

## Module 3: Collection and Transport of Sputum Specimens

---

<b>Purpose</b>	To provide participants with the knowledge and skills for proper collection and transport of sputum for AFB microscopy
<b>Pre-requisite Modules</b>	Modules 1 and 2
<b>Module Time</b>	1 hour 35 minutes
<b>Learning Objectives</b>	<p>At the end of this module, participants will be able to</p> <ul style="list-style-type: none"> <li>• Describe specifications of suitable containers for sputum collection</li> <li>• Explain the collection strategy: spot–morning–spot</li> <li>• Describe and demonstrate safe and correct collection of sputum</li> <li>• Describe options for specimen collection, handling and transport</li> <li>• List features of a good sputum specimen</li> <li>• Describe requirements for a properly labeled specimen.</li> </ul>



### Module Overview




Step	Time	Activity/ Method	Content	Resources Needed
1	5 min	Presentation	Module introduction	Slides 1–3
2	20 min	Presentation and Discussion	Specimen Collection	Slide 4–16
3	10 min	Presentation	Referral Options	Slides 17–21
4	20 min	Presentation	Request form, container labeling, and specimen quality	Slides 22–28
5	30 min	Exercise: role play	Patient instructions for correct specimen collection	Slides 29–30 Specimen containers Flip chart Access to outdoor area
6	10 min	Q&A	Summary	Slide 31

### **Material and Equipment Checklists**

- PowerPoint slides or transparencies
- Overhead projector or computer with LCD projector
- Flipchart
- Specimen containers
- Request for Sputum Examination Form
- Instructions for Role Play


## Teaching Guide

Slide Number	Teaching Points
1	<p><b><u>Module 3: Collection and Transport of Sputum Specimens</u></b></p> <p>DISPLAY this slide before you begin the module. Make sure participants are aware of the transition into a new module.</p>
2	<p><b><u>Learning Objectives</u></b></p> <p>STATE the objectives on the slide</p>
3	<p><b>Flipchart</b></p>  <p><b><u>Content Overview</u></b></p> <p>(Suggested format for presentation)</p> <p>WRITE the content outline on a flipchart prior to training.</p> <p>REFER to it frequently to orient participants to where they are in the module.</p> <p>EXPLAIN that these are the topics that will be covered in this module.</p>
4	 <p><b><u>Specimen Collection Container: Specifications</u></b></p> <p>DESCRIBE the features of suitable specimen containers.</p> <p>EMPHASIZE the following points:</p> <ul style="list-style-type: none"> <li>• Wide-mouthed containers desirable so that the patient can expectorate easily inside the container without contaminating the outside</li> <li>• Made of translucent or clear material in order to observe specimen volume and quality without opening the container</li> <li>• Single use containers which can be tightly sealed to prevent any leakage during transport</li> </ul> <p>POINT OUT examples of disposable wide-mouthed, screw-capped containers shown in photo.</p> <p>EXPLAIN that most are made of unbreakable transparent plastic.</p> <p>FACILITATE a discussion about the features of the specimen containers routinely used in their laboratories.</p>

Slide Number	Teaching Points
<p>5</p> 	<p><b><u>Specimen Collection</u></b></p> <p>STATE the messages on the slide.</p> <p>EMPHASIZE that three specimens are optimal number of sputum specimens that should be collected from TB suspects.</p> <p>The examination of subsequent specimens contributes to very few additional diagnoses.</p>
<p>6</p> 	<p><b><u>Timing of Specimen Collection</u></b></p> <p>EXPLAIN that three sputum specimens are recommended for laboratory diagnosis of TB.</p> <p>EXPLAIN that the first specimen is collected on the spot when the patient presents at the diagnostic centre. The patient is then given another sputum container and instructed to collect an early morning specimen on the next day and return to the clinic. A third specimen (spot) is collected when the early morning specimen is delivered to the laboratory.</p>
<p>7</p>	<p><b><u>Spot-Morning-Spot</u></b></p> <p>DISCUSS the Advantages and Disadvantages of Spot-Morning-Spot collection</p>
<p>8</p>	<p><b><u>Collection Considerations</u></b></p> <p>EXPLAIN the message on the slide</p>
<p>9</p>	<p><b><u>Follow-up Specimens for Monitoring Treatment</u></b></p> <p>EMPHASIZE the importance of collecting an early morning specimen for follow-up. Well collected morning samples are more likely to yield AFB than spot specimens.</p>
<p>10</p> 	<p><b><u>Country NTP</u></b></p> <p>STATE the country specific sputum collection guidelines</p>

Slide Number	Teaching Points
11	<p><b><u>Specimen Collection: Safety</u></b></p> <p>EMPHASIZE that the laboratory worker is at a much greater risk of infection from TB suspect who is coughing than from a sputum specimen. Instruct patient to cover the mouth when coughing</p> <p>Preparing smears presents a much lower risk to the lab worker than exposure to direct coughing.</p> <p>EMPHASIZE that sputum specimens must never be collected inside the clinic or laboratory. Always collect sputum OUTSIDE, and away from other people. Do not stand near patient during specimen collection</p>
12	<p><b><u>Advantages of Open Air Collection</u></b></p> <p>EXPLAIN that adequate ventilation removes the droplet nuclei</p> <p>STATE that direct sunlight (Ultraviolet rays) kills tubercle bacilli but they can survive in darkness or in a humid environment for several hours and even days.</p>
13	<p><b><u>Specimen Collection Guidelines</u></b></p> <p>EMPHASIZE the importance of collecting three good quality samples from the TB suspect using spot/morning/spot.</p> <p>EMPHASIZE the importance of the TB suspect returning to the clinic to submit their morning specimen and to collect another spot specimen.</p>
14	<p><b><u>Patient Education: Collection</u></b></p> <p>EMPHASIZE the importance of the laboratory receiving a good quality specimen from the lung</p> <ul style="list-style-type: none"> <li>• Best specimen comes from the lung</li> <li>• Saliva or nasal secretions are unsatisfactory</li> <li>• Remove dentures and rinse mouth with water</li> <li>• Need for three sputum samples for optimal diagnosis</li> </ul>

Slide Number	Teaching Points
15	<p><b><u>Patient Instructions: Collection</u></b></p> <p>HIGHLIGHT instructions that should be provided to TB suspects when collecting sputum specimens. TB suspects should:</p> <ul style="list-style-type: none"> <li>• Inhale deeply 2–3 times, breathe out hard each time</li> <li>• Cough deeply from the chest</li> <li>• Place the open container close to the mouth to collect the specimen</li> </ul>
16	<p><b><u>Optimum Collection Location: Microscopy Centre</u></b></p> <p>EXPLAIN why collecting a specimen at the microscopy center is ideal by STATING the points on the slide. Under direct supervision, if an unsatisfactory specimen is submitted, then a repeat sample can be collected immediately</p>
17	<p><b><u>Microscopy Not Performed at Health Center: Referral Options</u></b></p> <p>EXPLAIN that it is best for the TB suspect to attend the diagnostic centre such that specimens can be collected under supervision. However, if microscopy is not performed at the health center, there are 3 referral options.</p> <p>STATE referral options on the slide. Each will be discussed in detailed in the next few slides.</p>
18	<p><b><u>Patient referral: Disadvantages</u></b></p> <p>EMPHASIZE the importance of avoiding delays in diagnosis as this contributes to further transmission in the community. Referring patients to a center where microscopy is performed has its disadvantages.</p> <p>STATE the points on the slide.</p>
19	<p><b><u>Specimen Referral</u></b></p> <p>EXPLAIN that as an alternative to patient referral, the peripheral health centre can supervise the patient in collecting an appropriate specimen, which can then be forwarded to a microscopy.</p> <ul style="list-style-type: none"> <li>• Important considerations are the frequency of transportation, particularly from remote settings.</li> </ul> <p>Proper packaging is essential to ensure that specimens are not broken or leak during transport.</p>

Slide Number	Teaching Points
20	<p><b><u>Specimen Referral: Disadvantages</u></b></p> <p>STATE the points on the slide.</p>
21	<p><b><u>Slide Referral</u></b></p> <p>EXPLAIN another alternative is to collect a sputum specimen at a peripheral health centre, prepare a smear and submit it to the microscopy centre.</p> <ul style="list-style-type: none"> <li>• This approach requires trained staff</li> </ul> <p>EXPLAIN that the disadvantage of this approach is that the microscopy centre is relying on the peripheral centre to collect good quality specimens and to prepare smears properly.</p>
22	<p><b><u>Request for Sputum Examination Form Should Include:</u></b></p> <p>EXPLAIN that sputum specimens submitted to the microscopy center for testing must be accompanied by a completed request form. Information captured on this form include:</p> <ul style="list-style-type: none"> <li>• Patient's name, sex, age, &amp; address</li> <li>• Date received</li> <li>• Name of Health Institution</li> <li>• Reason for examination</li> </ul> <p>FACILITATE a discussion about sputum examination form. Discuss any problems associated with receiving a completed for and measures to improve this process.</p>
<p>23</p> 	<p><b><u>Request for Sputum Examination Form</u></b></p> <p>(Customize to show country specific form)</p> <p>HIGHLIGHT the different fields which need to be completed on the request for sputum examination form.</p> <ul style="list-style-type: none"> <li>• If fields are incomplete ask patient for the information</li> </ul> <p>EMPHASIZE the need to differentiate diagnostic specimens from follow-up samples.</p>
24	<p><b><u>Labeling Specimen Container</u></b></p> <p>EMPHASIZE that need for specimen containers to be clearly labeled on the side of the container and never on the lid.</p> <p>POINT OUT the patient identification number labeled on the side of the container</p>

Slide Number	Teaching Points
25	<p><b><u>Specimen Receipt at Laboratory</u></b></p> <p>EMPHASIZE that upon receipt of specimens, you should check quality of specimen. EMPHASIZE that poor quality specimens are thin and watery and are not suitable for testing.</p> <p>ASK participants what effect watery specimens will have on test results.</p> <p>BRIEFLY EXPLAIN registering of numbers. This will be addressed in detail in another module.</p>
26	<p><b><u>Specimen Quality</u></b></p> <p>EXPLAIN from the pictures the quality of specimens</p>
27	<p><b><u>Specimen Quality</u></b></p> <p>EXPLAIN from the pictures the quality of specimens</p>
28	<p>STATE the message from slide</p>
29	<p><b><u>Role-Play: Collection of Sputum Specimen</u></b></p> <p>FOLLOW the procedure below when conducting the role play:</p> <p>INFORM participants that they are going to have a role play to practice collecting sputum specimens.</p> <p>POINT OUT the instructions on the slide by INTRODUCING the characters in the role play: 1) Health worker, 2) TB suspect (patient), 3) Observer</p> <p>PASS OUT the supplies (collection cup, request form, marker, and label).</p> <p>EMPHASIZE that no actual sputum specimens will be collected, rather simulating the process.</p> <p>ASK participants to assemble in groups of 3.</p> <p>HANDOUT Role Play Instruction Sheets ; TB Suspect, Health worker, Observer</p> <p>SIGNAL when it is time to switch roles and</p> <p>Where will the role play occur? Classroom? Outside?</p>



Slide Number	Teaching Points
30	<p data-bbox="574 216 824 247"><b><u>Role-Play: Debrief</u></b></p> <p data-bbox="574 281 1024 312">DISCUSS the questions on the slide.</p> <p data-bbox="574 346 1170 378">DEBRIEF by summarizing key discussion points.</p>
31	<p data-bbox="574 422 704 453"><b><u>Summary</u></b></p> <p data-bbox="574 466 1279 497">ASK the participants to answer the questions on the slide.</p> <p data-bbox="574 531 1203 562">ANSWER any questions the participants may have.</p>

## Specimen Collection Role Play:

### Instructions for the health worker

You have just found out that this TB suspect has coughed for more than a month. Your task now is collecting sputum for examination, which should include the steps listed below.

EXPLAIN that the TB suspect needs a sputum examination and enlist the TB suspect's cooperation to obtain all the information needed from the patient.

COMPLETE a *Request for Sputum Examination* form.

LABEL sputum containers.

EXPLAIN to the TB suspect how to collect sputum and the importance of a properly collected specimen.

ASK the TB suspect to produce a sputum sample.

ASK the TB suspect to collect another sample in the morning and then bring it to the diagnostic centre.

### Instructions for the TB suspect

Your task is to act the role of a TB suspect. You have been coughing for at least three weeks

PROVIDE the health worker with a pretend name and address when asked.

PRETEND to have limited knowledge about TB or sputum examination.

ACT surprised when the health worker asks for a sputum sample.

ASK questions of the health worker if the instructions on how to collect a sputum sample are not clear.

COUGH and pretend to spit into the container when you are asked to produce a sputum specimen

### Instructions for the observer

Your task is to watch carefully during the role play so that you can comment on what was done well and what could be improved.

PROVIDE feedback at the end of the role play and advise the health worker whether any steps were omitted.

COMMENT on steps done well and possible improvements.