

**HACKETTSTOWN REGIONAL MEDICAL CENTER  
CARDIOPULMONARY  
AIRWAY CLEARANCE TECHNIQUES**

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**Effective Date: December 2012**

**Policy No: 3B.027**

**Cross Referenced:**

**Origin: Cardiopulmonary**

**Reviewed Date: 12/2012**

**Authority: Cardiopulmonary Manager**

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**SCOPE**

All members of the Cardiopulmonary Department

**PURPOSE**

To prevent accumulation of bronchial secretions, to promote mobilization of bronchial secretions, to improve cough mechanism and to ultimately improve oxygenation and ventilation.

**Indications:**

- Excessive accumulation of secretions (as seen in many acute and chronic pulmonary diseases)
- Retained secretions (caused by dehydration and many pulmonary diseases)
- Prophylactic care of pre-operative and post-operative patients with history of pulmonary problems

**Precautions:**

- Emphysema
- Open wounds, burns
- Orthopedic procedures
- Anti-coagulant therapy

**Contraindications:**

- Unstable cardiac or respiratory status
- Head or spinal cord injuries
- Recent thoracic, abdominal or diaphragmatic surgery
- Chest tubes
- Empyema
- Flail chest
- Hemoptysis
- Pulmonary embolus
- Untreated pneumothorax, tension pneumothorax
- Fractured ribs
- Recent (within 1 hour) meal or tube feed

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**PROCEUDRE**

- **Postural Drainage:** Uses specific positions so the force of gravity can assist in the removal of secretions from the affected lung segments/lobes to the central airways to be coughed or suctioned out.
  1. To drain the middle and lower portions of the lungs, the patient should be positioned with their chest above their head.
  2. The patient is positioned so that the affected area of the lung is above the carina (usually trendelenberg position, if possible)
  3. To drain the upper portions of the lungs, the patient should be in a sitting position. (semi-fowler's position)
  4. Hold each position for 3-15 minutes, if possible, depending on patient.
  5. While in each position, perform percussion, vibration and cough techniques, as ordered by physician.
  
- **Percussion:** Also referred to as cupping or clapping, this technique is accomplished by rhythmically striking with a cupped hand, ventilation mask or mechanical device directly over the lung segments/lobes being drained.
  1. With a cupped hand, or holding the ventilation mask in hand, bend from the wrist and tap on the area of lung affected. A loud, hollow sound should be produced by the trapped air between the chest and the cupped hand/mask.
  2. If using a manual percussor, follow the instructions with that device.
  3. Percussion should be continued from 2-5 minutes, if possible, for each position ordered.
  4. When done correctly, this should not cause pain, discomfort or bruising.
  
- **Vibration:** A vibratory technique performed after percussion to help mobilize secretions.
  1. Instruct patient to take a deep inspiration.
  2. During patient expiration, place your hands on the patients chest wall and vibrate/shake your arms while gently compressing the chest wall.
  3. The patient should be instructed to breath in deeply during vibration therapy, and exhale slowly and completely.
  4. This procedure helps to 'push' the secretions towards the larger airways, making it easier to expel them.

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- Coughing: Performed after postural drainage, percussion and vibration as the final step to remove secretions, assuming the patient can cough.
  1. Have patient take a slow deep breath in through their nose.
  2. Instruct them to hold their breath for a count of 3.
  3. Instruct the patient to open their mouth and cough three times as they exhale.
  4. The patient should be encouraged to cough and expectorate secretions at any time during the treatment.
  
- PEP Therapy: Positive Expiratory Pressure vibratory devices assist in mobilizing secretions and can be used in any position, anywhere. (ex. Acapella, flutter valve)