

CONTINUOUS PULSE OXIMETRY

- Purpose:** To monitor arterial oxyhemoglobin.
- Policy:** The Ohmeda Biox 3740 Pulse Oximeter will be used unless otherwise ordered.
- Description:** The Ohmeda Biox 3740 Pulse Oximeter determines the patient's arterial oxygen saturation of hemoglobin and pulse rate by measuring the absorption of selected wavelengths of light. The light generated in the probe passes through the tissue and is converted into an electronic signal by the photo detector. The electronic signal passes to the oximeter and is amplified. The oximeter's circuitry processes the signal, converting the light intensity information into SpO₂ and pulse rate values. A liquid crystal display (LCD) presents patient data and oximeter status information.
- Features:**
- 1) LCD
 - 2) Alarm Limits
 - a. High SpO₂
 - b. Low SpO₂
 - c. High Pulse rate
 - d. Low Pulse rate
 - 3) Alarm volumes
 - a. SpO₂ alarm volume = 1 to 10
 - b. Pulse volume = off to 10
 - 4) Real time clock
 - 5) Analog Connector
 - 6) Digital Connector
 - 7) Battery
 - 8) Availability of various types of probe connections
 - 9) Alarm silence for 120 seconds
 - 10) Display select
 - a. Waveform – Dominant display
 - b. Numeric – Dominant display
 - 11) Signal Strength Indicator
 - 12) Menu/Enter Key
 - a. Pulse volume = off – 10
 - b. Alarm volume = 1 – 10
 - c. Low SpO₂ = 50 – 100
 - d. High SpO₂ = 70 – 100
 - e. Low Pulse alarm = 40 – 200 BPM (off)
 - f. High Pulse alarm = 70 – 250 BPM (off)
 - g. Response time = 3 sec, 6 sec, 12 sec
 - h. Trend output
 - 13) Pulse Rate analog output
 - 14) SpO₂ analog output
 - 15) Digital Interface Connector
 - 16) Contrast Adjust Lever

Cardiopulmonary Services
PICU Specific Policies
PROC 19.1

Indications: All patients admitted to the PICU are monitored with the Ohmeda 3740 Continuous Pulse Oximeter unless otherwise ordered. Continuous pulse oximetry is considered routine monitoring in the PICU; therefore, a separate order is not needed to initiate continuous pulse oximetry. Refer to "Routine Monitoring" policy in the PICU Policy and Procedure Manual.

Contraindications/Hazards/Complications:

The presence of an ongoing need for measurement of pH, PaCO₂, total hemoglobin, and abnormal hemoglobin may be a relative contraindication to pulse oximetry. Pulse oximetry is considered a safe procedure, but because of device limitations, false-negative results for hypoxemia and/or false-positive results for normoxemia or hyperoxemia may lead to inappropriate treatment of the patient. In addition, tissue injury may occur at the measuring site as a result of probe misuse (eg, pressure sores from prolonged application or electrical shock and burns from the use of incompatible probes). **Pulse ox probe site will be changed every shift (Q8^o) to decrease the incidence of pressure sores, or burns.**

Equipment: Ohmeda 3740 Biox Unit, pulse ox cable, AC power supply, appropriate pulse ox probe.

Personnel: Pulse oximeters will be placed in use by the Registered Respiratory Therapist (RRT), Certified Respiratory Therapist Technician (CRTT), or Registered Nurse (RN).

Procedure:

- 1) Verify admit / physician orders.
- 2) Turn monitor on with pulse ox unit on a stable surface.
- 3) If self-calibration is not successful, refer to operation manual.
- 4) Connect probe to monitor and place on patient's digit, hand or foot, maintaining light emitting portion directly over photo detector site.
- 5) Press display select to change the display format.
- 6) Determine good probe assessment and data validity.
- 7) **Set alarm volume >=8.**
- 8) **Set Low SpO₂ alarm at 90% (unless otherwise ordered).**
- 9) Document set-up and patient education if performed.
- 10) **Pulse ox site will be changed Q Shift and documented.**
- 11) Chart on Master Therapy Sheets in department.
- 12) Set Pulse volume at 5-6 on admit, leave on this setting if patient is critically ill, unstable and/or during all airway procedures. Children not on mechanical ventilation, or those who are stable should have pulse volume "off" to minimize noise and decrease patient anxiety / ICU psychosis.

Infection Control: Standard Precautions are observed. The Ohmeda unit is cleaned between patient use with aseptic cleaner and as needed.
The Ohmeda pulse ox probes are SINGLE PATIENT USE ONLY unless package insert states otherwise.

References:

1. Ohmeda, Model 3740 Operation Manual, 1994.
2. American Association for Respiratory Care (AARC) Clinical Practice Guidelines, Respiratory Care 1991; 36(12): 1406-1409.

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