

# SPUTUM COLLECTION: SPONTANEOUSLY PRODUCED



## Indications for sputum collection:

1. To establish the initial diagnosis of pulmonary of tuberculosis.
2. To determine and monitor infectiousness of the patient and release from airborne infection isolation.
3. To provide “proof of cure” or efficacy of treatment by culture for mycobacteria.
4. To re-evaluate potential infectiousness and/or treatment failure when treatment has been interrupted or inadequate.



## Sputum Quality

- A good sputum specimen consists of recently discharged material from the bronchial tree, with minimum amounts of oral or nasal material.
- Satisfactory specimens are thick and contain mucoid or mucopurulent material.
- Ideally, a sputum specimen should have a volume of 3-5 ml, although smaller quantities are acceptable if the quality is satisfactory.



## Materials and Equipment

- Sterile, filtered water or normal saline (150-200 ml)
- N95 mask (particulate respirator)
- Gloves
- Box of tissues
- Sterile specimen container approved by the laboratory for sputum collection and transport

Poor quality sputum specimens are thin and watery and not suitable for testing.  
Saliva and nasal secretions are unacceptable.

## Procedure

### A. Preparation

1. Instruct the patient to gently brush their teeth, gingival margins, tongue, and buccal surfaces using sterile, filtered water or normal saline to rinse.  
**DO NOT** use tap water, unfiltered water, toothpaste, commercial mouth wash preparations, nose drops, or any medications containing alcohol or oil. Instruct the patient to avoid taking oral antibiotics or any other medications immediately before the sputum collection procedure.
2. Instruct the patient to gargle several times with sterile, filtered water or normal saline after brushing.  
**DO NOT** use tap water or water from any unfiltered source as they may contain non-tuberculous mycobacteria that may alter test results.
3. For specimen collection, ensure that the patient is outdoors or placed in an airborne isolation room or negative-pressure sputum collection booth with the door shut. The air in the negative pressure room or booth should be drawn out of the space and ventilated outside of the building.



## B. Sputum Collection

1. Public Health Madison and Dane County has created an online instructional YouTube video that can help the patient understand the procedure: <https://www.youtube.com/watch?v=rIQDP41Qd8s>. See the Resources section below for additional sputum collection YouTube video links.
2. Observe airborne precautions at all times.

**Note:** N95 masks must be worn by health care personnel for AFB cough-producing procedures.

3. The patient must be outdoors or in an appropriate negative air pressure room or booth.
4. Coach the patient and supervise the first sputum collection, at minimum, in order to obtain a good quality sputum specimen that represents secretions from the lower respiratory tract.

The patient should understand that sputum is material that is brought up from the lungs and that nasal secretions and saliva or spit are not acceptable.

5. Instruct the patient to inhale deeply, as far as possible, and then exhale slowly three times.
6. After the third breath, direct the patient to inhale completely and try to cough hard to produce sputum from deep in the lungs. The patient may feel a rattle or tickle as the sputum moves up the lungs and into the throat.
7. Instruct the patient to expectorate the sputum into a sterile specimen container.
8. When there is at least 5 ml (1 teaspoon) of sputum, replace the lid on the container and tighten it so it does not leak.

**Note:** High-quality sputum is required for laboratory testing. Ideally, a sputum specimen should have a volume of 3-5 ml, although smaller quantities are acceptable if the quality is satisfactory.

9. If the patient is in a negative pressure room or booth, ask the patient to remain in the booth or room until cleared to leave.
10. Print the patient's name, date of birth, specimen type and date/time of collection on the specimen container. Health care personnel collecting the specimen may want to include their initials.



## Resources

1. Curry International Tuberculosis Center, 2011. Tuberculosis Infection Control: A Practical Manual for Preventing TB, pp. 83-97. [http://www.currytbcenter.ucsf.edu/sites/default/files/ic\\_book\\_2011.pdf](http://www.currytbcenter.ucsf.edu/sites/default/files/ic_book_2011.pdf)
2. Grant LR, et al. 2012. Procedures for Collection of Induced Sputum Specimens from Children. Clinical Infectious Diseases. 2012 Apr 1; 54 (Suppl. 2): S140–S145. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3297553/>
3. Sputum collection instructional YouTube videos:
  - Public Health Madison and Dane County. Home Sputum Collection: A Step-by-Step Guide (English). Also available in other languages. <https://www.youtube.com/watch?v=rIQDP41Qd8s>
  - Tan Tock Seng Hospital. Sputum Collection with English Subtitles <https://www.youtube.com/watch?v=j7liBSmcmE4>
  - IRD Global. Good Sputum, Better Diagnosis: Instructional Video for Sputum Submission [https://www.youtube.com/watch?v=92dT\\_1kbbek](https://www.youtube.com/watch?v=92dT_1kbbek)

