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MINISTRY OF HEALTH

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THE TB SAMPLE REFERRAL SYSTEM (TSRS) TRAINING

Module 5

TB sample collection and labelling

xXth -xXth MONTH YEAR

NAME OF PRESENTER

OUTLINE

- Primary samples for TB diagnosis
- Materials required for specimen collection and packaging
- Guidelines for sample collection
- Safety requirements
- Request form contents
- Sample handling

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Exercise (10 minutes)

1. Describe the procedure you will follow while collecting sputum sample for microscopy assay including the safety precautions you will put into consideration.

Primary Samples for TB Diagnosis

A. Pulmonary Tuberculosis (PTB)
- Sputum (preferably naturally produced); is the best specimen for PTB,
- Others: lung aspirates, Gastric lavage, Laryngeal swabs

B. Extra Pulmonary Tuberculosis (EPTB)
- Lymph node aspirates
- Pus (wounds and boils)
- Synovial fluid
- Urine
- Other body fluids e.g bone marrow, CSF,
- Biopsies suspected of harboring MTB

Materials required for sample collection

- 50ml conical tubes, screw capped (Leak-proof) specimen container
- Air tight zip lock bags
- Cotton wool (or any absorbent material)
- Outer packaging container
- Laboratory request forms
- Disinfectant eg 5% Lysol
- Disposable gloves
- Cleansing tissue
- Color coded Vinyl bags for biological wastes
- Pens and permanent markers for labeling sample containers

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Specifications for Sputum collection Containers

- 15 - 50 ml capacity
- Wide mouthed
- Translucent /transparent/

  clear material
- Single-use combustible material
- Screw-capped with a water-tight

  seal
- Easily-labeled walls

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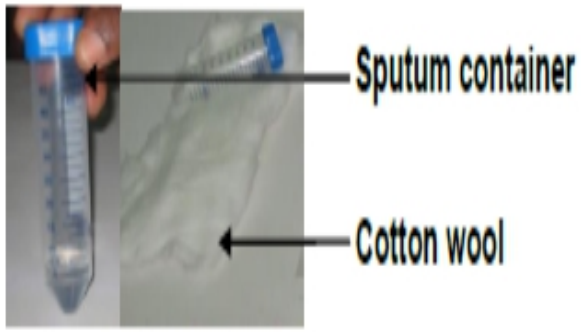
Sample packaging materials



Sputum Collection Guidelines

- Explain clearly to patient:
  - Why sputum is needed
  - Two samples required (Spot–morning)
  - What is a good sample and how to obtain it
  - Opening and tight closing of containers
  - Not to soil the exterior of the container
  - Emphasise to the patient the need to return to the clinic

Instructions for Sputum Collection

- Prior to sputum collection, the patient must be advised to rinse his/her mouth thoroughly with clean water.
- Early morning sample is the best, otherwise a spot sample is acceptable.
- Label specimen container with patient's name, age sex and lab number, where stickers are used, include as much information as possible.
- Carefully, fill and complete the lab request form with details matching with those on the specimen container

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Instructions for Sputum Collection (cont'd)

- Patient should make up to 3 deep inhalations & exhalations.
- Cough deeply from the chest on 3rd exhalation or when a cough reflex appears.
- Patient collect 3-5mls of sputum into the labelled container, this volume vary according to type of sample.
- The most useful part of sputum-thick, yellowish (sometimes blood-streaked), purulent exudative material brought up from the lungs not saliva
- Cover the specimen container tightly

Safety During Sputum Collection and Reception

<u>During collection:</u>

- The patient is a greater danger to staff than the specimen!
- Instruct patient to cover the mouth with a handkerchief when coughing
- Never collect sputum in the laboratory!
- Collect OUTSIDE and away from other people

Safety During Sputum Collection and Reception (cont'd)

- Do not stand near patient during specimen collection

<u>During specimen receipt:</u>

- Health Care Worker to wear PPEs (Respirator, disposable gloves and laboratory coat)

- Use of biological safety cabinet is encouraged whenever available.

Collection of Other Samples

Gastric lavage

- Gastric lavages are indicated for children who cannot be able to produce sputum.
- Make the collection early in the morning, when the patient has an empty stomach.
- Neutralize the specimen by adding 100 mg of sodium bicarbonate to the gastric aspirate and transport it immediately to the laboratory.
- Gastric lavages should only be collected by **trained clinician**

Collection of Other Samples (cont'd)

- Aseptically collected specimens' e.g. CSF which is usually free from contaminating flora.
- All fluid specimens should be collected in sterile glass containers without using any preservative.
- Specimens can be collected directly into sterile containers or the usual 50ml specimen containers
- Specimens must be transported to the laboratory immediately or kept at 2-6 ºC.

Minimum Requirements of the Laboratory Request Form

The laboratory request contains but not limited to the following information:

A. Clinicians section

- The Health facility or research organization requesting examinations.
- The name, sex, age of the patient from whom the sample was collected.

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Minimum Requirements of the Laboratory Request Form

The laboratory request contains but not limited to the following information:

A. Clinicians section

- The Health facility or research organization requesting examinations.
- The name, sex, age of the patient from whom the sample was collected.
- Address of the patient

Minimum Requirements of the Laboratory Request Form (cont'd)

- Clinical history of the patient (on chemotherapy or not)
- Patient category by time of visit or sample referral
- Reasons for Request of test
- Laboratory procedure(s) being requested for.
- Type of sample collected or the site from where the sample was collected
- Date and time of collection of sample.

Minimum Requirements of the Laboratory Request Forms

- Month of sample collection for MDR or XDR TB cases on TB treatment follow up.
- Signature of person requesting for laboratory investigation and date.

<u>Receiving Laboratory Section must have a provision</u>

- For recording initials of person receiving specimen, time and date.
- Macroscopic quality and quantity of the specimen
- For unique laboratory identification number

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The Laboratory Handbook

- This Contains information needed by all personnel who collect samples, and other customers of the laboratory
- Must be available to all sample collection areas
- Must be understood by all laboratory staff
- Referenced in the quality manual

Key Contents of a Laboratory Handbook

- Name and address of the laboratory
- Contact names and telephone numbers
- Hours of operation
- List of tests that can be ordered
- Sample collection procedures
- Sample transportation procedures
- Expected turn around time
- How urgent results are handled

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Sample handling

- Proper handling essential for;
  - Preservation viability of AFBs
  - Inhibiting growth of contaminating flora

- Shipment of AFBs to culture labs should be done within 3 days of collection.
- Keep samples at 2-8 degrees for not more than seven days if immediate shipment not possible.

NOTE

Contaminating flora may still grow at 2 to 8 degrees if prolonged and result in higher culture contamination rates.

Other considerations for sample handling

- Cetyl Pyridinium Chloride (CPC) can be used in case delay is anticipated and its not possible to keep samples at 4 to 8 degrees.

- Samples in CPC to reach culture lab within 7 days and at ambient temperature (CPC crystalizes at lower temperatures hence less effective)

Sample rejection criteria

- Wrong sample delivered for the test
- Sample is not labeled or there is not enough information on the container to match with the request form
- In appropriate container used e.g antibiotic bottle
- Information on the request form doesn't match with that on the sample container.
- Sample container is broken, damaged or leaking
- Insufficient sputum volume i.e <0.5mls
- Sample not accompanied by the request form
- Note: before rejection, endeavor to reconcile details.

Assessment

1. 1. Outline the primary samples for TB diagnosis?
2. 2. List all the materials required for TB sample collection?
3. 3. What are the Specifications for Sputum collection Containers?
4. 4. List the key components of Sputum Collection Guideline?
5. 5. Outline the necessary Safety precaution to be considered during Sputum Collection and Reception?
6. 6. List the Contents of a Laboratory Handbook?

SUMMARY

- Laboratory safety is key during Sample collection
- Laboratory hand book should be available and accessible at all sample collection points
- Every laboratory in the hub system should have a functional TB sample rejection and acceptance criteria in place.

References

- GLI TB training package http://www.stoptb.org/wg/gli/trainingpackages.asp
- Global tuberculosis report 2019, https://apps.who.int/iris/bitstream/handle/10665/329368/9789241565714-eng.pdf?ua=1
- The Handbook - Laboratory Diagnosis of Tuberculosis by Sputum Microscopy http://www.stoptb.org/wg/gli/assets/documents/TB%20MICROSCOPY%20HANDBOOK_FINAL.pdf
- TUBERCULOSIS LABORATORY BIOSAFETY MANUAL https://apps.who.int/iris/bitstream/handle/10665/77949/9789241504638_eng.pdf?sequence=1

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