a chance to interview, observe and answer. The facilitators walk around to assist with any problems/issues that might occur during the exercise.
   b) Reconvene and discuss as a large group any issues that might have arisen from the practical exercise outlined above, including questions that were interpreted differently, questions that were perceived as difficult, a barrier to ask etc.
   c) After part a&b (above) have been completed, divide the group into small groups (2-4 persons depending on the size of the group and the number of facilitators). Conduct a role playing exercise wherein the facilitators play a household respondent and the surveyors practice the questionnaires. The facilitators can build in some inconsistencies in answering to assess the accuracy of the interviewers. Practice all parts of the interview process, including the introduction in the household, asking for consent, issuing the questionnaire, checking the questionnaire for completion etc.

8. **Wrap up discussion**

At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points in a plenary group session. A combined test to assess knowledge and skills should be developed for the whole module F, see F5 practicing in dummy households.
Module F5 Practicing in dummy households

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Have practiced selecting households to be included in the survey</td>
</tr>
<tr>
<td></td>
<td>- Have practiced collecting census information in testing households</td>
</tr>
<tr>
<td></td>
<td>- Have practiced enrolling households into the survey</td>
</tr>
<tr>
<td></td>
<td>- Have practiced conducting interviews in testing households</td>
</tr>
<tr>
<td></td>
<td>- Have practiced proper recording of information on the different forms as well as crosschecking of completed forms</td>
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<tr>
<td></td>
<td>- Have performed sufficiently to and are ready to start with the pilot survey</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Copies of census registers, informed consent and questionnaires, 'dummy households' for practicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Prevalence survey coordinator</td>
</tr>
<tr>
<td>Methodology</td>
<td>Field practical</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of field teams and number of interviewers per field team</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>0.5 day</td>
</tr>
<tr>
<td>Background materials</td>
<td>Registers, Questionnaires, SOPs prevalence survey</td>
</tr>
</tbody>
</table>

1. Introduction to practicing in dummy households

After the census team and the interview team have followed the modules applicable for their specific tasks, a practical exercise is needed to test knowledge gained during training. Two dummy households per team should be arranged near the training venue. These dummy households should not be part of the selected clusters. The members of the households should be asked if they want to act as respondents in this exercise and they should be explained this is a training exercise and that their answers will not be used. The training coordinator has made proper census of these households beforehand. The trained surveyors are asked to perform the learned procedures by visiting the dummy household and perform the survey procedures as if they are real.

2. Practice

- The group will be divided in small subgroups (2-4 persons), depending on the size of the group, the number of facilitators and the number of ‘dummy households’. Each subgroup visits 2 ‘dummy households’ and performs the interview; divide different sections of the interview between the members of the subgroup. Each subgroup is accompanied by a facilitator who observes what is happening and does not interfere unless there is gross misconduct.
- Perform all aspects of what has been learned about the census and interview, including the introduction in the household, census taking, asking for consent, issuing the questionnaire, thanking the respondents for their participation, checking the questionnaire for completion etc.

3. Feedback

- After completion of the testing interview (back at the training center) the facilitators discuss the dummy training with the subgroups after which a final discussion with all subgroups is held. Points to focus on are the key observations made by the facilitators (positive and/or negative), experiences of the surveyors (what was difficult, different then expected etc)
Based on the training session and the testing exercise, the facilitators assess if all surveyors are qualified to start the survey. This will be done by the training coordinator who will assess the candidates based on their performance during the training and the dummy training. Performance can be assessed using an observation check list (see annex 3). This checklist will be filled by the training coordinator and used to discuss progress. During the dummy training this list can be used as a test and a pre-determined sufficient score should be obtained in order to become a qualified interviewer for the survey.
MODULE G
X-ray in the field
Module G X-ray in the field

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- List the safety measures that need to be taken</td>
</tr>
<tr>
<td></td>
<td>- Identify persons eligible for sputum examination</td>
</tr>
<tr>
<td></td>
<td>based on X-ray results</td>
</tr>
<tr>
<td></td>
<td>- Organize the patient flow</td>
</tr>
<tr>
<td></td>
<td>- Keep a proper record of the X-ray screening</td>
</tr>
<tr>
<td></td>
<td>- Prepare images for central reading</td>
</tr>
<tr>
<td></td>
<td>- Conduct maintenance of equipment</td>
</tr>
<tr>
<td>Training materials</td>
<td>Chest x-ray films of TB and non-TB-patients' transparencies, flip chart</td>
</tr>
<tr>
<td>Responsible for training</td>
<td>Chief radiologist</td>
</tr>
<tr>
<td>Methodology</td>
<td>Practical exercises; discussions in small groups</td>
</tr>
<tr>
<td>Number of participants</td>
<td>X-ray team members, number depends on number and composition of field teams</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>Survey training: 2 to 3 days The length will depend on the level of training of the radiographer/technician. There should be sufficient time and practice to train reading of X-ray in normal and abnormal.</td>
</tr>
<tr>
<td>Background materials</td>
<td>SOPs X-rays, user manual chest X rays</td>
</tr>
<tr>
<td></td>
<td>The WHO taskforce for prevalence studies is developing a set of X-ray training materials to be available for in country training</td>
</tr>
<tr>
<td>Requirements</td>
<td>The participants have followed the technical training as provided by the chest X ray supplier and know how to make chest X rays with the study equipment.</td>
</tr>
</tbody>
</table>

Note: The content of this module is based on the assumption that radiographers or X-ray technicians are responsible for both taking chest X-rays and reading of abnormalities, However these responsibilities may differ per country; e.g. in some countries individuals with a medical background (e.g. clinical officers) will perform the reading part. These countries should adapt their trainings module accordingly.

1. Introduction
   - Welcome participants and introduce the training staff present.
   - Explain the objectives of the training.
   - Inform of break schedule, restroom location and use of mobile phones.
   - Initiate an ice breaker (see annex 1 for examples) for the group to get to know each other.
   - Explain that the candidates will be assessed during the training and that there is a chance that in case of underperforming they will need extra training to qualify to become an X-ray reader in the field team.

2. General organizational flow of testing day
   - The trainers give a short presentation to introduce the general organizational flow of the testing day, based on the study specific SOPs. In general, the following aspects need to be included:
     - The purpose of taking chest X-rays (for screening not for diagnosis).
     - Which persons will be excluded from chest X-ray and reasons for exclusion.
     - Description of when and where chest X-ray will be taken.
- The composition of the chest X-ray team and responsibilities of team members.
- Instructions how to prepare working place and setting up of the unit including for example checks, calibration, power up of generator, X-ray unit, digital unit, prepare plates and other accessories.
- Flow of patients through the X-ray unit.

3. Client care in preparation phase, conduct chest X ray and after care
   - The trainer will explain how to prepare individuals who will come for chest X-rays and how the flow of patients should be. The following aspects should at least be included: reception of client, explanation of procedures, physical preparation, breathing exercises; positioning of individual.
   - The trainer explains the post-examination instructions including referral to sputum collection (if needed). Some persons might be excluded for x-ray and go straight for sputum collection. Discuss these specific cases based on the SOPs.

Exercise
Divide the group into teams consisting of 3 persons and conduct role playing exercises in which one person is the radiographer, one person is the survey participant and one person is an observer. During this role play practice how to prepare individuals who come for chest X-rays. After the role play discuss what went wrong and what went right among the small groups. Subsequently, in a plenary session, the group experiences will be discussed.

4. Safety of chest radiography
   - The course participants discuss which measures should be taken to minimize radiation exposure during the survey. The trainer will facilitate the discussion and list the items on a flipchart.
   - The trainer discusses the measures and adds if necessary. The trainer explains which measures should be taken to minimize radiation during the survey as outlined in the SOPs. Depending on country specific situation, some examples of issues to be discussed include:
     - Role & responsibilities regarding safety procedures.
     - Checking that the equipment meets specifications.
     - Maintaining the equipment properly.
     - Providing protective devices to reduce radiation of workers operating the machines and any vulnerable person, including woman of childbearing age and pregnant woman according to SOPs.

5. Hygiene and waste disposal procedures
The trainer explains the following instructions to the participants:
   - How to ensure cleanliness of working area.
   - How to ensure cleanliness of the X-ray equipment and accessories.
   - How to dispose waste during the field work.

6. Identifying TB suspect by scoring the chest X rays.
In some studies a TB suspect is defined as a person who has a chest X-ray with specific abnormalities consistent with TB while in other studies, all individuals with abnormalities are defined as eligible for sputum examination. The training should assure that all technicians can identify these features and that they are aware of common pitfalls in the interpretation. The SOPs for a prevalence survey should clearly state which features are assumed to be suspect for TB and these should be used for the training.
**Exercise**

Explain that in each session 25 normal and abnormal chest X-rays will be presented. Participants are not given any other information about the individual from whom the chest X-ray was obtained. Participants read and assess each X-ray and are asked to score the X-rays as normal or abnormal. After participants complete the score sheets, collect them and compile their answers on a summary sheet (transparency) (suggestion: do this during coffee break).

- Repeat the presentation of the X-rays and discuss the outcomes. Participants are invited to discuss their findings and argue for or against certain outcomes. Common errors should be highlighted and discussed in order to standardize the reading.
- Depending on the training level of the X-ray readers, several of such sessions should be held until the results are satisfactory, i.e. detection of all abnormal X-rays.

**7. Record keeping**

Proper record keeping of the X-ray screening is essential since it influences the rest of the survey procedures. This section addresses how to record the results on both the X-ray form and the patient card. All interviewers are trained how to record their findings in the survey log books each evening.

*Recording results on the registration forms*

The results of the X-ray should be recorded on the screening form/patient card and registered in the appropriate register(s) after the chest X-ray has been taken.

- To explain the process of registration and the forms needed, which may be slightly different across prevalence surveys, first show a slide of the logistic flow of patients who will be screened in the TB prevalence survey. Furthermore, explain which forms should be filled out after the chest X-ray has been taken.
- Hand out the forms and give participants time to go through them individually and let them briefly discuss in small groups.
- Go through the forms, item by item and discuss the reason why the information should be recorded on the specific form and how this should be recorded.

**8. Skills assessment**

- After the training for chest X-ray reading (part G6) and recording of the results (part G7) an assessment will take place of the skills learned, both for X-ray reading as well as accurate recording of information. Participants should correctly identify all abnormal X-rays according to the screening criteria as specified in the SOPs. It is important no abnormal X-ray is missed.
- The training coordinator will assess the candidates based on their test results and discuss with the prevalence survey coordinator how to proceed further with those readers who have not successfully finished the X-ray reading course. If they do not perform to standard, additional training will be required. If they perform far below standard it should be considered whether they should be replaced by other readers in the survey.
- Guidance for the extent of agreement between the two readings can be found in the book "Assessing tuberculosis prevalence through population-based surveys (WHO, 2007; Chapter 13 Quality Assurance, page 75-79) and in the latest version of this book."
9. Quality assurance

The quality assurance process will be described in detail in the prevalence survey protocol and SOPs. It largely depends on which methodology is being used (digital or conventional X-ray). During the training, the trainer will give a presentation which includes the following issues related to quality assurance:

- Periodic quality check of equipment.
- Methodology of selection of images for quality control in the field.
- Supervisory visits, frequency and what will be monitored.
- Methodology of transport of X-rays from field to central level.
- Methodology of re-reading at central level of abnormal and normal X-rays.
- Importance of blinding of the field results of the X-rays for those persons involved with quality assurance at central level.
- Importance of proper recording of the result.
- Coding forms which will be used at central level.

10. Wrap up discussion

At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:

- A *plenary group session* in which the trainer summarizes the main points and provides additional explanations were needed;

- *Assessment of knowledge by means of test:* A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
MODULE H
Specimen collection in the field
# Module H Specimen collection in the field

| Objectives | At the end of the training, participants will be able to:  
- Adequately collect and pack sputum samples (H1)  
- Conduct the field laboratory tests for the survey (smear (H2), HIV testing (H3 optional)) under field conditions following the SOPs  
- Perform quality assurance checks of the procedures learned  
- Maintain a standardized record keeping  
- Use appropriate methods for transport of specimens  
- Report observed results to the appropriate persons |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Training materials</td>
<td>Laboratory samples for practicing, transparancies/powerpoint presentation</td>
</tr>
<tr>
<td>Responsible for training</td>
<td>Head of the CTRL, laboratory expert and/or international TA</td>
</tr>
</tbody>
</table>
| Methodology | 3 optional submodules  
Practical lab work, presentation, discussion |
| Number of participants | Lab subteam, total number will depend on the number of teams. In some countries the lab subteam might change per (group of) cluster(s) as local diagnostic facilities are used. All these persons need to be trained in the survey procedures. |
| Timing | During the general survey training for the fixed team members. |
| Duration | 1 day per module. |
| Background materials | Prevalence survey specific laboratory SOPs |

Note: The exact content of the training depends on the laboratory set up. For example:
- Will smears be done at cluster level (either in field or in neighbouring regional/district lab) and culture and/or DST at central level?
- Will culture and/or DST be done at different locations or at one central facility?
- Will both smear and culture and/or DST be done at central level or regional level?
- Will all be done by a fixed team or are cluster level procedures done by regional/district laboratory staff?

The outline of the different module under H should be adapted to reflect the study design in the country. It is strongly recommended that refreshment training is given, despite the fact that these procedures are standard for laboratory staff. Survey procedures are always slightly different from routine procedures and standard laboratory procedures have been adapted for the prevalence survey. These survey SOPs need to be followed closely for all survey samples. Special attention needs to be given to the points where the survey SOPs are different from the regular lab procedures, receipt of the specimens and communication of problems to the team leaders in the field. Quality assurance procedures need to be familiarized and roles and responsibilities of the central laboratory team need to be defined and clarified.
Module H1 Sputum collection and packaging sputum samples for smear and culture

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Correctly collect sputum samples</td>
</tr>
<tr>
<td></td>
<td>- Know what is a good quality sputum sample</td>
</tr>
<tr>
<td></td>
<td>- Organize the flow of patients for sputum collection</td>
</tr>
<tr>
<td></td>
<td>- Package the sputum samples for transport to the smear</td>
</tr>
<tr>
<td></td>
<td>- Package the sputum samples for transport to the culture</td>
</tr>
<tr>
<td></td>
<td>- Keep record of sample collection in a standardized way</td>
</tr>
<tr>
<td></td>
<td>- using transportation forms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies/powerpoint presentation, packaging materials, hand outs, sputum cups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Head of the CTLR, Laboratory expert / international TA</td>
</tr>
<tr>
<td>Methodology</td>
<td>Presentation, discussion, laboratory practical, group work</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on study design, i.e. number of team members involved in sputum collection and packaging</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day depending on the level of training of existing staff</td>
</tr>
<tr>
<td>Background materials</td>
<td>SOPs prevalence survey</td>
</tr>
</tbody>
</table>

1. Introduction
- Welcome participants and introduce the training staff present.
- Explain the objectives of the training.
- Inform of break schedule, restroom location and use of mobile phones.
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.
- Explain that the participants that will be assessed during the training and that there is a chance that in case of underperforming they need additional training to be able to become part of the interview team. In case of gross underperformance they might not be allowed to continue as survey team member.

2. General organizational flow of testing day
- Conduct a presentation to introduce the general organizational flow of the testing day and the flow of specimens from field to laboratory, based on the study specific SOPs. In general, the following aspects should be included:
  - Explanation of from which persons sputum will be collected
  - Explanation of when and where sputum will be collected
  - Description of how to organize patient flow at the field site
  - The composition of the sputum collection team and responsibilities of team members
  - Description of the organization of the testing day including procedures for preparation of clients, number of samples
  - Description of a good quality sputum sample
  - Description of the procedures for transport of sputum samples for smear microscopy and culture
  - Description of where reading of microscopic slides will take place
  - Description of where culture, DST and TB identification will be done
3. Sputum collection
• Explain the steps needed to be followed in the process of sputum collection. This can be done by a powerpoint presentation in which all steps are visualized. These steps include:
  - Explanation of the procedures to the study participant.
  - Explanation where sputum collection will be conducted (e.g. open air/well ventilated room).
  - Instructions how to label sputum containers before collection.
  - Breathing instructions.
  - Instructions how to check the amount and quality of sputum and when to request for another sample if necessary.
  - Instructions how and importance to store the sample in the cooler box.
  - Giving the sputum cup for early morning sputum sample.
  - Instruct the survey participant how to collect the early morning sputum sample and what they should do with the sample after collection.

4. Packaging and labelling of sputum samples
The participants will receive training on specific aspects which should be taken into consideration during packaging of sputum. Issues to be covered:
  - Gloves should always be worn when handling sputum samples.
  - Sputum samples should only be collected in the provided sputum cups.
  - The sputum cup should be labeled with the study specific ID. Sputum cups given for morning sputum collection should also have the name of the person written on them. *Note: as several members in a household might have a morning sputum container and they do not know their study ID number they might get mixed up, the names help to identify the right sputum container.*
  - Samples should be tightly capped to prevent leakage. This may lead to contamination.
  - Samples should not be left in direct sunlight. Morning samples should be collected early in the morning.
  - Once samples are collected, they should be immediately transferred to the cool box containing ice packs.
  - All samples should be delivered within the time period as specified in the SOPs.
  - Cool boxes should be wiped with 70% alcohol immediately after being emptied.

5. Transport of sputum samples
This part of the training includes specific aspects to be taken into consideration during sputum transport. The study specific SOPs include details on where to send the samples for smear microscopy (if not performed in the field laboratory) and for culture testing. The following aspects need to be covered:
  - Sputum specimens need to be sent from the field to the laboratory in a safe and fast manner.
  - Specificities of procedures for transport:
    • Where and how the sputum samples will be stored before and during transportation (e.g. samples for smear microscopy may be placed in a box/container, while samples for culture need to be placed in a cooler/box with ice).
    • How to fill out transportation form
    • Keeping dispatch records
6. Practice
After the theoretical component, the participants should practice all procedures, i.e. the packaging of samples using sputum cups filled with water, filling of the forms and labelling of the samples as well as the instructions for producing sputum.

7. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:

- A plenary group session in which the trainer summarizes the main points and provides additional explanations were needed;

- Assessment of knowledge by means of test: A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
Module H2 Smearing, staining and microscopy in the field (optional)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Prepare &amp; set up a field laboratory site</td>
</tr>
<tr>
<td></td>
<td>- Accurately perform smear microscopy following the</td>
</tr>
<tr>
<td></td>
<td>survey SOPs</td>
</tr>
<tr>
<td></td>
<td>- Interpret the results</td>
</tr>
<tr>
<td></td>
<td>- Perform standardized record keeping</td>
</tr>
<tr>
<td></td>
<td>- Report results appropriately and timely</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training materials</th>
<th>Transparencies/powerpoint presentation, flip chart, handouts, test slides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible for training</td>
<td>Laboratory expert / international TA</td>
</tr>
<tr>
<td>Methodology</td>
<td>Presentation, discussion, laboratory practical, group work</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Depends on number of part of the fixed team performing smears.</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day depending on the level of training of existing staff</td>
</tr>
<tr>
<td>Background materials</td>
<td>SOPs prevalence survey</td>
</tr>
</tbody>
</table>

1. Introduction
- Welcome participants and introduce the training staff present.
- Explain the objectives of the training.
- Inform of break schedule, restroom location and use of mobile phones.
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.
- Explain that the participants that will be assessed during the training and that there is a chance that in case of underperforming they need additional training to be able to become part of the interview team. In case of gross underperformance they might not be allowed to continue as survey team member.

2. Prepare field laboratory site
- The participants will be trained how to set up and prepare a field laboratory according to the procedures as described in the SOPs.

3. Performing smearing, staining and microscopy in the field
Explain, discuss and demonstrate the following topics regarding smearing, staining (ZN or auramine depending the type of microscopy used) and microscopy performed at a laboratory field site as outlined in the SOPs:
- All steps to be taken in sputum processing, staining and reading of smears in a field laboratory setting. Focus specifically on where procedures (and circumstances) are slightly different from the normal laboratory conditions.
- How to interpret and record the results.
- How to accurately fill the survey forms and registers.
- When and how to report persons who missed a sputum sample to the field team leader for follow up.
- To whom and when to report smear results for follow up of identified cases.
- How and where to store the slides for QA purposes.
4. Bio-Safety, Good laboratory practice and waste disposal
The participants will be trained on bio-safety procedures for field smear collection, good laboratory practise in the laboratory and how to dispose waste of infectious material under field laboratory conditions, following procedures described in the SOPs.

5. Practice
After the theoretical portion of the training, participants should practice the interpretation and recording of smear microscopy results by using test slides. They can also practice the set up of the field site using the actual equipment present for the field sites.

Exercise
Explain that in each session a panel of slides will be read with unknown result. Participants are not given any other information about the individual from whom the sputum sample was obtained. Participants read and assess each sample and are asked to fill the reporting forms as they were trained to do in the survey. After participants complete the result forms, collect them and compile their answers on a summary sheet (transparency) (suggestion: do this during coffee break). Discuss their findings and discuss discrepancies between results. Depending on the level of training several of such sessions might be needed for all or part of the group, until the results are satisfactory, i.e. correct identification of all results. Although in principle the technical skills should be available before the survey training starts, performance in reading should be assessed to make sure all qualify to standard.

6. Skills assessment
After the training an assessment will take place of the skills learned for field laboratory. All smear field procedures will be assessed. For smear reading panel testing could be used combined with appropriate recording and reporting estimates and handling of samples. The training coordinator will assess the candidates and discuss with the prevalence survey coordinator how to proceed further with those readers who underperform. If they do not perform to standard, additional training will be required or if they perform far below standard it should be considered if they should be replaced by other readers in the survey.
Module H3 HIV testing (optional)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session participants will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Perform VCT procedures for eligible participants</td>
</tr>
<tr>
<td></td>
<td>- Perform standardized record keeping</td>
</tr>
<tr>
<td>Training materials</td>
<td>Transparencies/powerpoint presentation, flip chart, handouts</td>
</tr>
<tr>
<td>Responsible for training</td>
<td>Qualified VCT trainer</td>
</tr>
<tr>
<td>Methodology</td>
<td>Presentation, discussion, laboratory practical, group work</td>
</tr>
<tr>
<td>Number of participants</td>
<td>Part of the fixed team performing HIV testing, ideally those recruited are certified HIV counsellors</td>
</tr>
<tr>
<td>Timing</td>
<td>During the general survey training for the fixed team members.</td>
</tr>
<tr>
<td>Duration</td>
<td>1 day depending on the level of training of existing staff</td>
</tr>
<tr>
<td>Background materials</td>
<td>SOPs prevalence survey</td>
</tr>
</tbody>
</table>

1. Introduction
- Welcome participants and introduce the training staff present.
- Explain the objectives of the training.
- Inform of break schedule, restroom location and use of mobile phones.
- Initiate an ice breaker (see annex 1 for examples) to get to know each other within the course if the persons have not yet met before. If the persons have met in other training sessions a short round of introduction will be sufficient.
- Explain that the participants that will be assessed during the training and that there is a chance that in case of underperforming they need additional training to be able to become part of the interview team. In case of gross underperformance they might not be allowed to continue as survey team member.

2. Purpose and ethics of HIV testing
The training should include the following aspects:
- The reasons for HIV testing in a TB prevalence survey as outlined in the protocol
- Ethical issues related to HIV testing:
  - Explain the four key principles to consider when including HIV testing of human subjects in a survey: (1) protection from harm; (2) participation in the benefits of research; (3) information about procedures and risks and (4) free choice to participate or not (WHO, 2007)
  - Informed consent procedure
  - Availability of voluntary counselling and testing (VCT)
  - Returning of rest results to individuals if desired, and survey register

3. Procedures for HIV testing
Explain and discuss the procedures for HIV testing. Ask the participants for their experience regarding different testing methods and make sure there is room for their input during the discussion.
The following issues should be included in the discussion:
- Pre-counselling of participants to be tested
- All the steps to be taken in performing the HIV test
  - When, where and from whom
  - Type of HIV test
  - Reporting of results to participants (who, when, where)
- Post-counselling of participants after receiving test results
- Procedures for referral of those who tested positive to receive appropriate care
- How to accurately fill the survey forms and registers
4. Skills assessment
After the training an assessment will take place of all trainees to assess if they are adequately skilled to perform the required task following the SOPs. VCT counsellors often have specific certifications and such people should be recruited for conducting the work. This training serves to teach the survey specific circumstances especially where procedures might different to what counsellors are normally doing. The training coordinator will assess the candidates based on their test results and discuss with the prevalence survey coordinator how to proceed further with those who underperform. If they do not perform to standard, additional training will be required or if they perform far below standard it should be considered if they should be replaced.
MODULE I
Field team management
Module I Field team management

<table>
<thead>
<tr>
<th>Objectives</th>
<th>By the end of this session the field team leaders should:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Have a good sense of problem solving in the field.</td>
</tr>
<tr>
<td></td>
<td>- Know which decisions they can make and for which</td>
</tr>
<tr>
<td></td>
<td>decisions the survey coordinator needs to be</td>
</tr>
<tr>
<td></td>
<td>consulted</td>
</tr>
<tr>
<td></td>
<td>- Are able to adequately perform record keeping and</td>
</tr>
<tr>
<td></td>
<td>check for inconsistencies in records</td>
</tr>
</tbody>
</table>

| Training materials                                               | Transparencies/powerpoint, forms and registers           |
| Responsible for training                                      | Prevalence survey coordinator & data manager             |
| Methodology                                                   | Presentation, discussion, group work, exercises          |
| Number of participants                                        | Depends on number of field team leaders                   |
| Timing                                                       | During field team workshop, final day                    |
| Duration                                                     | 0.5-1 day                                               |
| Background materials                                          | Prevalence survey SOPs                                  |

1. **Introduction**
   - Welcome participants and introduce the training staff present.
   - Explain the general objective of the training.
   - Inform of break schedule, restroom location, use of mobile phones.

2. **Record keeping**
   The specifics of record keeping for each sub activity (census, interviews, lab and X-ray) have been taught during other training sessions. This includes checks for missing data, follow-up of survey participants and checking data inconsistencies. Furthermore, this module provides extra training for team leaders in record keeping, because team leaders are responsible for combining all data collected and checking for inconsistencies and missing data.

   - First ask the participants why it is relevant to have a proper record keeping. Discuss that proper record keeping is essential for tracing individuals for the collection of data and proper data entry.

   - A daily verification and cross-check of all forms and registers is needed to identify missing information on individuals or procedures. Topics that need to be discussed are:
     - The difference between a form and a register.
     - How to cross-check forms and registers.
     - How to identify missing data and inconsistencies.
     - What to do in case of partial non-participation or other mistakes (e.g. probable mistakes in copying ID numbers, survey participants who were identified as TB suspects but were not asked to submit sputum etc.).
     - Lines of responsibility with respect to data verification.
     - Storage and transportation of data from cluster to central site.
     - Producing a data verification report at the end of the field activities.

3. **Practice**
   After the theoretical part of the training is completed check during a practical session that procedures are well understood. Test forms and registers should be prepared in advance (with some errors) and then used to practice the procedures. Correct identification of errors can be used as a post test for persons trained.
4. Problem solving in the field

One of the key challenges for the field leaders will be problem solving in the field. During any field survey unexpected situations happen and it is good to anticipate how to react in different situations. Challenging situation can have to do with broken down equipment, disagreements within the survey team, problems with the local population etc. Although not all challenges can be foreseen discussing solutions to different potential problems serves as training for finding solutions to unexpected field situations.

Exercise

- Using the SOPS the field team leaders are asked to make a list of different challenges that could be anticipated while in the field. When a list of issues is identified, each team leader is given 3-5 situations and he/she should write down how he/she would solve the situation. After individual solutions have been written down the team leaders share their ideas and come to a common solution for each situation. These are then discussed in a summary session with the survey coordinator.
- The survey coordinator may present additional situations for discussion.
- For each situation discuss of the kind of decisions that can be made by the field team leaders and the kind for which the survey coordinator needs to be consulted.

One of the key challenges for the survey coordinator will be ad hoc problem solving. During any field survey unexpected situations occur and it is good to anticipate how to react in different situations. Challenging situations can have to do with broken down equipment, disagreements within the survey teams, problems with the local population etc. Although not all challenges can be foreseen, discussing solutions to different potential problems serves as training for finding solutions to unexpected survey situations.

  a. Using the SOPs the participants in small groups are asked to make a list of different problems that could be anticipated while in the field. When a list of issues is identified, each group is given 3-5 problems for which to find a solution to solve the situation. These are then discussed in a plenary session with the survey coordinator.
  b. Depending on the issues raised the trainer presents additional situations for discussion. Below some examples from previous surveys are described:

Example problem 1: Confusing definition of eligible population

Identification of problem: Observation of teams during pilot and monitoring visits; check registries; ask interviewees (or interviewers)

Prevention of problem: Emphasize aspect during training of field staff members

Lesson learned: Make a clear definition of the eligible study populations

Example problem 2: Not including children aged <15 years in the census

Identification of problem: Observation of teams during pilot and monitoring visits; check registries; ask interviewee’s

Prevention of problem: Emphasize aspect during training of field staff members

Lesson learned: Describe very specific instructions in SOPs
Example problem 3: Not including ID numbers on chest X-ray films

Identification of problem: Observation of teams during pilot and monitoring visits; check films
Prevention of problem: Emphasize aspect during training of field staff members
Lesson learned: Conduct checks during monitoring visits and ensure that persons involved with monitoring know what to monitor

Example problem 4: Taking sputum from non-TB suspects

Identification of problem: Observation of teams during pilot and monitoring visits; check sputum register with those eligible for sputum examination
Prevention of problem: Cross check registries during monitoring visits
Lesson learned: Conduct checks during monitoring visits and ensure that persons involved with monitoring know what to monitor

Example problem 5: Very high proportion of suspects during pilot/certain clusters

Identification of problem: Observation of teams during pilot and monitoring visits
Prevention of problem: Investigate reason for high suspects, are they all real symptomatic or do people anticipate further testing when reporting certain symptoms.
Lesson learned: Investigate reason behind unexpected observation and make sure procedures are followed as outlined in SOPS and that appropriate information is given to participants

5 Additional managerial skills
Other skills which need to be trained include:
- How to motivate team members; how to deal with conflicts;
- Negotiation and communication skills
- Decision-making skills
- Community mobilization skills

Exercise
To train managerial skills the exercise will include examples of situations and the trainees will be asked to discuss how they would response in such situations (“What if scenario’s”)

6. Wrap up discussion
At the end of the training session the trainer should provide a summary of the main points and assess if the participants have understood the main points. This can be done by different methodologies, for example:
- A plenary group session in which the trainer summarizes the main points and provides additional explanations were needed;
- Assessment of knowledge by means of test: A test will be developed to assess knowledge of the key points. The participants are individually asked to fill out the test and in a plenary session the answers will be discussed and additional explanations will be provided were needed. Alternatively this can be done in a plenary session whereby the questions are asked to the audience, who then respond after which the additional information is discussed were needed.
MODULE J
Feedback and team building
Module J Feedback and team building

| Objectives                               | By the end of this session participants have: |
|                                         | - Had the opportunity to provide feedback on the lessons learned during the training |
|                                         | - Had the opportunity to ask for any remaining questions |
|                                         | - Understood the importance of good team atmosphere |
|                                         | - Participated in team building activities with the different sub teams |
| Training materials                      | none |
| Responsible for training                | Prevalence survey coordinator |
| Methodology                             | Discussion and team building activities |
| Number of participants                  | Joint training for all members of the fixed field teams |
| Timing                                  | During the general survey training for the fixed team members. |
| Duration                                | 0.5-1 day depending on felt need |
| Background materials                    | none |

1. Introduction
   - Welcome participants
   - Explain the objectives of the training

2. Feedback on lessons learned & opportunity for remaining questions
   - The trainer provides a brief overview of skills that the different team members have learned during the training
   - Participants are invited to provide feedback on the training and ask remaining questions on the survey if any

3. Importance of team spirit
   - The trainer stresses the importance of working together as a team
   - The trainer explains who should be consulted in situations when an individual feels the team is not functioning well enough or if there are other concerns

4. Team building activities
   - Team building activities, appropriate and suitable for the specific country will be included.

5. Wrap up discussion
   At the end of the training session the trainer should provide a summary of the main points and assess if the trainees have any remaining issues that need to be dealt with before the pilot survey can start.
References


WHO A handbook for tuberculosis prevalence surveys, the new, the updated and the lessons learned. 2010
Annex 1 Introduction of participants

Icebreakers

Example 1 Baggage claim

Purpose: complete strangers; pure fun
Group size: 12 to 500
Level of physical activity: medium
Estimated time: 15 to 20 minutes
Materials required: baggage cards, one per participant

Description:
In this activity, persons find things out about each other before putting faces to names. It’s best used with persons who don’t know one another well, because they will be moving around and meeting each other.

Instructions:
1. Pass out cards to participants and ask them to “pack their bags” by filling in the blanks.
2. Explain that they will now experience going to the baggage claim area and accidentally pick up someone else’s bag.
3. Ask participants to walk around the room, shaking hands and introducing themselves to other participants in the following way:
   - The first time a person shakes hands with another person, both participants will introduce themselves and tell each other what is in their bags (based on the information they wrote on the card).
   - The pair will then exchange “bags” and move on to greet other participants.
   - As they greet other participants, they will shake hands and introduce themselves but explain that they have the wrong “bags”. They will then proceed to tell each other who their “bags” belong to and what’s in them, using the information on the cards they have in their hands.

---

• After each meeting, they will “trade bags” and then move on to another participant.
4. After 5 minutes, ask participants to stop.
5. If the group has 40 or fewer participants, you ask each person to read the name of the person whose card they are holding, introduce that person by what’s in the bag, and return the card to that person, so that eventually everyone will be holding their own “baggage” again.

Variations:
1. Ask the participants to draw their own luggage on cards.
2. If it is a small group, have participants “guess who” as each card is read.

Tips:
1. If you collect the cards, you can use them for drawings and door prizes.
2. Decorate the room with maps or travel posters.

---

Baggage claim activity sheet

Please “fill the bag” with five interesting facts about your life.

Please “fill the bag” with five interesting facts about your life.
Ice breaker example 2: First real job

Purpose
complete strangers; team building; introducing a topic; self-disclosure

Group size
10 to 500

Level of physical activity
low

Estimated time
5 to 7 minutes

Materials required
none

Description:
Persons get an entrée into the job market in a variety of ways, all of which serve as “schools of practicality”. In this activity persons share first job experiences and the understanding they picked up from those experiences.

Instructions:
1. Organize participants into pairs.
2. Explain that all of us have a story or two to share about our “first real job” experiences. All of us can point to something or things we learned from that first job.
3. Tell pairs they have 5 minutes to share with one another their “first real job” experiences and then reveal what they learned from their time on those jobs.
4. After 5 minutes, follow one of two next steps:
   - If the group is large, explain that most persons begin their job experience with a “first real job” in [give example most applicable suitable in your country] or [give another example most applicable suitable in your country]. Ask for a show of hands first jobs were in each of those industries and then do the same for other industries.
   - If the group is small, quickly hear from each pair.
5. To insert humor, ask for a show of hands of how many persons learned that they didn’t want to keep doing that job.

Variations:
1. Organize participants into groups of four or five. Ask them to find something in common about their “first real job” experiences.
2. Make this a more serious activity by asking participants to share experiences about their “first real job” in their careers, rather than describing any “first real job”.

Tip:
1. Have fun with this by telling a story about a person you recently encountered who you could tell was in a first real job.
2. Or yell a story about your own first real job.

Icebreaker example 3: Line up

Purpose: groups of 20 or more; team building; pure fun

Group size: 16 to 200

Level of physical activity: high

Estimated time: 5 to 7 minutes

Materials required: ‘Line up activity sheet’ for leader

Description:
Lining up by height order or alphabetically is just the beginning of this activity, as participants think of creative ways to line up in order. Use this activity to break the monotony of long periods of sitting, and you’ll find participants finding out about each other too. Any group is game for this activity.

Instructions:
1. Organize participants into groups of 8 to 20.
2. Tell participants that in the “line up”, they will have a chance to learn things about one another they may never think to ask.
3. Give these instructions:
   - This is group competition.
   - I will give the instruction for groups to line up in a particular way.
   - Your group should get in line as quickly as possible.
When your group is lined up appropriately, but not before, all group members should clap to indicate your readiness to me.

4. Conduct a practice round. Tell them to line up by height, and to clap when they’re finished.

5. Begin the activity. After each lineup, determine which group clapped first and then announce them as the winner of that round.

Variations:
1. Use this activity periodically throughout a long session.
2. Ask groups to come up with their own way of letting you know they’re ready. This adds a lot to the fun.

Tips:
1. Keep the tone light; this is a fun competition.
2. Laugh and play with humorous comments from participants; there will be many.
3. Remember political correctness with regard to your own or participants’ comments.

-------------------------------------------------------------------------------------------------------------------------------------

Line up activity sheet (for the leader)

1. Line up in order by shoe size.
2. Line up in order by length of arm’s reach.
3. Line up in order alphabetically by favorite color.
4. Line up in order by number of siblings you have.
5. Line up in order by hair color, lightest to darkest.
6. Line up in order by age, youngest to oldest.
7. Line up in order by length of time with current employer.
8. Line up in order alphabetically by first name.
9. Line up in order alphabetically by last name.
10. Line up in order by number of pets owned.
11. Line up in order by hair length, longest to shortest.
12. Line up in order by the number of bones you’ve ever broken.
Icebreaker example 4  Getting acquainted I

Objectives
To enable participants to become acquainted
To help build a climate of friendliness and informality

Materials required
blank stick-on name tags

Each person is given a blank name tag and asked to put his or her first name or nickname on it. Then they are asked to list two words or brief phrases that tell something about themselves that can be used as conversation starters. Examples could be home states, hobbies, children etc.

An illustration follows:
Elizabeth (Beth) 1. Arizona resident 2. Jogger

Description:
After giving the group enough time (about one minute) to write down their two items, have them start mixing around in groups of two or three (maximum). Every few minutes, tell the group to “change partners” in order to encourage everyone to meet as many new persons as possible.

Discussion questions:
1. Was this exercise helpful to you in getting to know some other persons?
2. What kinds of items made the greatest impact on you?
3. How do you now feel about your involvement in this group?

If you have more time: Ask participants to list five words or brief phrases that tell something about themselves that can be used as conversations starters. After giving the group enough time (about five minutes) to write down the five items, have them start mixing around in groups of two or three (maximum). Every few minutes, tell the groups to “change partners” in order to encourage everyone to meet as many persons as possible.

Tip: To speed up the activity, give participants a blank name tag when they check in for the program and ask them to write their names, nicknames, and list of descriptive words on the name tags at that time.
Icebreaker example 5  Getting acquainted II

Objective  To allow participants to become acquainted through a structured exercise

Materials required  Blank name tags

Description:
As the opening session of a group meeting, each individual is given a blank name tag. Each person completes the following items:

1. My name is: ………………………………………………………………………………………………
2. I have a question about: …………………………………………………………………………………
3. I can answer a question about: …………………………………………………………………………

Tips:
1. To speed up the activity, give participants a blank name tag when they check in for the program and ask them to write the requested information on the name tag at that time.
2. Preprint the name tags with items 1 - 3 above, and ask participants to complete the information as they register or as they wait for the session to begin.
Annex 2 X-ray sensitization
The examples below are a courtesy of the Kenya Medical Research Institute/Centers for Disease Control and Prevention.

ENTRANCE OF THE X-RAY TRUCK

Inside the X-ray room

BUCKY STAND
X-RAY TUBE

FEMALE PARTICIPANT INSIDE THE TRUCK

MALE PARTICIPANT INSIDE THE X-RAY TRUCK

PARTICIPANT
RADIOGRAPHER

MALE PARTICIPANT INSIDE THE X-RAY TRUCK
Mobile Field Site

The daily set up of a Mobile Field Site (MFS) in the village where x-ray procedures were undertaken.

PARTICIPANT PREPARATION

- Lay persons trained by radiographers, provided group orientation on x-ray procedures using visual aids at the MFS
- Cleared the area of examination
- Handled participants documents

Changing Room

Waiting Bay
**Annex 3 Interview observation checklist**

*Instructions: the interview observation checklist below serves as a guidance for developing a country specific observation checklist based on the country specific SOPs. It should be defined in advance which score an interviewer should obtain to be considered as an adequate interviewer for the survey; which score requires additional training and below which score the interviewer is not considered to be suitable to conduct interviews.*

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This interview observation checklist is to assess the performance of an interviewer during a dummy household interview.

**Interview purpose (check which box applies)**
- □ TB symptoms screening questionnaire
- □ TB suspect questionnaire

**Part I : Opening and setting the tone of the interview:**

*Instruction for observer: Observe the behavior of the interviewer during the start of the interview and check appropriate columns.*

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of interviewer in a clear way</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Builds a trustful atmosphere</td>
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<tr>
<td>Maintains open friendly tone</td>
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</tr>
<tr>
<td>Explains clearly purpose of the visit</td>
<td></td>
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<tr>
<td>Clearly explains importance of the survey and that all data are kept confidential</td>
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</tr>
<tr>
<td>Explains all elements of informed consent as specified in the SOP</td>
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</tr>
<tr>
<td>Asks to sign the informed consent form</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remains objective</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Does not hurry</td>
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<td></td>
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</tbody>
</table>

**Comments:**

**Strengths:**

**Areas for improvement:**
Part II Body of interview (general/technical)

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly explains interview questions</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Effectively addresses irrelevant questions/information of the interviewees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:

Strengths:

Areas for improvement:

Part III Body of interview (specific areas):

**Example: Checklist for TB symptom screening questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewer correctly probes for answers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer responds to verbal and non-verbal cues</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Example: Checklist for TB suspect questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewer asks questions exactly as worded in questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer encourages individuals to answer questions frankly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer avoids probing for answers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer responds to verbal and non-verbal cues</td>
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<td></td>
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</tbody>
</table>

Comments:

Strengths:
Areas for improvement:

Part IV Closing of interview:

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewer checks questionnaire for completeness and consistency before wrapping up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer wraps up properly by informing about next steps</td>
<td></td>
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<tr>
<td>Interviewer wraps up properly by thanking the interviewee</td>
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</tbody>
</table>

Comments:

Strengths:

Areas for improvement:

Overall interviewing techniques:

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>inadequate</th>
<th>Did not perform behavior/activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewer speaks clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer ensures the questions are understood</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer gives interviewees sufficient time to answer questions</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer does not alter interviewee’s statements when recording information</td>
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<tr>
<td>Interviewer makes a professional impression</td>
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<tr>
<td>Interviewer shows a respectful attitude</td>
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</tbody>
</table>

Comments:

Strengths:

Areas for improvement:
INTERVIEW FEEDBACK SUMMARY

Name of the trainee: ______________________________________________
Name of the observer: _____________________________________________
Date of observation: ___ /___ /20___
Interview purpose:

☐ TB symptoms screening questionnaire ☐ Suspect questionnaire ☐ Other

Areas of interview trainee completed successfully:
☐ Interview preparation
☐ Opening/setting the tone
☐ Body of interview (general/technical)
☐ Body of interview (specific areas)
☐ Closing of interview
☐ Overall interviewing techniques

Comments:

Areas of interview needing improvement:
☐ Interview preparation
☐ Opening/setting the tone
☐ Body of interview (general/technical)
☐ Body of interview (specific areas)
☐ Closing of interview
☐ Overall interviewing techniques

Comments:

Signature of observer: ______________________________________________
Signature of trainee: ______________________________________________