

# Pulse Oximetry

## Procedure

Douglas County KS EMS System

March 2022

**Approved Provider:** EMR, EMT, AEMT, Paramedic

**Reference Protocols:** [Anaphylaxis](#), [Breathing Difficulty](#), [Carbon Monoxide](#), [CHF](#), [General Medical](#), [Shock](#)

### **Indications**

The following is a partial list of situations where pulse CO-oximetry may be used:

- Only for use in perfusing patients
- Respiratory Disorders (e.g. Asthma, COPD, respiratory distress, airway obstruction or injury)
- Altered Mental Status (e.g. Coma, Overdose, CVA, Seizures)
- Chest pain
- Trauma
- The pulse CO-oximeter should be used prior to and after intubation or assisted ventilation of the perfusing patient.
- The pulse CO-oximeter must be used prior to and after administering sedative agents.
- The pulse CO-oximeter should be used in any exposure to CO or suspected CO contaminated environments, including CO type symptom evaluation.
- The pulse CO-oximeter should be used in the evaluation of any member in extended rehab, or based on suspicion of hypoxia &/or CO exposure.

### **Contraindications**

- None

### **Precautions**

Pulse CO-Oximetry values may be inaccurate in a variety of situations:

- Patient movement
- Presence of nail polish
- Decreased peripheral perfusion
- Hypotension
- Hypothermia
- Abnormal hemoglobin (sickle cell, Anemia)
- Hypovolemic
- Carbon monoxide poisoning
- Smoke inhalation
- Methemoglobinemia

### **Procedure**

- Check Vital Signs
- Turn on device
- Select appropriate site. Avoid placing the probe on areas distal to orthopedic injuries or distal to a blood pressure cuff
- Place probe on patient
- Read the pulse rate, O2 saturation, CO level (if indicated) and document findings at least every 10 minutes and with any change in clinical condition.

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### Procedure (Cont.)

- Oxygen will be applied or increased according to the clinical setting.
- SpO2 reading:
  - 92 – 100% Saturation considered adequate.
  - < 92% Apply oxygen to maintain saturation  $\geq 92\%$

### CO reading (Fig. 1)

Evaluation and management of abnormal CO levels shall be based on the following guidelines.

If the SpCO level is **3–15%**, the elevation could be due either to smoking or another source. If the patient is experiencing such symptoms as headache, nausea or vomiting, they should receive 100 percent oxygen and undergo further evaluation and treatment as needed.

If the SpCO level is **above 15%**, with symptoms notify receiving facility and consider O2 administration based on clinical presentation.

If the SpCO level is **above 25% with or without symptoms**, Administer O2 and notify receiving facility.

### Notes

This device is never used to withhold O2 to a patient who needs it. Any patient who appears to clinically need O2 should be given oxygen.

**Fig. 1**

SpCO %	Clinical Manifestations
0-4%	None - Normal
5-9%	Minor Headache
10-19%	Headache, Shortness of Breath
20-29%	Headache, Nausea, Dizziness, Fatigue
30-39%	Severe Headache, Vomiting, Vertigo, ALOC
40-49%	Confusion, Syncope, Tachycardia
50-59%	Seizures, Shock, Apnea, Coma
60% -up	Coma, Death

Koster LA, Rupp T. The Silent Killer, Recognizing and Treating Carbon Monoxide Poisoning. JEMS, October 2005