Sputum Induction

Purpose

To standardize the practice of obtaining expectorated sputum for laboratory analysis.

Scope

Respiratory Care Services provides equipment and therapy according to physician's orders for the purpose of obtaining sputum samples for analysis.

Audience

Licensed Respiratory Care Practitioner employed by Respiratory Care Services with understanding of age specific requirements.

Physician's Order

There must be an order in the patient's medical record for sputum induction that includes:

- Date and time of induction (i.e. every morning for 3 days) is preferred.
- Doctor may need induction to be started at the time order was written (i.e. to start at noon)
- Medications or method is specified; otherwise use 3% hypertonic saline.
- Type of tests ordered on the specimen.

Indications

- Suspected bacterial pneumonia
- Suspected Pneumocystis pneumonia
- Suspected Mycobacterium tuberculosis
- Questionable chest X-ray
- Suspected cancer of the lung

Contra-indications

Hyper-reactive airway disease or wheezing such as with asthma, COPD.

Goals

To assist the patient in raising sputum adequate for laboratory examination.

Equipment

- 3% Saline (15cc vial)
- Small Volume Nebulizer
- Specimen cup
- N95 mask
- Lab requisition
- Specimen bag

Procedure

Step	Action	
1	Verify physician's order.	

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2	Collect specimen in early morning before breakfast when possible. This is to be done by the night shift therapist. Specimens can be collected during day shift if specifically requested by doctor to start induction at the time the sputum induction was ordered.	
3	Obtain necessary supplies.	
4	Wash hands.	
5	Don N95 mask if patient is suspected to have tuberculosis.	
6	Identify patient using two identifiers.	
7	Explain procedure to patient.	
8	Ask the patient to cough to see if they can provide a specimen spontaneously.	
10	Auscultate chest. If the patient has a history of hyper-reactive airways or active wheezing, notify the ordering physician.	
11	Instill 15cc's of 3% saline into the small volume nebulizer medication cup.	
12	Instruct the patient to breathe deeply, inhaling the aerosol.	
13	Instruct the patient to cough as needed and at 5 minute intervals.	
14	If the patient experiences bronchospasm, a bronchodilator via small volume nebulizer should be administered.	
15	If patient develops signs of adverse effects, discontinue therapy and notify the physician.	
16	Collect expectorant into the specimen cup.	
17	Label the specimen with a label provided with the request slip and place cup in the specimen bag.	
18	Sign, date and time the request slip and place request in the outside pocket of the specimen bag.	
19	Leave the specimen bag with the unit clerk and ask for transportation to be notified for pick up.	
20	If after 30 minutes of nebulizer treatment there are no	

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	results, stop the therapy and notify the physician.	
21	Document in Epic as outlined in RCS Policy # 7.1.1. *(After 3 days of charted nonproductive cough, RT to notify doctor to suggest different modalities to obtain sputum specimen.)*	

Recognizing A Sputum Sample

Sputum samples from the tracheobronchial tree compared to saliva are typically:

- More viscous, purulent and malodorous
- Color tinged, may have presence of blood

Samples that are from a patient with retained secretions and allergic or infectious process are typically:

- Stringy
- Mucoid
- Color tinged, yellow or green color

Certain infections or disease states may produce sputum characteristics:

- Pseudomonas Aeruginosa - thick, green, musky odor.
- Bronchiectasis - three-layered sputum, foul smelling.
- Asthma - mucus plugs or casts
- Cystic Fibrosis - thick, sticky

Infection Control

Follow procedures outlined in Healthcare Epidemiology Policies and Procedures #2.24; Respiratory Care Services.
http://www.utmb.edu/policy/hcepidem/search/02-24.pdf

Corresponding Policies

RCS Policy and Procedure, Small Volume Aerosol Treatment (Hand-Held), #7.3.15.

References

AARC Clinical Practice Guidelines: "Bland Aerosol Administration"; Respiratory Care, 1993; 38: 1196-1200.

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