Title: Guidelines for Bronchoscopy

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Disclaimer

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Background

Bronchoscopy procedures provide direct visualization of the upper and lower respiratory tract for the diagnosis and management of inflammatory, infectious and malignant diseases of the lungs. The flexible bronchoscope may be passed transnasally, by mouth, or through an endotracheal or nasotracheal tube, or tracheostomy or stoma. Bronchoscopy allows sampling of the respiratory tract secretions and cells, and biopsy of the airway, lung, and mediastinal structures.

Indications:
- To obtain specimens for microbiology and histology.
- To assess hemoptysis.
- To assess unresolved lung abscess, pneumonia or atelectasis.
- To assess airway involvement in burn patients.
- To evaluate bronchial abnormalities.
- To remove foreign bodies, mucus plugs and excessive secretions.
- To evaluate trachea and or lungs prior to surgery.
- To evaluate trachea and or lungs post-surgery, post radiation or post chemotherapy.
- To place a brachytherapy catheter prior to radiation.
- To treat strictures and insert stents.
- To evaluate a persistent or unexplained cough, wheezing, hoarseness or vocal cord paralysis.

Contraindications:

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- Acute asthmatic episode.
- Patient not NPO as per institutional set standard for procedure.
- Hypoxia, unless patient is intubated.
- Uncooperative patient.
- Respiratory failure requiring high FiO2.
- Bleeding diathesis-severe thrombocytopenia or coagulopathy.
- Absence of consent.

Pre- procedure:

1. Standard cardiac and respiratory arrest resuscitation equipment should be available in the bronchoscope suite including equipment for endotracheal intubation and defibrillation.

2. Any individuals suspected of TB (tuberculosis) or SARS (Severe acute respiratory syndrome) are to wear appropriate protective mask and should be place in a negative pressure room upon arrival to bronchoscopy suite.

   A negative pressure room is defined as the relative air pressure difference between two areas in a health facility. A negative pressure isolation room has a lower pressure than that of adjacent areas which prohibits air from flowing out of the isolation room and into adjacent areas. To be compliant and meet the Center for Disease Control guidelines, negative pressure rooms in healthcare facilities must have a minimum of 12 air exchanges per hour (www.biologicalcontrols.com).

3. All bronchoscopies should be performed in a negative pressure room. If bronchoscopy is performed under fluoroscopy, then guidelines for radiation safety should be followed. Informed consent is obtained by the physician performing the procedure.

Pre-procedure nursing care of the patient should include:

- Baseline vital signs and oximetry level
- Baseline cardiac rhythm established as per hospital policy
- Verification of NPO status as per institutional set standard
- Allergies
- Documentation of patient teaching and understanding
- Verification of discharge arrangement in accordance with hospital policy
- Review of current medications
- Completion of required blood work (e.g. INR level prior to Transbronchial Biopsy) and any abnormal results can be reported to the pulmonologist prior to procedure.
- Results of Chest x-ray and Computed Tomography on chart. It is the responsibility of the procedural physician to review any abnormalities in results prior to procedure.
- Patent intravenous line for conscious sedation.
- Ensuring outpatients have a designated driver if they are to receive conscious sedation.
Intra-Procedure:

All patients undergoing a Bronchoscopy require monitoring by a Registered Nurse or other qualified health care provider as designated by the facility. Each procedure must meet the individual facilities, health service governing body and legislated requirements in terms of safety, infection control and scope of practice.

1. All bronchoscopies should be performed in a negative pressure room with resuscitation and suction equipment readily.

2. The patient’s vital signs and oximetry levels will be monitored throughout the procedure and in accordance with conscious sedation guidelines of the facility. In some facilities, an anesthesiologist may be assisting in the procedure and capnography monitoring may be used. Supplemental oxygen should be administrated to maintain arterial oxygen saturation at or above 90%.

3. All individuals assisting with bronchoscopies are to wear appropriate personal protective equipment (PPE) which includes:
   - Fitted N95 mask. It is the institution’s responsibility to ensure staff are properly fitted, and their proper mask size is available. N95 fit testing is renewed every 2 years or when there is a rapid weight change with the staff member. Check your hospital policy on N95 mask fit testing as there may be some variance to testing schedules.
   - Eye goggles/face shield
   - Gown
   - Gloves
   - Thermo Luminescent Dosimeter (TLD) to be worn if fluoroscopy is used.

4. Regular Assessments are carried by out to determine:
   - Oxygen saturation
   - Vital signs monitoring
   - Patient's level of consciousness
   - Skin color, warmth and dryness
   - Patient discomfort

5. The RN may assist the procedural physician with:
   - Anesthetization of upper airway (e.g. Nebulizer treatment)
   - Administration of medications as ordered, including medications via bronchoscope or Intravenous medications that the RN is licensed to administer and as approved within the facility
   - Collections of specimens (e.g. Biopsies, Washings and brushings)
   - Management of oral secretions via oral suctioning

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6. The RN must demonstrate understanding and be able to anticipate potential complications as well as have necessary equipment ready to treat complications. Potential complications related to bronchoscopy include:

- hemorrhage
- pneumothorax
- aspiration pneumonia
- hypoxemia
- bronchospasm
- cardiac arrhythmias
- respiratory/cardiac arrest
- laryngospasm
- hypoventilation
- fever/infection
- reaction to topical anesthesia
- drug reactions

**Post Procedure**

1. Following completion of bronchoscopy, it is recommended that the patient is transferred to a negative pressure room in the recovery area for further monitoring until discharge criteria is met. During transportation the patient will wear an appropriate barrier mask until placed in a negative pressure room. It is the responsibility of the infection control team of the facility to determine the appropriate barrier mask.

2. Upon admission to recovery area, a complete respiratory assessment, vital signs, respiratory rate, depth and effort including oxygen saturation are required. Supplementary oxygen is maintained, as required, to effectively manage oxygen saturation levels above 90%.

3. Monitoring and care of the patient post bronchoscopy will include initial assessment, followed by every 15 minute assessments until stable and ready for discharge. There may be some variance with hospital conscious sedation specific policies and so the RN must adhere to the policy of their practicing institution. Post bronchoscopy assessments are to include observation, monitoring, and documentation of the following:

- Changes in vital signs
- Any respiratory distress
- Oxygen saturation (maintain supplementary oxygen until arterial oxygen saturation is stable at or above 90% or has returned to pre-procedure level).
- Complaints of chest/shoulder pain
- Temperature elevation
- Level of consciousness/mental status
- Unexplained cyanosis
- Medication reactions
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- Return of gag reflex (Check physician order for duration of NPO status post procedure as it may vary from 2-6 hours).
- Completion of any ordered CXR or blood work and ensure it is reviewed by bronchoscopist prior to discharge.
- Provide the patient with written discharge instructions as per institutional policy. The patient should be discharged to home with a responsible adult. The patient must be instructed on limitations after having a conscious sedation such as driving or operation of heavy equipment. The RN must review the conscious sedation policy of the hospital as there may be some variance between institutions.

References

Biological Controls (n.d.). Hospital and healthcare facilities negative pressure isolation rooms, positive pressure isolation rooms. Retrieved from www.biologicalcontrols.com


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