PURPOSE:
To administer pentamidine isethionate in aerosolized form in the home in a safe manner.

CONSIDERATIONS:
1. Pentamidine isethionate administered in an aerosolized form is indicated in the prevention of pneumocystis carinii pneumonia (PCP) in high-risk, immuno-compromised patients, such as HIV-infected patients.
2. Administration of pentamidine in the aerosolized form is contraindicated in patients with a history of an anaphylactic reaction to parenteral pentamidine.
3. The potential for the development of acute PCP still exists in patients receiving aerosolized pentamidine prophylaxis. The recommended dose of aerosolized pentamidine for prevention of PCP is insufficient to treat acute PCP.
4. Patients receiving aerosolized pentamidine should be closely monitored for the development of serious adverse reactions that have occurred in patients receiving parenteral pentamidine. (See Considerations, Administration of Intravenous Pentamidine Isethionate.) The nurse should remain with the patient throughout the treatment.
5. The most frequent adverse experiences to aerosolized pentamidine are bronchospasm and cough. Other adverse experiences include: fatigue, burning sensation in back of throat and dizziness.
6. Aerosolized pentamidine is most efficiently delivered in particle sizes varying from 0.5-4 microns to reach the desired alveolar regions. The Wright-type nebulizer is designed with a series of one-way valves that act both as a baffle to trap large particles and direct exhalation to a bacterial filter. This system prevents aerosolized medication from being dispersed in the surrounding environment. Respirgard II is an example of a Wright-type nebulizer and is recommended by the Food and Drug Administration for delivery of aerosolized pentamidine.
7. Never use the nebulizer to administer a bronchodilator.
8. Aerosolized pentamidine must be dissolved only in sterile water for injection, USP. DO NOT use saline solution. Reconstitution with saline will cause the drug to precipitate. DO NOT mix the aerosolized pentamidine solution with any other drugs.
9. Follow manufacturer's guidelines for stability of reconstituted pentamidine. (PDR recommends using freshly prepared solutions and the solution is stable 48 hours in the original vial at room temperature, if protected from light.)
10. Instructions given to patient/caregiver.
11. Use at least 2 patient identifiers prior to administering medications.

CONSIDERATIONS FOR HEALTHCARE WORKERS:
1. To effectively control aerosolized medication ambient air mist, the treatment should take place in a well-ventilated room. It is desirable to have a fan blowing away from patient and nurse.
2. A NIOSH-approved (at least N95) respiratory mask, disposable gown and goggles with side shields must be worn during the treatment.
3. Registered nurses who are pregnant, have respiratory problems, external eye problems or diabetes should be offered alternate work assignments or medical screening by a physician.
4. Materials contaminated with aerosolized medication should be handled as hazardous waste.

EQUIPMENT:
Oxygen flow meter with nipple adaptor
Air compressor
Wright-type nebulizer system
Micronebulizer
Medication
Sterile water for injection, USP
Syringes with 18-gauge needles or needle less adaptors
Alcohol prep pads
Puncture-proof container
Protective eye wear
Disposable gown
Mask (HEPA Respirator)

PROCEDURE:
1. Check physician order.
2. Adhere to Standard Precautions.
3. Gather equipment.
4. Identify patient and explain procedure.
5. Position the patient:
   a. Patient should be seated on a chair with both feet on the floor. If confined to bed, place in high-Fowler’s position.
   b. Instruct patient to take several slow, deep breaths through his/her mouth.
6. Reconstitute medication. When administering pentamidine use the following:
   a. 30 mg Pentamidine:
      (1) Draw up 6 mL sterile water and inject 6 mL into the 300 mg pentamidine vial.
      (2) Shake vial until all solute dissolves.
      (3) Withdraw 0.6 mL from pentamidine vial and place in nebulizer. Add 5.4 mL of sterile water to nebulizer. Total amount of solution in nebulizer is 6 mL (may be premixed by pharmacy).
   b. 150 mg Pentamidine:
      (1) Draw up 6 mL sterile water and inject 6 mL into the 300 mg pentamidine vial.
      (2) Shake vial until all solute dissolves.

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(3) Withdraw 3 mL from pentamidine vial and place in nebulizer. Add 3 mL of sterile water to nebulizer. Total amount of solution in nebulizer is 6 mL (may be premixed by pharmacy).

c. 300 mg Pentamidine:
   (1) Draw up 6 mL sterile water and inject 6 mL into the 300 mg pentamidine vial.
   (2) Shake vial until all solute dissolves.
   (3) Withdraw 6 mL of solution from pentamidine vial and place in nebulizer.

7. Instruct patient to put mouthpiece in place, adjust gas flow for a full mist (6 liters/minute).

8. POSSIBLE ADVERSE REACTIONS:
   a. If bronchospasm occurs, stop therapy and administer bronchodilator per physician's order, then continue therapy. Prior to next therapy, pretreat patient with a bronchodilator per physician's order.
      [Note: Epinephrine must also be available for possible anaphylaxis.]
   b. If coughing continues, treat as above.
   c. If fatigue occurs, allow the patient to rest. During rest breaks, the gas flow is to be turned off.
   d. If a burning sensation occurs, stop therapy and have the patient drink some liquid, then resume aerosolization. At the end of therapy have the patient drink more liquid.
   e. If dizziness occurs, stop therapy until episode has passed.

9. Instruct the patient to inhale and to exhale through the mouth into the mouthpiece.

10. Continue treatment until all medication is absorbed. Treatment time varies from 30 to 45 minutes depending upon patient tolerance.

11. Discard soiled supplies in appropriate containers.

AFTER CARE:

1. Document in patient's record:
   a. Medication administered, dose, time, rate and route.
   b. Vital signs.
   c. Patient's response to procedure, side effects and management.
   d. Instructions given to patient/caregiver.
   e. Communication with the physician.