I. Purpose
   A. Establish practices and standards that should ensure delivery of quality care to patients receiving oxygen with increased humidification delivery.

II. Policy
   A. Acceptable criteria for aerosol therapy delivery are:
      1. Retained secretions
      2. A diagnosis which indicates secretion retention (e.g., COPD, pneumonia, bronchitis, etc.).
      3. An arterial blood gas sample on room air that demonstrates hypoxemia (PaO2 below 60 mm Hg, or below the normal range for the specific patient in question)
      4. An arterial oxyhemoglobin saturation SaO2 on room air below or equal to 92%
      5. Medical emergencies where symptoms are evident:
         a. Tissue hypoxia may be reasonably expected to be part of the problem due to shock, pulmonary edema, or drug overdose
         b. Physical symptoms of tissue hypoxia (e.g., cyanosis, tachycardia, confusion, etc.)
         c. Trauma victims with chest injuries, head injuries, blood loss, etc.
      6. Prophylactic use in-patients with symptoms, which indicate pending hypoxemia (e.g., suspected myocardial infarction; airway dehydration; and high-risk patients e.g., anesthesia, coma, smoke inhalation, etc.)
   B. Objectives for aerosol therapy are:
      1. Humidify inspired gases
      2. Aid in bronchial hygiene
      3. Provide sputum for laboratory studies
      4. Correct hypoxemia
   C. When oxygen is ordered on an emergency basis or prophylactically, the need should be documented by arterial blood gas analysis or arterial oxyhemoglobin as soon as possible.
   D. Oxygen should be started immediately after receiving the physician’s order.
   E. Documentation of the date and time of delivery of therapy, evaluation of the patient’s hypoxemia via arterial blood gases or pulse oximetry saturation, physical signs of cyanosis or
response to a medical emergency, pulse rate, respiratory rate, patient’s mode of oxygen therapy, liter per minute of oxygen flow and FIO2 should be performed at each bedside visit.

F. The patient’s cardiopulmonary status should be evaluated routinely to determine the dosage of oxygen required and effectiveness of therapy.

G. Patients on continuous oxygen therapy at an FIO2 above 0.6 for more than 48 hours should be reevaluated to prevent overdosing.

H. Patients receiving oxygen therapy to treat hypoxemia should not be removed from oxygen without documentation of their ability to maintain an adequate PaO2 or SaO2 on room air.

I. Humidification should be delivered through disposable devices when available.

J. Only sterile distilled water (sterile water, USP) will be used in humidifiers and nebulizers unless otherwise ordered.

K. The supervisor may select appropriate administering devices based on the patient’s individual need if the device being used is inappropriate.

L. Oxygen delivery devices may be removed from patient's room when the safety policy is deliberately and continuously violated by the patient. In cases where the oxygen is removed from the room, the physician should be notified.

M. Bland aerosol therapy administration may be either continuously or intermittently.

N. Compressed air, oxygen or compressed air-oxygen mixtures may power aerosol devices.

O. When oxygen is being used to power aerosol devices, all precautions applicable to oxygen therapy must be observed.

P. If oxygen is used to power aerosol devices, applicable oxygen safety procedures must be observed.

Q. Bland aerosol devices used to humidify gas for patients with endotracheal or tracheostomy tubes in place should have a heating device capable of delivering inspired gases at body temperature.

R. The minimum flow rate used to power continuous bland aerosol devices should be determined by the manufacturing company.

S. Patients on continuous bland aerosol therapy should be monitored at least every four hours.

T. When aerosol therapy is discontinued, the aerosol therapy equipment should be removed from the patient’s room in a timely manner.

U. All patients receiving heated aerosol via facemask, tee-tube or similar devices should receive a total flow in excess of the expected minute volume.

V. All adult patients will be evaluated according to the Adult Oxygen Weaning Guideline upon initiation of therapy.

W. Heat-moisture exchangers (HME) may be used on patients who have artificial airways if necessary.

III. Equipment:

A. Nebulized Face Tent or Mask
   1. 0-15 LPM oxygen or air flowmeter, or
   2. 0-40 LPM oxygen flowmeter
   3. Disposable prefilled nebulizer
   4. 5 foot corrugated aerosol tube
   5. Appropriately sized face mask
   6. Nebulizer heater (optional)

B. Nebulized Trach Collar or Tee–Tube
   1. 0-15 LPM oxygen or air flowmeter, or
   2. 0-40 LPM oxygen flowmeter
SUBJECT: Aerosol Therapy

3. Disposable prefilled nebulizer
4. 5 foot corrugated aerosol tube
5. Appropriately sized collar
6. Nebulizer heater
7. 15 mm temperature indicator
8. Inline thermometer

C. Oxyhood
1. Oxygen blender with 0-15 1pm oxygen flowmeter attached, or
2. 0-15 LPM air flowmeter and 0-15 LPM oxygen flowmeter
3. Oxygen flowmeter
4. Disposable prefilled nebulizer
5. Nebulizer heater
6. Corrugated aerosol tubing
7. Thermometer
8. 15 mm adapter
10. Oxyhood
   a. Large size
   b. Medium size
   c. Small size

D. Mist Tent
1. Aerosol generator
2. Tent canopy
3. Air compressor
4. 50 psig piped air source
5. 0-15 1pm-air flowmeter
6. High pressure hose with dual-end female adapters
7. Solution for Nebulizer
   a. Sterile water U.S.P.
   b. 0.45% NaCl
   c. 0.9% NaCl
8. Nipple adapter
9. 0-15 LPM oxygen flowmeter
10. Oxygen connecting tube
11. Oxygen analyzer

V. Procedure
A. The specific procedure for each device is outlined in the Clinical Assessment Skill package. (See Appendix A for a complete collection of Respiratory Care Clinical Assessment Skills.)
B. Instituting Aerosol Therapy
1. Collect the appropriate equipment
2. Proceed with minimum delay to patient area
3. Locate and scan chart to determine the order, diagnosis, documentation of hypoxemia, and pertinent history and physical
4. Locate and identify the patient
5. Identify self and department to the patient
6. Explain prescribed therapy to the patient
7. Wash hands
8. Apply gloves
SUBJECT: Aerosol Therapy

9. Explain safety precautions
10. Plug flowmeter into wall outlet
11. Aseptically attach ordered delivery device to flowmeter using humidification if appropriate
12. Set desired liter flow
13. Set desired FiO₂
14. Assure proper function of equipment
15. Analyze FiO₂ if appropriate; adjust to desired setting
16. Assess humidification temperature if necessary; adjust to desired temperature
17. Monitor patient's heart rate and respiratory rate
18. If a pulse oximeter is in use note any change in oxygen saturation
19. Wash hands
20. Complete appropriate documentation

C. Procedure For Monitoring Aerosol Therapy
1. Scan the respiratory therapy patient records and the worklist to determine room number, diagnosis, type of equipment in use, and equipment change out schedule
2. Scan the patient's chart to determine the current order for therapy, documentation of hypoxemia, and documentation of the effectiveness of therapy
3. Locate and identify the patient
4. Identify self and department to patient
5. Inform the patient of the purpose of the visit
6. Wash hands
7. Apply gloves
8. Assess the patient's vital signs to determine respiratory rate, heart rate, and oxygen saturation
9. Check equipment for proper function, level of humidification fluid in reservoir, properly set FiO₂, properly set liter flow, and proper fit on patient
10. Drain condensation from the tube, if necessary
11. Analyze FiO₂ if appropriate; adjust to last written order on chart
12. Wash hands before leaving the patients room
13. Complete appropriate documentation

D. Procedure For Discontinuing Aerosol Therapy
1. Locate and scan the patient's chart and scan the doctor's order sheet to verify the written order
2. Locate and identify the patient
3. Wash hands
4. Apply gloves
5. Inform the patient that oxygen is being discontinued
6. Discard all disposable equipment
7. Remove all respiratory department oxygen therapy equipment from the patient room
8. Wash hands
9. Complete appropriate documentation to include the date and time therapy was discontinued
10. Return all permanent equipment and signs to the respiratory therapy department