Subject: INFANT OXYGEN HOOD (Oxygen Administration by Hood)

Purpose: To relieve hypoxemia, reduce myocardial work and to reduce work of breathing.

INDICATIONS:

♦ Oxygen therapy is administered to infants and neonates for the treatment of hypoxemia. The most common causes of this condition are atelectasis, pneumonia and cardiac abnormalities. When possible, the preferred method of treating hypoxemia in infants is by administration of oxygen at ambient pressure.

POLICY:

♦ The set-up and operation of the oxygen hoods will be the responsibility of the Respiratory Care Practitioners and nursing.
♦ The FiO2 and temperature of the gas in the hoods should be monitored at regular intervals. This is a shared responsibility between nursing and Respiratory Care personnel.
♦ For pediatric patients in a hood, the FiO2 should be analyzed whenever changes are made in FiO2 or at least as often as every 4 hours.
♦ For neonates in a hood, FiO2 should be measured on a continuous basis or a minimum of every 2 hours.
♦ The FiO2 delivered by hood should be analyzed inside the hood as close to the patient’s nose as is safely possible. If the hood is moved or opened to insert the analyzer probe, time must be allowed for the FiO2 to stabilize before measurement is read.
♦ The oxygen analyzer should be calibrated every shift when in use. Calibrate on 100% dry oxygen and then room air. Note: In a humidified hood, you may not get readings over 94-96%.
♦ Neonates who are also in a Isolette or open radiant warmer should have the hood temperature set to provide a neutral thermal environment for the infant. 33.5 to 36.5 degrees centigrade. See appropriate temperature graph, P.C.E.P. Book II, page 19.
♦ Pediatric patients should have the hood temperature at approximately room temperature unless otherwise specified by the physician.
♦ Hood temperatures should be monitored in the hood, not in the large bore tubing leading to the hood.
♦ FiO2 delivered by hoods should be controlled by using a blender or an air-oxygen mixer (dilution control device).

EQUIPMENT:

♦ Oxygen hood: small, medium, or large. The hood chosen should be an appropriate size for the patient’s body and head size. (See Table One)
♦ Appropriate length of tubing (usually one package) and in-line drain.
Heated humidification system with an adjustable heat control
Oxygen blending device. Blender or adjustable dilution control nebulizer.
Thermometer or temperature probe.
Sterile distilled water.
Oxygen flow chart.
Oxygen analyzer.

**Table One: Infant weights per hood size.**
<table>
<thead>
<tr>
<th>Size</th>
<th>Weight Range</th>
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<tbody>
<tr>
<td>Small</td>
<td>Under 1000 grams or 2-1/2 lb.</td>
</tr>
<tr>
<td>Medium</td>
<td>1000-3600 grams or 2-1/2 – 8 lb.</td>
</tr>
<tr>
<td>Large</td>
<td>Over 3600 grams or 8 lb.</td>
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</table>

**PROCEDURE:**
1. Check for complete physician order.
2. Connect the oxygen blending device or dilution control device to the appropriate wall outlets and set the desired FiO2. **If a blender is used, the dilution control on the nebulizer must be set at 100% so the entrainment port is completely closed.**
3. Fill the humidifier with sterile water to line indicated on nebulizer container. Plug in heater.
4. Turn the heater to the appropriate setting to achieve desired hood temperature.
5. Connect the wide bore oxygen tubing from the nebulizer to the port on the side of the oxygen hood.
6. Set the oxygen to the appropriate flow rate on the flow meter. The flow should be set at the acceptable ranges indicated in Table Two. **These minimum liter flow ranges are necessary in order to prevent the accumulation of carbon dioxide in the hood.**
7. Mount the thermometer on the hood.
8. Analyze the FiO2 with a calibrated analyzer. Analysis should be done as near the patient’s face as is safely possible.
9. Place the hood over the infant’s head. Assure as tight a seal as possible between the bottom of the hood and the bed. If necessary, use rolled towels to reduce entrainment of room air into the hood.

**CONTRAINDICATIONS:**
♦ No clinical evidence for the need of oxygen.

**HAZARDS:**
♦ Oxygen toxicity
♦ Absorption atelectasis
♦ Retrolental fibroplasia
♦ Bronchopulmonary dysplasia
♦ Hyper/hypothermia in low birth weight infants.

**DOCUMENTATION:**
♦ Date and time
♦ Delivery mode
♦ Liter flow/FiO2
♦ Temperature
♦ Any recent monitoring results/comments
♦ Analyzer calibration
PROBLEMS:

- No flow
  a. Check flow meters and blender to see if they are turned on.
  b. Check to make sure the tubing is connected.
  c. Check to make sure nebulizer is tightly connected to flow meter and the top is tightly closed.
  d. Drain water from loops in wide bore tubing.

- Unable to maintain FiO2.
  a. Check flow meters for proper flow.
  b. Check FiO2 setting on blender or dilution control device on nebulizer. If blender is being used, the dilution control setting on the nebulizer must be at 100%.
  c. Check the analyzer for moisture.
  d. Calibrate the analyzer.

- Excessive condensation in the hood
  a. Dry the inside of the hood.
  b. Check the nebulizer temperature to make sure it is not excessive.