A. Introduction

The pulse oximeter measures the oxygen saturation of hemoglobin and is expressed as SpO2. When available, it should be used in the assessment of all patients treated by Fire Rescue.

B. Oxygen Saturation Values

NOTE: The pulse oximeter will require at least eight pulse beats to identify a change in saturation.

1. The following guidelines will be used for assessing the severity of respiratory distress using the pulse oximeter when the patient is breathing room air (prior to oxygen administration):

    a) 95-99% Normal SpO2 **reading**.

    b) 90-94% Mild hypoxemia.

    c) 85-89% Moderate hypoxemia.

    d) < 85% Severe hypoxemia.

NOTE: Patients presenting with a SpO2 reading ≤ 91% will be managed accordingly and transported ALS by Rescue to the closest appropriate facility.

2. Oxygen saturation values alone should not be used as the basis for assessing the clinical condition of the patient (**see (E) Precautions**).

3. Patients exhibiting signs/symptoms of respiratory distress, regardless of the oxygen saturation values, will be re-evaluated and treated per the appropriate protocol and require ALS transport.

C. Procedure

BLS

1. Assemble the equipment:

    a) Pulse oximeter

    b) Adult non-disposable finger probe (if applicable)

    c) Pediatric non-disposable finger probe (if applicable)

2. Choose the appropriate probe (see Adult/Pedi sections below) and attach it to the unit. The probe is designed to transmit light through the cuticle of the nail bed or other peripheral tissue.

3. Firmly depress the "ON" key to power up the unit. After eight pulse beats, the oxygen saturation and pulse rate will be displayed.

4. Document on the ePCR, the initial reading of, the SpO2 after each subsequent set of vital signs, and upon release to a hospital or other transport unit (ALS/BLS, Air Rescue).

Adult Care

5. Appropriate attachment sites for patients > 45 kg:

   a) Attach the non-disposable finger probe on a finger or toe. Make sure the probe is positioned to allow the light to pass through the cuticle (base) area of the nail. Remove dark nail polish.

Pediatric Care

6. For patients 15-45 kg follow Adult Care guidelines.

7. For patients < 15 kg utilize the appropriate attachment.

D. Additional Considerations for Use

1. To evaluate distal circulation to an extremity with a fracture(s) or soft tissue injury.

2. To identify the need for more aggressive intervention (i.e., a patient on oxygen who continues to decline in saturation may require assistance with a BVM and intubation).

E. Precautions

1. The following are conditions which may limit the effectiveness and reliability of pulse oximetry readings:

   a) Carbon monoxide inhalation (may indicate a higher SpO2 than normal).

   b) Nitrate & Nitrite poisonings/Methylene Blue administration Protocol 25

   c) Low perfusion states, i.e. hypotension and cardiac arrest (may not register a SpO2 reading).

   d) Anemia, including Sickle cell.

   e) Hypothermia or cold extremities.

   f) Active seizures.

   g) Dark nail polish (when finger probe is used).

   h) Bright lighting (may affect reading from probe's infrared light source).

F. Maintenance

1. **Cleaning:**

   a) Clean unit as needed with a soft cloth moistened in water or a mild soap solution.

   b) If disinfecting is necessary, wipe surfaces of the unit with isopropyl alcohol.

   c) The case can be washed in the station washer using Fire-Rescue issued anti-bacterial soap and allowed to air dry.

2. **Batteries:**

   a) The unit uses six standard alkaline "AA" cell batteries that can be replaced as needed.

   b) Battery life is 24 hours in continuous mode or 80 hours in spot check mode.

   c) The low battery indicator lights when there is approximately two hours of battery use remaining.

3. For **repairs or replacement**, contact EMS R&D and submit and EMS equipment service request.