

DARDAR Health Study
Standard Operating Procedure
SPUTUM INDUCTION

1. **Indication.** Sputum induction is indicated on patients with suspect tuberculosis who are unable to cough and produce an adequate sputum sample.
2. **Contraindication.** Hypertonic saline will provoke cough in some patients. It is “harsh” on the airways and may trigger severe bronchospasm. It will not be used on patients with known airway hypersensitivity such as asthma or on patients actively wheezing at the time of the request. Patients who experience severe bronchospasm after a sputum induction may be candidates for bronchodilator or aerosol therapy to relieve induced bronchospasm (0.5 ml albuterol in treatment cup).
3. **Location.** Sputum induction will be performed outside to minimize risk to personnel and other study subjects.
4. **Handwashing** should be done both before and after patient contact and gloves used for handling all specimens, followed by handwashing after removal of gloves.
5. **Consent.** Patients who signed a consent earlier than 3.1 should sign a consent for sputum induction.
6. **Procedure**
 - Using a wet toothbrush (no toothpaste), brush mouth, tongue and gums prior to procedure.
 - Patients need to be sitting down, with good posture (will not work if lying down).
 - Have patient breath 3% hypertonic solution via a jet nebulizer for approximately 30 minutes to induce a bronchorrhea.
 - Have the patient take a deep, slow breath, hold breath for 2-3 seconds, then breath normally for 10 or so breaths. Then do the deep breathing and repeat, continuing for 20-30 minutes. Deep breathing all the time may cause CO₂ build-up – tingling fingers, light-headedness, dizziness; if this happens, stop treatment and allow patient to breath normally. When they feel “okay,” resume treatment.
 - Instruct the patient to induce a deep cough from their chest; not to expectorate saliva or post-nasal drip but a specimen from their chest.
 - Label the specimen and complete the laboratory requisition. Assure that method of collection is identified (tracheal aspirate, induced, or expectorated specimen).
 - Keep NaCL container sterile during use.
 - Sputum may sometimes not be produced for 30 minutes to 24 hours later, depending on patient and on hydration level. Send patient home with sample cups and directions (i.e. first sputum of morning, etc.)
7. **Management of harsh or severe cough.** If deep, harsh coughing starts, stop treatment until coughing ceases, then resume treatment. If this happens more than two times, stop treatment totally and consider use of albuterol to stop coughing/wheezing.
8. **References.**

- 1) Pedersen, Bente et al. The value of provoked expectoration in obtaining sputum samples for cytological investigation. *Acta Cytologica* 1985. 29:5;750-752.
- 2) Pavia, Demetri et al. Enhanced clearance of secretions from the human lung after the administration of hypertonic saline aerosol. *Amer Rev Resp Dis* 1978. 117:199-203.