PURPOSE:
To deliver large volumes of wetting agents to the lungs for the purpose of mobilizing thick secretions and creating productive coughing.

CONSIDERATIONS:
1. The nebulizer converts an electric current to sound waves. These sound waves transform water into fine mist particles, which form a dense fog.
2. Since the nebulizer delivers a large volume of fluid to the lungs, the patient must be observed for signs of over hydration:
   a. Pulmonary edema.
   b. Rales.
   c. Electrolyte imbalance.
   d. Weight gain.
3. Ultrasonic treatments might trigger bronchospasms in patients with asthma.
4. To prevent mechanical hazards, only equipment recommended by the manufacturer should be used. If any defect is suspected or observed in the device, the medical equipment supplier should be notified immediately.
5. The electrical equipment should be properly grounded. Extension cords should not be used unless the use and type of cord is approved by the manufacturer or supplier.
6. Nebulizer should be placed where there is adequate ventilation to prevent unit from overheating.
7. If nebulizer is powered by an oxygen source, all oxygen precautions should be observed.
8. Since a large volume of mist is delivered directly into the lungs, scrupulous attention must be given to cleaning and care of equipment to reduce bacterial contamination.

EQUIPMENT:
- Ultrasonic nebulizer
- Oxygen tubing
- Mouthpiece or mask
- Sterile distilled water
- Suction equipment (optional)
- Cleansing agent
- Wetting agent
- Gloves and other protective equipment, as necessary

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain procedure to patient.
3. Review order for use of ultrasonic nebulizer, which should include:
   a. Type of wetting agent.
   b. Frequency of use.
   c. Mode of aerosol delivery (mouthpiece or mask).
   d. Duration of use, i.e., one month, six months.
   e. Length of treatment.
   f. Diagnosis and medical necessity.
4. Prepare nebulizer for use:
   a. Fill nebulizer cup with prescribed wetting agent or sterile distilled water; attach to nebulizer.
   b. Attach breathing tubing to ultrasonic nebulizer or oxygen source.
   c. After solution has been added to nebulizer cup, turn nebulizer on and observe for visible mist production.
   d. If no visible mist is produced:
      (1) Check electrical connection.
      (2) Check to verify that all switches are on.
      (3) Check water levels in reservoir and coupling chamber.
      (4) Check air supply and check for obstruction in breathing tubing or mouthpiece.
5. Apply mask or mouthpiece.
6. Encourage patient to breathe slowly and deeply with a brief pause (2 to 3 seconds) before breathing out, so the mist can penetrate to the lower bronchial tree.
7. Stay with patient for length of treatment administration.
8. Assess vital signs, observe for rales and wheezes.
9. At conclusion of treatment, encourage coughing and expectoration of secretions. Suctioning may be required.
10. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. The ultrasonic nebulizer cup, delivery tubing, mask and/or mouthpiece should be disinfected daily. (See Respiratory - Cleaning and Disinfection of Respiratory Equipment.)
2. Medications should be stored in a cool, dry place. Teach patient to check them often for change in color or formed crystals.
3. Document in patient's record:
   a. Date, time, duration of therapy.
   b. Medication administered.
   c. Findings of respiratory assessment.
   d. Patient's response to procedure.
   e. Mucous viscosity and production.
   f. Instructions given to patient/caregiver.
   g. Patient/caregiver understanding of instructions and equipment set up and maintenance.
   h. Patient and caregiver understanding of safety practices.
4. Refer to manufacturer's instructions for equipment maintenance.