

Policy #:	604 (PHL-604-05)	Effective Date:	9/30/2004	Reviewed Date:	8/1/2016
Subject:	COLLECTION AND TRANSPORT OF RESPIRATORY SPECIMENS FOR CULTURE				
Approved by: Laboratory Director, Jerry Barker (electronic signature)					
Approved by: Laboratory Medical Director, Mark P. Burton, MD (electronic signature)					
Approved by: Affiliate Lab Medical Director, Chris Giampapa, MD (electronic signature)					
Approved by: Affiliate Lab Medical Director, Paul J. Sims, MD (electronic signature)					
Approved by: Affiliate Lab Medical Director, F.E. Williamson, MD (electronic signature)					

COLLECTION AND TRANSPORT OF RESPIRATORY SPECIMENS FOR CULTURE

General Considerations:

24 hour sputum specimens are not acceptable for culture.

- A. If *Corynebacterium diphtheria* is suspected, the physician should contact the mail off laboratory prior to specimen collection for specific collection instructions.
- B. If *Bordetella pertussis*, *Chlamydia pneumoniae*, or *Mycoplasma pneumoniae* are suspected, submit nasopharyngeal swab in VTM for Respiratory Viral Panel by PCR testing obtained from the microbiology laboratory.
- C. For mycobacterium requests submit at least (3) early morning sputum specimens (collect 1 each morning over 3 days) of 5-10 mLs each. Specimens should be transported to the laboratory as soon as collection is complete.
- D. Only 1 sputum / endotracheal aspirate will be processed per 24 hour period for routine, fungus or mycobacteria culture.

Lower Respiratory Tract Expectorated sputum

1. If possible, have the patient rinse mouth and gargle with sterile water or saline prior to sputum collection.
2. Collect specimen resulting from deep cough in sterile screw-cap cup or other suitable sterile collection assembly.
3. Transport time to Lab is ≤ 2 h, RT. Storage time and temp is ≤ 24 h, 2-8°C. Rejection criteria are ≥ 25 epithelial cell/10X objective or ≥ 10 epithelial cell/10X objective with ≤ 10 or ≥ 10 WBC/10X objective.

Induced sputum

1. Using a wet toothbrush, brush the buccal mucosa, tongue, and gums prior to the procedure.
2. Rinse the patient's mouth thoroughly with sterile water or saline.
3. Using an ultrasonic nebulizer, have the patient inhale 0.85% NaCl.
(SEE RESPIRATORY CARE POLICY PROCEDURE)
4. Collect the induced sputum in a sterile screw-cap cup.
5. Transport time to Lab is ≤ 2 h, RT. Storage time and temp is ≤ 24 h, 2-8°C. Rejection criteria are ≥ 25 epithelial cell/10X objective or ≥ 10 epithelial cell/10X objective with ≤ 10 or ≥ 10 WBC/10X objective.

Tracheostomy and endotracheal aspirations

1. Aspirate the specimen into a sterile sputum trap.
2. Transport time to Lab is ≤ 2 h, RT. Storage time and temp is ≤ 24 h, 2-8°C. Rejection criteria are ≥ 25 epithelial cell/10X objective or ≥ 10 epithelial cell/10X objective with ≤ 10 or ≥ 10 WBC/10X objective.

Bronchoscopy specimens

1. Bronchoscopy specimens include the bronchoalveolar lavage, washing, bronchial brushes, and transbronchial biopsy specimens. Specimens are collected by Physician. Bronchoalveolar lavage specimens are delivered on ice to the laboratory by Respiratory Therapist immediately after collection. If Legionella sp. requested place bronchial brush specimens in a sterile tube with 1 mL of sterile water because saline is inhibitory to Legionella.
2. Place bronchial brush specimens in a sterile tube with 1 mL of sterile saline.
3. Transport to the laboratory immediately.

Transbronchial biopsies

1. Transport to the laboratory in a sterile container with a small amount (1 mL) of non-bacteriostatic sterile saline.
2. If Legionella sp. are suspected use sterile distilled water because saline is inhibitory to Legionella.

Lung Biopsies

Submit in a sterile container(s) without formalin for microbiology culture.

Upper Respiratory Tract Specimens

Throat (pharyngeal specimens)

1. Do not obtain throat samples if epiglottis is inflamed, as sampling may cause serious respiratory obstruction.
2. Depress tongue gently with tongue depressor.
3. Use a culturette swab system. Extend sterile swab between the tonsillar pillars and behind the uvula. (Avoid touching the cheeks, tongue, uvula, or lips.)
4. Sweep the swab back and forth across the posterior pharynx, tonsillar areas, and any inflamed or ulcerated areas to obtain sample.

Nasal swabs

These are examined primarily for the detection of staphylococcal carriers. Use a culturette swab system.

1. Insert a sterile swab into the nose until resistance is met at the level of the turbinates (approximately 1 in. into the nose).
2. Rotate the swab against the nasal mucosa.
3. With the same swab, repeat the process on the other side.
4. Send to the microbiology lab for processing.

Nasopharyngeal suction

Collect in a sterile container and transport to the laboratory immediately.

If organisms such as *Corynebacterium diphtheriae*, or *Bordetella pertussis* are suspected, please contact the mail off laboratory as soon as possible because special media or techniques are required for cultures and detection of these organisms in the presence of normal respiratory flora.

Nasopharyngeal swab

1. Carefully insert a flexible-wire Dacron-tipped swab through the nose into the posterior nasopharynx, and rotate the swab. (Keep the swab near the septum and floor of the nose.)
2. For rapid viral immunoassay antigen tests submit in 1 mL or less of sterile saline obtained from the microbiology laboratory.
3. **For Respiratory Viral Panel by PCR submit in VTM obtained from the microbiology laboratory. RVP by PCR will test for the following targets: Adenovirus, Coronavirus (229E, HKU1, NL63, OC43), Enterovirus/ Human Rhinovirus, Human Metapneumovirus, Influenza (subtypes H1, H1-2009, H3), Influenza B, Parainfluenza (1, 2, 3, 4), RSV, *Bordetella pertussis*, *Chlamydia pneumoniae*, and *Mycoplasma pneumoniae*.**

Nasal washings

Submitted primarily for viral cultures or rapid viral immunoassay antigen tests

1. Instruct the patient not to swallow during the procedure.
2. With the patient's head hyper extended approximately 70 degree angle), instill approximately 5 mL of sterile 0.85% NaCl into each nostril.
3. To collect material, tilt the head forward and allow the fluid to run out of the nares into a sterile container, or aspirate the fluid by inserting a rubber bulb syringe into each nostril.
4. For viral cultures place the saline wash in an equal volume of viral transport medium, or transport it in a sterile container. For rapid viral immunoassay antigen tests place and transport in a sterile container.

Sinus aspirates

1. Using a syringe aspiration technique, a specially trained physician or an otolaryngologist will obtain material from maxillary, frontal, or other sinuses.
2. Place the contents of the syringe into a sterile container, or send the specimen in the syringe with air expelled and needle removed.

Tympanocentesis fluid

1. Clean the external canal with mild detergent.
2. Using a syringe aspiration technique, the physician will obtain the fluid from the ear drum. Send the specimen in a sterile container, or send it in the syringe with the air expelled and needle removed.
3. If the ear drum is ruptured, collect exudate by inserting a sterile swab through an auditory speculum.

Oral cultures

To prepare smears for the detection of yeast disease

1. Rinse mouth with sterile saline.
2. Wipe the lesion with dry sterile gauze.
3. Swab or scrape areas of exudation or ulceration.
4. Send moistened swab from mouth in <1 mL of sterile saline.

Reference:

Versalovic, James (Editor in Chief), editors Karen C. Carroll, Guido Funke, James H. Jorgenson, Marie Louise Landry, David W. Warnock, 2011. 10th Edition. Manual of Clinical Microbiology, American Society for Microbiology, Washington, D.C.