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## NEBULIZED SPUTUM INDUCTION

### PURPOSE

To obtain sputum specimens for *Mycobacteria* or *Legionella* testing from a patient who has a dry, non-productive cough.

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.

### MATERIALS AND EQUIPMENT

- Sterile, filtered water or normal saline (150-200 ml)
- Hand-held nebulizer with mouthpiece and 15 ml vial of 3% saline
  - A mask may be used if a patient absolutely cannot use the mouthpiece
  - 3% saline may be available from the pharmacy if not available in department stock
- N95 mask (particulate respirator)
- Gloves
- Box of tissues
- Sterile specimen container approved by the laboratory for sputum collection and transport

### PROCEDURE

#### Preparation

- 1) Assure that the patient is NPO for three hours prior to sputum induction.
  - a. Note: Three hours NPO reduces the potential risk of vomiting and aspiration.
- 2) Instruct the patient to gently brush his/her teeth, gingival margins, tongue, and buccal surfaces using sterile, filtered water or normal saline to rinse.
  - a. Do not use tap water, toothpaste, commercial mouth wash preparations, nose drops, or any medications containing alcohol or oil. Instruct the patient to avoid taking oral antibiotics immediately before the sputum collection procedure.
- 3) Instruct the patient to gargle several times with sterile, filtered water or normal saline after brushing.
  - a. Do not use tap water or bottled water as they may contain non-tuberculous mycobacteria that may alter test results.



## Wisconsin State Laboratory of Hygiene Nebulized Sputum Collection Instructions

### Nebulized Sputum Collection

- 1) Observe standard precautions at all times.
  - a. Note: N95 masks must be worn by healthcare personnel for AFB cough-producing procedures.
- 2) The patient must be outdoors or in an appropriate negative air pressure room or booth.
- 3) Place approximately 5 ml of 3% saline into the hand-held nebulizer. Set the flow at 6-8 L/min and nebulize saline for 7-10 minutes or until sputum is expectorated. The maximum nebulization time is 20 minutes.
  - a. Note: More saline may be added to the nebulizer if more than 10 minutes is needed to produce an adequate cough.
- 4) Ask the patient to inhale the nebulized 3% saline deeply 2-3 times followed by vigorous cough. This will assist in expectorating quality sputum. Collect the sputum into a sterile specimen container.
  - a. Note: Coaching the patient is very important in order to get quality results in a timely manner.
  - b. Note: High-quality sputum is required for laboratory testing. The optimal volume of sputum is 5-10 ml, minimum volume is 3 ml.
- 5) Print the patient's name, date of birth, specimen type and date/time of collection of the specimen container.
- 6) Complete WSLH CDD Requisition Form A. Necessary information: name, date of birth, date and time collected, source and type of specimen, test requested. Additional required information for Medicare/Medicaid: patient address, ICD9 code, physician's full name, and UPIN number.

### Resources:

- 1) Centers for Disease Control and Prevention. Controlling TB in Correctional Facilities. 1995.  
[https://books.google.com/books?id=5ed\\_o0LWDFYC&pg=PA26&lpg=PA26&dq=sputum+coaching&source=bl&ots=zr23D9aQ4U&sig=6DHZW\\_3x0KwI6GjfVUMZljZWwcc&hl=en&sa=X&ved=0CCYQ6AEwA2oVChMlsc6f5oTWxwIVxR4eCh1O-3A6O#v=onepage&q=sputum%20coaching&f=false](https://books.google.com/books?id=5ed_o0LWDFYC&pg=PA26&lpg=PA26&dq=sputum+coaching&source=bl&ots=zr23D9aQ4U&sig=6DHZW_3x0KwI6GjfVUMZljZWwcc&hl=en&sa=X&ved=0CCYQ6AEwA2oVChMlsc6f5oTWxwIVxR4eCh1O-3A6O#v=onepage&q=sputum%20coaching&f=false)
- 2) Association of Public Health Laboratories/National TB Controllers Association. Consensus statement on the use of Cepheid GeneXpert MTB/TIF assay in making decisions to discontinue airborne infection isolation in healthcare settings. 2016.  
[http://www.tbcontrollers.org/docs/resources/NTCA\\_APHL\\_GeneXpert\\_Consensus\\_Statement\\_Final.pdf](http://www.tbcontrollers.org/docs/resources/NTCA_APHL_GeneXpert_Consensus_Statement_Final.pdf)