

	Department: Respiratory Services	Date Originated: February 1988 Date Reviewed/Revised: April 2010
POLICY & PROCEDURE	Topic: <u>Critical Care</u> – Oxygen Analyzer Calibration and Analysis of Gas Mixtures (Respiratory Therapy) Number: B-00-12-12032	Related Links:

APPLICABLE SITES:
 St. Paul's Hospital
 Mount Saint Joseph Hospital

POLICY STATEMENT:

All ventilators (invasive and non-invasive) will be equipped with a functioning oxygen analyzer for continuous analysis of oxygen concentrations.

Continuous oxygen analysis is mandatory for all patients receiving supportive ventilation or specialty gases.

Oxygen analyzers may be internal or external. External analyzers will be manually calibrated upon initiation of ventilation and weekly thereafter.

GENERAL INFORMATION:

Oxygen analyzers must be used with the following equipment:

- Critical Care ventilators
- Vision Bipap
- Oscillators
- OPTIFLOW high-flow system
- Emergency hypothermia unit
- LTV ventilators
- INOvents
- Specialty gas mixtures (i.e. Heliox)

EQUIPMENT:

- Oxygen analyzer
- Oxygen connecting tubing
- Plastic bag
- Analyzer T-connector
- Other connectors as needed

PROCEDURE FOR CALIBRATION:

1. Remove oxygen analyzer from circuit.
2. Perform a 1-point calibration using room air.
3. Place sensor in a plastic bag. Direct a flow of 100% oxygen into the bag using the oxygen connecting tubing.
4. Once the analyzer reading has stabilized, calibrate the unit to 100%.
5. Remove the sensor from the oxygen source and repeat the reading using room air. The measurement should be within +/- 3%.
6. If the analyzer is not within the acceptable range, repeat the 2-point calibration.
7. If the analyzer still does not pass calibration, perform basic troubleshooting (change batteries, replace sensor). If the problem is still unresolved deliver the analyzer to Biomed for follow-up.
8. Once the analyzer has been calibrated, replace it into the circuit.

NOTE: Where possible the sensor should be placed proximal to the inspiratory filter.

9. Ensure high and low alarms are set appropriately and are functional.

PROCEDURE FOR ANALYSIS OF GAS MIXTURES:

1. Ensure analyzer has been calibrated.
2. Place oxygen sensor into the gas mixture that is to be analyzed using the T-connector and other connectors as needed to adapt the circuit.
3. Allow 30 – 60 seconds for stabilization of the analyzer reading.
4. Record the analyzed FiO_2 . Titrate oxygen as appropriate.
5. Document pertinent findings and continue to routinely monitor oxygen concentration.