"HAND-HELD" NEBULIZER THERAPY (HHN)

Purpose: To deliver medications, promote cough (bland aerosol), relieve bronchospasm and thin secretions (mucolytic agents).

Description: Intermittent medicated aerosol therapy or hand-held nebulizer (HHN) is delivered via small volume nebulizers designed by various companies. See package insert for equipment specifications.

Indications: HHN therapy is indicated for patients who are unable to properly coordinate actuation of a metered-dose inhaler (MDI) with spacer. These reasons may be due to age, mental or neurological status, respiratory distress, or the inability to inhale deeply with an appropriate breath hold. The indication for the appropriate medication or therapy is determined by the patient's clinical condition and is ordered by the physician.

Contraindications / Hazards / Complications:
- Contraindications will pertain to the specific medication delivered.
- Bronchospasm (hypersensitive airways), hyperventilation, dizziness, tingling of face and fingers, nausea or vomiting, and/or tachycardia may result.

Equipment: HHN kit or unit
Oxygen flowmeter
Medications
Stethoscope

Personnel: Physician orders therapy. Procedure is performed by a Respiratory Care Practitioner.

Procedure: (General) – for all medicated aerosol therapies
1. Verify written physician order.
2. Review patient’s chart for the following:
   a. Admitting or current diagnosis
   b. Progress Notes
   c. Nursing Notes
   d. Review lab data and x-ray findings
   e. Respiratory Progress Notes:
      - Time of last therapy
      - Patient tolerance and performance
      - Physical assessment
      - Special needs and considerations
3. Approach and inform patient of purpose of visit
   a. Identify self and department
   b. Identify patient by wristband.
   c. Educate and inform patient / family of therapy procedure and answer all questions pertinent to therapy.
HAND-HELD NEBULIZER THERAPY
1. Assemble the HHN unit.
2. Prepare medications as indicated and place in nebulizer cup utilizing aseptic technique.
3. Attach the nebulizer unit to the oxygen flowmeter. (All HHN treatments in PICU are to be given via oxygen).
4. Position the patient for therapy. Preferably the patient should be comfortably sitting.
5. Instruct the patient to breathe properly.
6. Once the patient is comfortable with the procedure, adjust the flowmeter to 6 – 7 LPM.
7. Administer therapy for ten to fifteen minutes, coaching and allowing the patient to rest at intervals.
8. If the patient cannot hold the mouthpiece (MP), the HHN can be performed using an aerosol face mask (AFM).
9. If patient is an infant or small child, blow-by can be performed to administer medications:
   - Attach a 6-inch of corrugated tubing to one side of the aerosol tee. Tape the other end.
   - Fill the medication cup with medication as prescribed.
   - Attach oxygen tubing to the flowmeter and turn on.
   - Direct the mist of medications to the child's or infant's face.
   NOTE: If a nasal cannula (NC) is in use, remove it from the nose for blow-by or mask therapy.
10. Coughing should be encouraged (if indicated) or suctioning performed if secretion mobilization occurs.
11. Therapy should be discontinued if the patient reports any unusual side effects. The nurse and physician must be notified.
12. Monitor:
   a. Pulse before, during, and after
   b. Breath sounds before and after
   c. Respiratory rate before and after
   d. $S_2O_2$ before and after
   e. Cough effectiveness and production
13. Discard PPE. Wash hands after patient contact.

Infection Control:
Standard Precautions for body fluid isolation.
HHNs will be changed Monday, Wednesday, Friday, and PRN (dropped, contaminated, etc.).
Nebulizer solutions will be used only if sterile and are dispensed aseptically.

References: Cardiopulmonary Services, PROC7.1