



Chelan-Douglas Health District

**Policy #3400-115**

**TITLE: SPUTUM COLLECTION FOR ACID-FAST BACILLUS (AFB) TESTING PROCEDURE / STANDING ORDERS**

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Francis Collins, Health Officer

**PROCEDURES:**

**STANDING ORDERS**

- 1) The nurse will initiate sputum collection in accordance with the CDHD TB Control Plan.
- 2) The nurse will write the order on a physician order sheet. Specify:
  - a) Tests to be performed (i.e., AFB smear and culture, MTD, AST)
  - b) “Spot” or “morning” and the number of specimens to be tested.
  - c) Write the order “Per standing order” or “Per S.O.”.
  - d) Nurse signature/title.
- 3) If sputum collection is ordered by a physician then the order will be written and signed according to policy #3400-150 *Obtaining and Transcribing Physician Orders*.

**PRECAUTIONS:**

- 1) All personnel assisting the sputum collection procedures will adhere to TB precautions according to Policy #3400-220 *Respiratory Protection: N95 Respirator*.
- 2) If the specimen is obtained at Chelan-Douglas Health District, it will be done outdoors away from other people, unless inclement weather prohibits, or is otherwise not feasible.
- 3) Do not stand near the patient during specimen collection.
- 4) Provide tissues to the patient and instruct to cover mouth when coughing until ready to expectorate.
- 5) Gloves will be worn when handling specimens.

**PREPARATION:**

- 1) Label innermost tube with patient name and date of birth before obtaining specimens and before giving container to patient for home sampling.
- 2) Instruct patient to:

- a) Rinse mouth well with water to avoid contamination with food particles and mouth flora. NOTE: Rinsing may result in contamination with *m. gordonae* if the water is contaminated. Not rinsing at all may result in excessive overgrowth of normal flora.
  - b) If patient will provide specimens from home, instruct to obtain specimen before eating and to store specimen in refrigerator until transported to clinic.
  - c) Inhale deeply 2-3 times, breathe out hard each time.
  - d) Cough deeply from the chest.
  - e) Place the open container close to the mouth to collect the specimen.
  - f) Avoid contaminating the inside of the container and lid.
  - g) If the patient is unable to raise early morning sputum, suggest that he/she stand or sit in a steamy environment for 15 minutes first by running hot water in the shower. If that still fails, obtain a physician's order for sputum induction.
- 3) Offer to have the patient empty bladder just prior to procedure. Place waterproof shield on chair if patient will be seated during procedure.

### **PROCEDURE:**

- 1) The nurse will supervise collecting the first specimen to ensure that the patient demonstrates correct technique.
- 2) A sterile specimen container from the WA State Department of Health Public Health Laboratories is used.
- 3) The ideal specimen size is 5 to 10 mL. The absolute minimum specimen size is 2 mL.
- 4) A deeply coughed specimen is the preferred specimen (not saliva or nasal secretions). Alternately, transtracheal aspirate, gastric aspiration or bronchial brushing are methods that may be used in other settings.
- 5) For *initial sampling*, it is recommended that three (3) specimens are collected for AFB smear and culture at least eight hours apart within a 48 hour period. The first specimen is collected on the spot when the patient is first encountered, regardless of time of day in order to expedite management among ill suspects and unreliable patients. At least one specimen should be a first morning specimen. The nurse may obtain additional specimens if there is a question about the integrity of a given specimen, but not more than 5 to 6 specimens.
- 6) For *follow-up sampling* for patients with active TB disease, collect a specimen for AFB smear, culture and AST) once the patient has completed two months of appropriate therapy.
- 7) Other specimens will be collected as directed by the Medical Consultant.
- 8) When the patient will be collecting specimens at home, give him/her a labeled container and instruct patient to collect an early morning specimen before eating. Instruct patient to store specimen in the refrigerator and return specimen to the clinic as soon as possible after collection, preferably within 1 to 2 hours after collection.

### **SPECIMEN PREPARATION**

- 1) Once a specimen is obtained, ensure that the absorptive wrapper surrounds the innermost sample tube, secure with rubber band. Place innermost tube into plastic bag provided. Secure the "twist ties" of the plastic bag to prevent leakage before transporting. Lab will seal tube lid with tape as needed.
  - a) Notify lab if threads of innermost sample tube became wet during specimen collection as this will cause leaking, even if the lid feels tightly closed. Lab will either transfer the specimen to a clean tube or tape lid down.
- 2) Complete the lab requisition and affix to container.
- 3) Deliver the specimen to the laboratory within 1 to 2 hours of collection. Delayed samples must be refrigerated.

- 4) Once the sample arrives at the State Lab, the routine turnaround time for smear results is about 24 hours and 6 to 8 weeks for culture results.

## **DOCUMENTATION**

- 1) Document in the *Multidisciplinary Progress Notes*:

- a) Color
- b) Consistency
- c) Amount of sputum
- d) Date and time sent to CDHD lab
- e) Patient tolerance of procedure
- f) Whether sputum induction was employed (induced specimens tend to be watery)
- g) Whether specimen is #1, #2, #3, etc.

## **SPUTUM INDUCTION:**

- 1) If the patient is unable to produce an adequate specimen, a sputum induction procedure may be used:
- 2) Obtain a physician's order from the primary care provider, medical consultant or health officer.
- 3) Obtain and assemble nebulizer tubing kit.
- 4) Attach one end of air tubing to compressor unit and other end to the nebulizer medication cup outlet.
- 5) With machine turned off, add approximately 3 mL of sterile Sodium Chloride 10% solution to the nebulizer medication cup.
- 6) Instruct patient to breathe in and out on the mouthpiece, use nose clips as needed to ensure proper technique, as needed.
- 7) Turn compressor on and place mouthpiece into patient's mouth. Instruct to close lips around mouthpiece.
- 8) Encourage cough if no spontaneous coughing occurs.
- 9) Coughing and expectoration is best done outdoors, when feasible.
- 10) Continue procedure until sample is obtained, adding more Sodium Chloride 10% solution as needed.
- 11) Upon completion rinse nebulizer tubing kit with sterile distilled water (provided by lab) to flush salt crystals. Allow to dry then place in plastic bag labeled with patient name if serial sputum sampling will be conducted. Label with biohazard label. Discard after one week.
- 12) Mark lab requisition as "induced specimen".

## **NUCLEIC ACID AMPLIFICATION TESTING:**

- 1) Testing for amplification and direct detection of TB nucleic acid (e.g., MTD) is performed on the first smear positive specimen tested at the State Lab.
- 2) MTD testing is also performed as ordered by the TB Medical Consultant or primary care provider.