



Sputum Collection

Name: Beth Engel

Role: Respiratory Therapist

Learning Objectives

The participant will be able to :

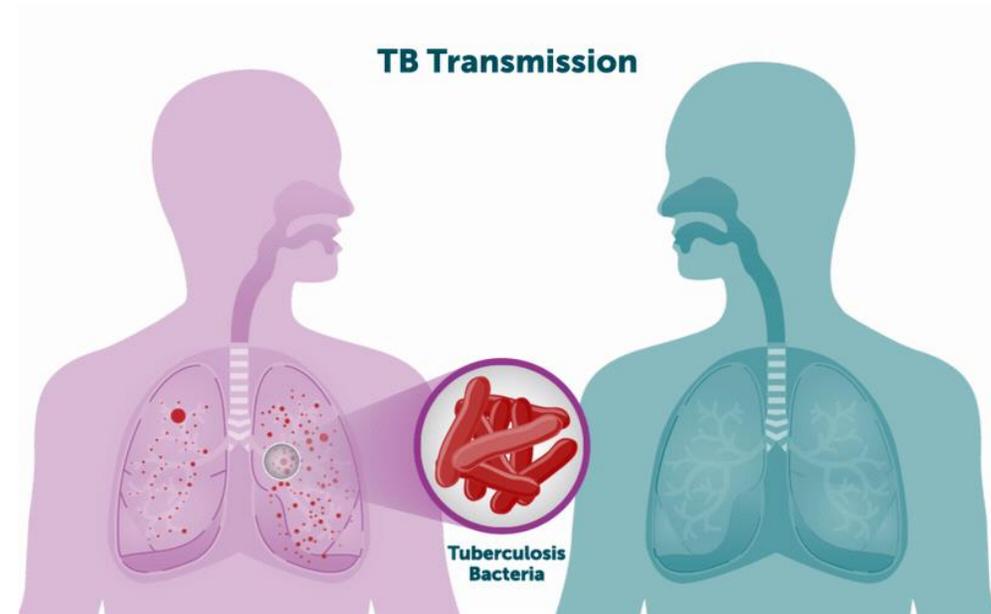
1. List 3 different methods of collecting sputum samples
2. Describe 2 different techniques to help patients produce a sputum sample
3. Understand how to ensure a good sputum sample is collected
4. List the 2 main tests performed on sputum samples for patients with suspected TB

What is Sputum?

- Sputum is a thick kind of mucus made in your [lungs](#). Chronic illnesses and infections in your lungs or airways can make you cough up sputum.
- Sputum isn't the same as saliva or spit. Sputum contains cells from your [immune system](#) that help fight the bacteria or other germs in your lungs or airways.

Why is sputum important?

- Tuberculosis is a disease primarily of the lungs.
- Tuberculosis is caused by *Mycobacterium tuberculosis* and is spread via airborne droplets
- Testing sputum is part of the diagnostic process for TB.
- Sputum tests help gauge the disease status and help document progress.
- Results of tests on sputum help guide the actual treatment regimen.



Collecting a Sputum Sample

- Non-Induced Sputum
- Induced Sputum
- Bronchoscopy

Patient Instructions

Have the patient stay hydrated

Early morning samples are best

Do not touch the inside of the
sterile container

Do not spit saliva into the
container as much as possible

Do not wipe lips onto container
(have tissues nearby)

Supplies needed

- Collection cup (with a screw cap)
- Plastic Biohazard closable bag/container
- Paper bag or something to put it in
- Lab label for the patient

Sputum Sample Requirements

- For initial TB diagnosis, 3 samples on 3 consecutive days
- Samples that contain a lot of saliva will be rejected
- How much is needed??
 - As much as the patient is able to produce
 - Generally, need 3- 5 ml to ensure adequate sample



Polling Question

How much saliva is allowed in a sputum sample

1. None, if there is any saliva in the sample it will be rejected
2. It doesn't matter if saliva is in the sample
3. Most of the sample should be saliva
4. Minimal, you should try to have as little saliva as you can in the sample





Coughing Techniques

Huff Cough

- Huff coughing is a form of coughing that has just enough force to loosen and carry mucus through your airways without causing them to narrow and collapse.
- Have the patient in a seated position
- Take in a slow deep diaphragmatic breath
- Hold your breath for 2-3 seconds
- Exhale forcefully using your diaphragm
- Repeat 2-3 times, trying not to cough until the end



Autogenic Drainage

- Autogenic drainage (AD) means “self-drainage” and uses different speeds of breathing to move mucus.
- Happens in 3 phases
 - Phase 1: Moving the mucus from the small airways (unsticking)
 - Phase 2: Moving mucus from the small airways to the medium-sized airways (collecting)
 - Phase 3: Moving mucus from the medium-sized airways to the large airways to be coughed out (evacuation)

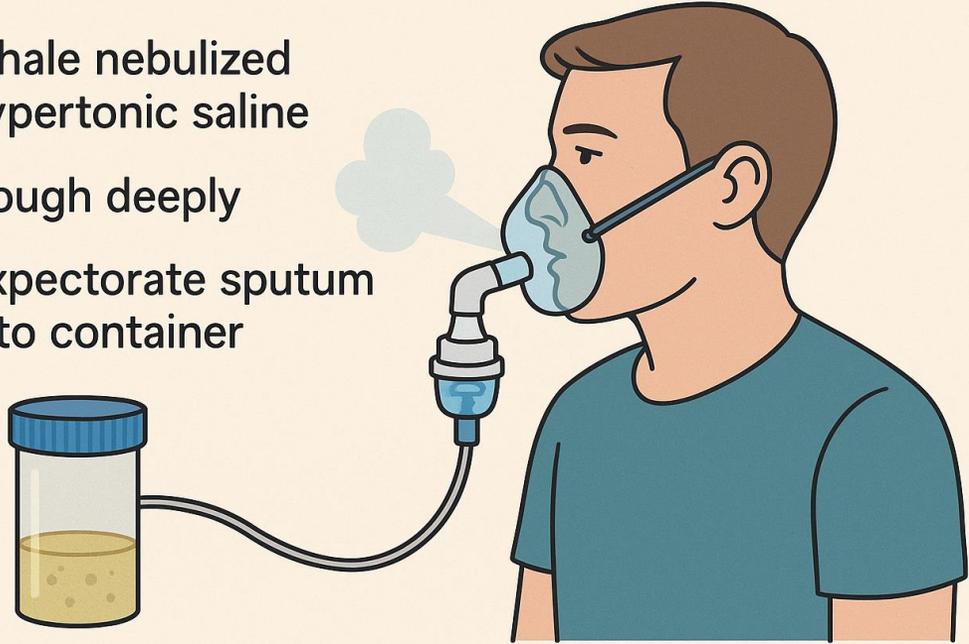




Induced Sputum

INDUCED SPUTUM COLLECTION

- Inhale nebulized hypertonic saline
- Cough deeply
- Expectorate sputum into container



Induced Sputum

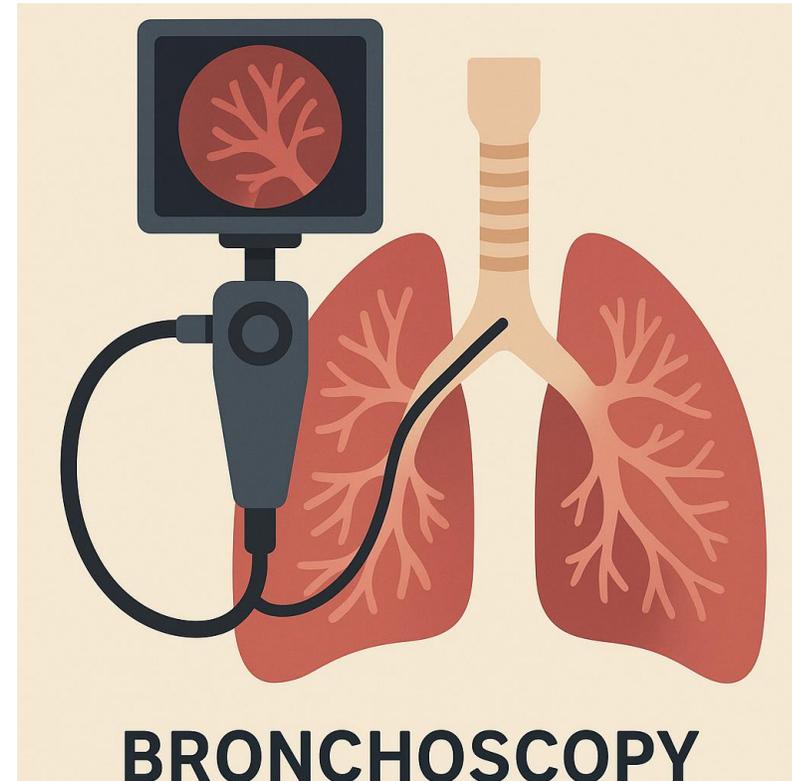
- This is a scheduled appointment
- Administer a 10% hypertonic saline nebulizer
- Hypertonic saline is an airway irritant
- **Caution:** May induce a bronchospasm
 - Deliver an Albuterol nebulizer
- Utilize coughing techniques

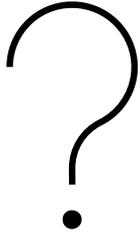


Bronchoscopy

Bronchoscopy

- Higher cost
- Requires the expertise of a physician
- Most uncomfortable for the patient
- They will probably be sedated for the procedure





Polling Question

What is the goal when using the Huff and Autogenic Drainage techniques?

1. To get a patient to cough
- ✓ 2. To effectively move secretions through the airways
3. To strengthen respiratory muscles
4. To increase oxygen absorption in the alveoli

We have the
sputum sample

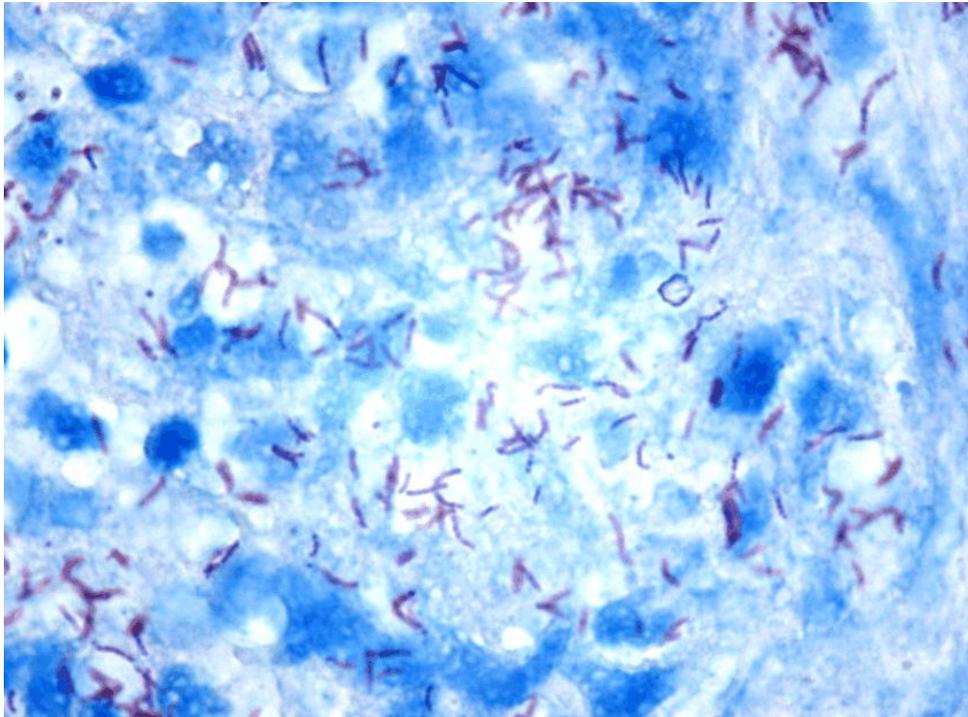


TO THE LAB.....



- Prior to sending it off to the lab, a few key points to remember
 - Label the specimen with a SoftID label
 - Full first and last name (must match what is in Epic)
 - If the full name does not print out on the label, you must handwrite the full name on the label

In the Lab- what is being tested



1. Acid Fast Bacillus (AFB) smear

- A stain test for Mycobacterium
- This test should come back within approx. 24 hrs
- MTB PCR
 - Results in approx. 24 hours

In the Lab- what is being tested

2. Mycobacterial Culture

- The gold standard test for confirming TB
- This test takes 6-8 weeks to come back from the lab

Polling Question



Which two tests are performed on a sputum sample suspected for TB?

1. Mycobacterium culture, Gram stain
2. Acid fast smear, Blood culture
-  3. Mycobacterium culture, acid fast smear
4. SAT, ACT

Resources

- [TB 101 - 5. Bacteriological Examination – Rapid Molecular Tests | TB | CDC](#)
- [Sputum testing for Tuberculosis \(TB\) | HealthLink BC](#)
- [RCM.G-55813.pdf](#)
- [Tuberculosis: Causes and How It Spreads | Tuberculosis \(TB\) | CDC](#)
- [cdc_22072_DS1.pdf](#)
- [Huff Cough: Huffing, Maneuver, Purpose & How To](#)
- [How to do the Huff Cough Breathing Technique to clear lungs, airways, secretions, sputum, phlegm – YouTube](#)
- <https://youtu.be/Vizf195JPoE>
- [Autogenic Drainage \(AD\) | Cystic Fibrosis Foundation](#)
- <https://www.researchgate.net/publication/303129346/figure/fig5/AS:618484937535504@1524469708536/Tuberculous-bacilli-acid-fast-bacilli-present-in-large-quantities-within-the.png>
- [Clinical and Laboratory Diagnosis for Tuberculosis | Tuberculosis \(TB\) | CDC](#)
- [AskMayoExpert - Tuberculosis - Tuberculosis - Tuberculosis - Tuberculosis](#)

Questions and Answers





Center for Tuberculosis



Thank you!