Section 5: Collection of Specimens

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Introduction

The diagnosis and management of active TB and latent TB infection requires testing samples including sputum and blood.

Sputum Collection

A good sputum sample is especially important for the diagnosis of TB. Clients must be given clear instructions about providing an adequate amount of sputum. Sputum is the mucus that is obtained from a deep cough. It is yellow or green (in colour) and should be at least 10 to 15 mL in quantity. Saliva is not an acceptable specimen. All specimens less than 3 mL will not be processed by the lab.

Inadequate and/or poor quality sputum specimen samples will not be accepted or tested at the Public Health Laboratory.

There are several options for the timing of sputum collection. The schedule can be tailored to the clinical situation and to the circumstances of the client. However, there are several basic principles that should be followed:

- Three samples should be collected each time.
- It is preferable to have **at least one early morning sample prior to eating or drinking anything.**
- Samples must be at least one hour apart.
- Some examples of the timing of sputum collection:
    - The samples may be collected all on the same day with at least one hour between each sample.
    - The client can provide a sample sometime during the day plus a specimen upon waking the next morning prior to eating or drinking anything and another one that day or the next day.

- Consider asking the client for a sample on-the-spot when you give him/her the containers.

- If the client cannot produce sputum on their own, they may be referred for sputum induction at the Community Clinic if available.

If the client is agreeable to collecting an on-the-spot specimen:

- Within Community Clinics and Public Health Offices sputum specimens may only be collected where **AIRBORNE PRECAUTIONS can be adhered to.** In facilities without negative pressure rooms, direct clients to produce sputum specimens **OUTDOORS**, in an area away from other people.

Steps in Sputum Collection

There are several steps involved in sputum collection. Also see **Figure 5.1** for the sputum collection algorithm.

Step 1: Getting ready

- Gather the necessary sputum containers and requisitions. Three containers are required unless directed otherwise by the CHN.

- Fill in the laboratory requisition with the client's name, date of birth and health card number. See **Appendix D** for a sample of the laboratory requisition form.

- Note that the sample is for AFB smear and culture.

- Complete the label on the specimen containers with the name, date of birth and health card number. Be sure to include *Date* followed by a blank space and *Time* followed by a blank space on the label of the containers to prompt the client to fill in the space.

Step 2: Giving the containers to the client

- Give the client the specimen collection containers that you have pre-labeled with his/her identifying information.

- Educate the client about collecting sputum samples. Explain:
  - Why the specimen is needed
  - How to cough up sputum
  - When to collect the samples
  - How to handle the container
- You may find it helpful to review the **Fact Sheet** entitled **Sputum Collection Instructions** with the client **(Appendix E).**
- Ask the client to put the date and time the sputum is being collected on the label of the container.
- Once the specimen has been collected, the client should tighten the lid on the container and put it in the refrigerator in the biohazard bag provided. Each container should be in a separate biohazard bag.
- When all the samples are collected the client should return them to the Public Health Office, Health Center's Laboratory or to the Community Clinic in a timely manner.

Step 3: Receiving the specimen back from the client

- If possible, before the client leaves, examine the containers to ensure that the specimens are good quality and sufficient quantity. See **Figures 5:2 and 5:3** which show both a good quality and a poor-quality specimen.
- If the amount is less than 5 mL or of poor quality, advise the client to collect more sputum.
- Ensure that the client has completed the date and time of collection for each specimen. If not, get the information from the client and note it on the containers.
- Ensure the containers are tightly closed.

- Ensure each container is accompanied by a requisition that includes **TWO** patient identifiers (e.g., full name, date of birth, MCP) that are **IDENTICAL** to the identifiers on the specimen container.

- Each specimen container should be put in its own biohazard bag and then all three bags are placed inside another biohazard bag. The requisition is put on the **SECOND** bag (outside pocket).

- Ensure the sputum requisitions are labelled as "sputum for AFB and culture" and the *date* and *time* of collection are filled in on the requisition for each container.

- The samples must be refrigerated at all times.

- Deliver returned specimens to the Community Clinic or appropriate site. Be sure to inform the appropriate person that you are dropping off specimens.

- Any containers with inadequate samples that are not shipped to the Lab are considered to be a biohazard and should be disposed of in a biohazard container. ***DO NOT dispose of inadequate samples in regular garbage bins.***

Step 4: Documenting sputum collection

- Document in the client's **progress notes**:

  - When sputum containers have been delivered

  - When containers have been received back

  - When containers have been delivered to the Community Clinic or Hospital Laboratory

- For CHA/LPNS:

  - Inform the CHN when you have delivered specimens to the Community Clinic or Hospital Laboratory (as appropriate).

  - Inform the CHN of any inadequate or incomplete sputum specimens.

Clients Who Are Unable to Produce Sputum

In communities where there is a sputum induction unit available:

- The TB physician may write an order for induced sputum which will be done by a Clinic Regional Nurse or Inpatient RN according to the Labrador-Grenfell Health Sputum Induction Protocol.

- Coastal Communities:
  - Document that a referral for sputum induction has been sent to the Regional Nurse and attach a copy of the referral to the client's chart.

  - Within 48 hours follow up with the Regional Nurse to ensure arrangements have been made for induced sputum.

- Hospital/Health Centers:
  - Sputum induction is arranged and coordinated by the TB physician and CDCN.

It is the responsibility of the Community Health Nurse to continue to follow up with the Regional Nurse until induced sputum is collected.

Consult with the CDCN for further direction if the induced sputum is not collected in a timely manner.

In communities without a sputum induction unit available:

- Consult with CDCN for further direction.

Figure 5.1: Sputum Collection Algorithm

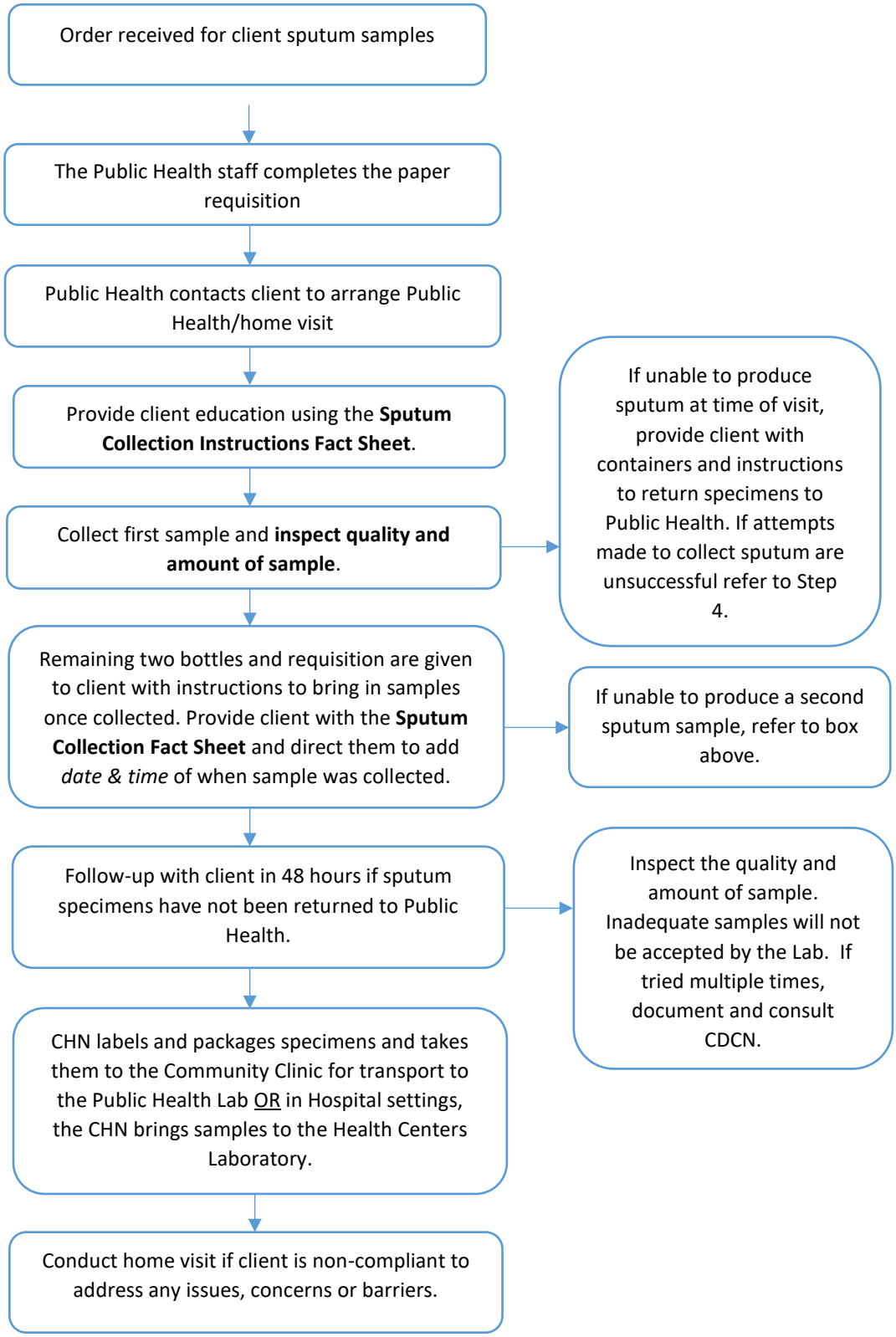


Figure 5.2: Example of a good quality sputum specimen 15 mL (one tablespoon)

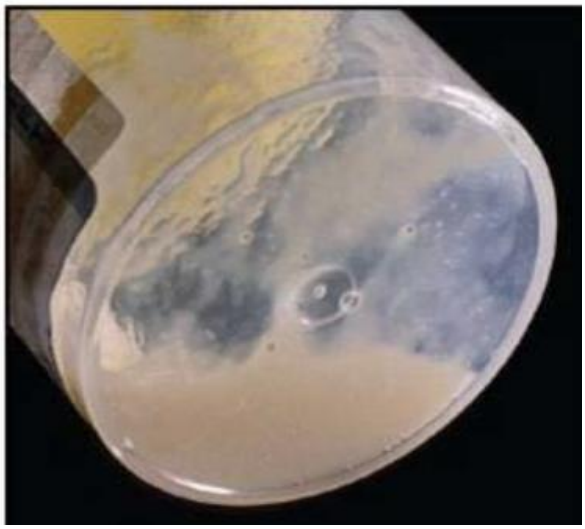
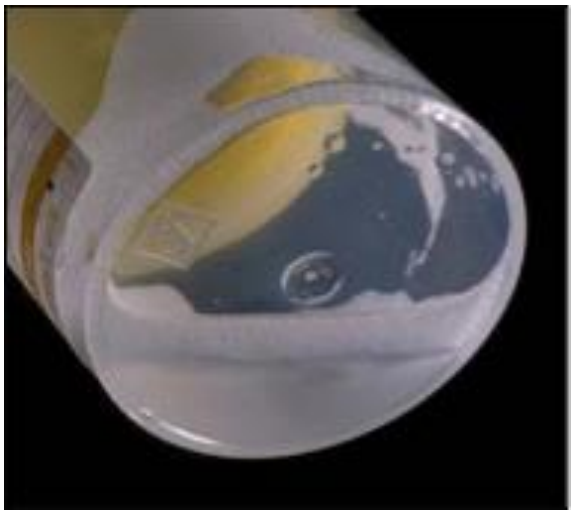


Figure 5.3: Example of a poor quality sputum specimen



Collection of Specimens Other than Sputum for TB Diagnosis

Consult the CDCN or TB physician (or attending physician) for specimens other than sputum for TB testing, i.e. Lymph node, tissue, urine, sputum (gastric lavage). This will generally be arranged at a hospital setting.

Specimen Type	Indications
• Lymph node • Tissue • Urine	Since tuberculosis may localize in almost any site in the body, a considerable variety of clinical material may be submitted – e.g. cerebrospinal fluid, body cavity fluids, bone marrow, tissues, etc.
• Sputum (Gastric lavage)	Gastric lavage may be used to obtain sputum specimens from persons (especially children) who do not have a productive cough. Typically, children swallow sputum and are unable to provide specimens for acid-fast bacilli (AFB).

Collection of Blood for Monitoring Treatment

Step 1: Initiate blood work once the order has been received.

- Complete the paper requisition.
- Forward the requisition to the Regional Nurse at the Community Clinic or in the larger Health Centers, give the requisition to client to take with them to the Laboratory.

Step 2: Arrange for blood to be drawn (Community Clinics)

- In Coastal Communities: the Regional Nurse arranges for the client to come in for the bloodwork and the blood is sent out to the Laboratory for processing.
- In Hospital/Health Centers: instruct the client to visit the facility's blood collection department as appropriate for your area.
- If the client is non-compliant the PHN informs the CDCN.

Step 3: Check Meditech for results and follow up

- If blood work is normal, file in the client's chart.
- If blood work is abnormal notify and consult with the CDCN for further direction.

Step 4: Arrange for repeat blood work as necessary.

- Complete the requisition for subsequent bloodwork.

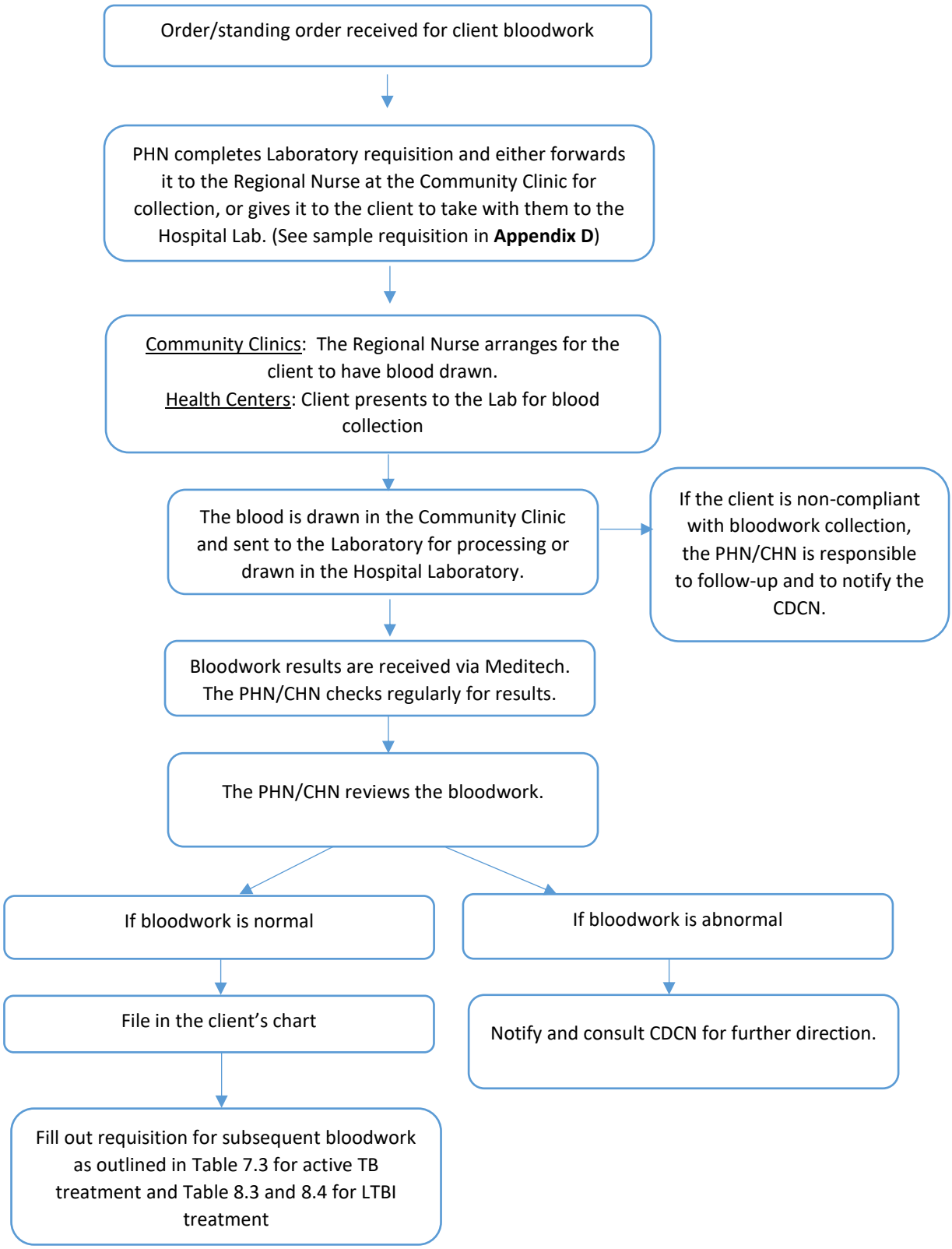



Figure 5.4: Bloodwork Algorithm for the Community Health Nurse/Public Health Nurse