

**Respiratory Care Services
John Dempsey Hospital
Policy and Procedure Manual**

Subject: Heliox Therapy via Non-Rebreather Mask (ED or ICU ONLY)

Rationale: Patients with severe airway obstruction and hypercapnea ($\text{PaCO}_2 \geq 45$ torr) and who have a $\text{pH} \geq 7.20$ should be treated with a gas blend of 80% Helium / 20% Oxygen by a non-rebreather mask inhalation. The patient should also be adequately treated with the normal treatment regimen of B_2 -agonists, steroids and aminophylline as warranted. Heliox Therapy usage will be restricted to either the Emergency Department or the Intensive Care Unit. Usage on the floors is not permitted.

Equipment: Non-rebreather mask
Blender
 O_2 Analyzer
80% Helium / 20% Oxygen Blended Mixture Tank
Arterial Blood Gas Kit and Lab Requisition (as needed)

Indications:

1. Severe airway obstruction with hypercapnea
2. $\text{pH} \geq 7.20$

Contraindications:

Patients who have $\text{PaCO}_2 \geq 45$ torr and who have a $\text{pH} \leq 7.20$ should be intubated in lieu of Heliox therapy administration. The fleet of ventilators currently utilized at JDH do not permit the delivery of Heliox Therapy to intubated patients via mechanical ventilation

Procedure:

1. Obtain the necessary equipment in the respiratory therapy equipment room or designated respiratory storage area. Proceed to the patient's unit (ICU or ED Department)
2. Read the patient's order sheet for the doctor's specific instructions. Verify FIO_2 specified in doctor's order. Review the patient's chart for admission diagnosis, medical history, therapeutic indications and possible contraindications. Verify the patient's name, DOB, and bed location.
3. Proceed to patient's bed, introduce yourself, and explain what you are about to do and that it has been ordered by the patient's doctor. Check the patient's name and DOB verbally and by the patient's wrist band. Be reassuring. Explain the desired outcome goal for the treatment. Explain what the patient must do to receive the treatment and that specific instructions

4. will be provided to promote the desired effect and administration of the Helium / Oxygen inhalation treatment.
5. Wash your hands. Observe universal precautions.
6. Connect the blender to
 - Oxygen 50 psi high pressure hose and
 - Helium / Oxygen Blended Mixture Tank
7. Connect the non-rebreather mask to the blender's attached flowmeter. Check that there is sufficient flow from the mask. Check for leaks, loose connections and proper functioning of the valves.
8. Place non-rebreather mask securely on patient. Adjust the mask for patient's maximum comfort and fit.
9. Turn the blender to the FIO₂ specified in the doctor's order. Observe the initial effects of the treatment and make any necessary adjustments necessary.

NOTE: *At the beginning of each shift, Oxygen Analysis using the Oxygen Analyzer must be performed and recorded.*

10. Obtain an ABG 20 minutes after the initiation of Heliox treatment and if:
 - PaCO₂ has increased – Patient should be intubated
 - PaCO₂ remains the same – Continue therapy and repeat ABG in 20 minutes
 - PaCO₂ is lower than previous one and
 - a. PaCO₂ > 40 repeat ABG in 20 minutes
 - b. PaCO₂ < 40 repeat ABG prn
 - PaO₂ < 60 O₂ concentration must be checked with O₂ analyzer. Adjust O₂ concentration as necessitated.
11. Document your evaluation /clinical assessment of the patient on the appropriate Respiratory Treatment Sheet and/or progress note in the patient's chart.
 - ✓ Include the patient's response to the Heliox Therapy via Mask
 - ✓ Changes in treatment therapy
 - ✓ Arterial Blood Gas Analysis results
 - ✓ Outcome / Results of Heliox Therapy
12. Properly document respiratory charges for equipment and therapy.

Issued: 1/9/90

Revised: 6/91, 12/05