PULSE OXIMETRY

1. **INTRODUCTION:** Pulse oximetry is used in the out-of-hospital environment for patient assessment and evaluation of response to treatment. The normal oxygen saturation (SO_2) is 96 - 99%. An SO_2 < 94% must be explained by an acute or chronic condition
2. **INDICATIONS:** Pulse oximetry should be used freely. The following patients require pulse oximetry:
   - 2.1 All monitored patients
   - 2.2 All patients with neurologic, respiratory, or cardiovascular complaints
   - 2.3 All patients with abnormal vital signs
   - 2.4 All patients who receive respiratory depressants (Morphine, Diazepam, Midazolam)
   - 2.5 Critical Trauma Patients

> **Note:** Oxygen administration is not to be excluded based on a saturation value obtained by pulse oximetry. Patients with conditions including, but not limited to: 1) ischemic chest pain, 2) trauma, 3) respiratory conditions, 4) congestive heart failure, etc. should receive high flow oxygen regardless of saturations. Like other physiologic parameters, pulse oximetry is used only as a guide in providing overall care to the patient.

3. **PROCEDURE:**
   - 3.1 Remove nail polish, if necessary; utilize adhesive sensor or apply sensor to the side of the finger
   - 3.2 Attach pulse oximeter
   - 3.3 Allow equilibration time
   - 3.4 Note and record pulse rate and SO_2 level
   - 3.5 Monitor constantly and record SO2 levels at appropriate intervals
   - 3.6 Note and investigate SO_2 readings < 94% or changes in SO_2 reading > 5%. **Contact the Base Physician if any doubt exists**
   - 3.7 Administer supplemental O2 for any patient with an unexplained SO_2 < 94% and any patient with and SO_2 < 90%
4. **CLINICAL AND TECHNICAL ISSUES:**
   - 4.1 **Motion** - Motion at the sensor site may mimic pulsatile activity
   - 4.2 **Low Perfusion** - Low perfusion states may result in no SO_2 reading
   - 4.3 **Edema** - Edema may result in falsely low readings
   - 4.4 **Anemia** - Anemia (low hemoglobin level) may result in inaccurate readings
   - 4.5 **Carbon Monoxide poisoning** - Presence of carbon monoxide poisoning results in inaccurate SO_2 reading
   - 4.6 **Methemoglobin** - May result in inaccurate SO_2 readings