

Performance Guideline for Bronchoscopy, Bronchoalveolar Lavage, Protected Specimen Brushing

Pre-procedure evaluation:

- Estimate ability to maintain oxygenation and ventilation during and after procedure –
 - Peep > 14
 - Inability to tolerate decreased minute ventilation
 - High FIO₂ requirements prior to initiating procedure
- Elevated ICP. Acute change in minute ventilation and airway pressures will acutely elevate ICP
- Presence of coagulopathy
 - INR >1.5
 - Plt < 20,000
- ET tube size < 7.5 mm diameter tube

Each of these suggest increased risk and should be discussed with attending.

Monitoring:

- Continuous pulse-oximetry
- Continuous ECG monitoring
- Continuous or q5 minute blood pressure monitoring
- Completion of documentation for Sedation/paralysis surrounding procedure.
(Must be signed by MD)

Equipment preparation:

Check and set up -

- Bronchoscope and light source
- Wall suction
- Saline for irrigating suction port and clearing/cleaning suction port on scope
- Saline flushes
 - IF performing BAL, flushes
 - Must be non-bacteriostatic saline
 - Non-leurlock 20 cc syringes
 - 5 total aliquots
- sterile field to front of patient to prevent contaminating respiratory tract with new, resistant pathogens
- Clean gloves to prevent contamination
- Sputum trap

Ventilator adjustments:

- 100% FIO₂
- Mode with mandatory minute ventilation – usually volume control /AC
- To allow continued minute ventilation despite relative airway obstruction
 - High RR

- Small TV
- Decreased flow-rates (can be achieved by lengthening “T” time)
- Adjust “high-pressure” limits and alarms
- Settings should be adjusted to maintain at least the pre-procedure minute ventilation that was being delivered to patient before changing the ventilator or medicating patient

Medication for procedure:

Patients **must be adequately sedated for procedure** to ensure tolerance and comfort.

- Sedation with some combination of narcotic/benzodiazepam/ propofol
- Supplemental sedation for increased BP and heart rate
- Paralytic agent (vecuronium or cisatracurium if hepatic or renal insufficiency suspected)

Performance of Bronchoscopic alveolar lavage:

- Clear large airways of secretions as needed
- Advance bronchoscope to the terminal bronchi of the **area of concern** on CXR and wedge
- Irrigate with 20 cc aliquot and discard to reduce upper airway flora and contamination in specimen
- Irrigate with sequential 20 cc aliquots X 4 while remaining in wedge position in the identified bronchus. Return of volumes may require a slight “in and out” motion of the bronchoscope.
- Collect the 4 - 20 cc aliquots in a single sterile sputum trap
- Send for quantitative bacterial cultures by typing in BRP, selecting bronchoscopic lavage and **typing in “ quantitative culture from X lobe”**

Performance of Protected Specimen Brush Sampling:

- Advance bronchoscope to the orifice of the area of concern
- Advance the PSB catheter 3 cm from the scope
- Eject the distal carbon wax plug
- Advance brush into sub-segment and rotate brush within secretions
- Retract brush into catheter sleeve and remove entire catheter from bronchoscope
- Wipe distal portion of catheter with 70% alcohol, then advance brush portion and cut brush with sterile scissors and place in 1 ml of non-bacteriostatic saline
- Send for quantitative bacterial cultures by typing in BRP, selecting bronchoscopic lavage and **typing in “ quantitative culture from X lobe”**

Post-bronchoscopy procedures:

- Post-bronch Chest Xray
- Clean the suction port by suctioning 250 cc of Wex-cide solution
- Wipe the outside with Wex-cide solution
- Place in bronchoscope in container and return to front desk- ICU side in plastic tub

Comment [SS1]: