



AACoFD Training Academy



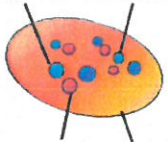
EMS Training Division



Medical Bytes

CARBON MONOXIDE EXPOSURE/TOXICITY

Hemoglobin carries oxygen and carbon dioxide



Hemoglobin Red blood cell



Carbon monoxide binds very tightly to hemoglobin



Oxygen and carbon dioxide can no longer be carried

Carbon Monoxide (CO) is an odorless, colorless gas that is most commonly a product of incomplete combustion. It has a higher affinity to bind on receptors located on red blood cells that is 200 times stronger than Oxygen. Once CO has attached to the red blood cells, they become incapable of transporting Oxygen throughout the body causing CO toxicity.

Rainbow SpCo Cable:



Typical Pulse Oximetry may be inaccurate for CO Victims. Use the Rainbow Cable, as it is capable of obtaining pulse oximeter readings and Carbon Monoxide readings.

ALERT: Assess all firefighters in Rehab post-incident. Fatigue may be related to CO exposure.



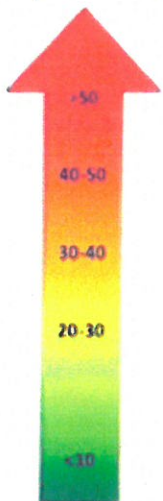
Classic "cherry red" sign: Occurs because the body is unable to exchange oxygen at the cellular level causing high amounts of oxygen to remain in the venous blood.



CO has a higher affinity to fetal hemoglobin than normal hemoglobin, putting pregnant patients at high risk. Even if the mother is asymptomatic, the unborn child could have experienced a **SIGNIFICANT** exposure to CO.

SpCO Reading

Signs and Symptoms



- >50 - Death
- 40-50 - Seizure, unconsciousness, heart attack
- 30-40 - Confusion, SOB, pounding headache, uncontrolled "sleep, vertigo, Loss of coordination, chest pain, memory loss
- 20-30 - Impaired judgment, difficulty breathing, blurred vision, bad headache, increasing drowsiness, stomach pain
- <math>< 20</math> - Slight headache, Nausea
- <math>< 10</math> - Asymptomatic



BLS

- Remove patient from CO exposure
- High flow O2 via NRM
- Obtain SpCO reading, if possible
- Rendezvous with ALS



ALS

- Remove patient from CO exposure
- High flow O2 via NRM
- Obtain SpCO reading (LP Rainbow cable)
- Cardiac Monitoring & 12 lead
- Consider Hyperbaric Therapy
- Consider treating for cyanide poisoning if patient was involved in a fire situation

When to consider Hyperbaric Medicine Specialty Center Referral:

Pg. 115-1 MD protocol

- Patients w/ exposure to smoke or CO with SpCO $>$ or equal to **25% WITH OR WITHOUT SYMPTOMS**
- Patients w/ **PROVEN EXPOSURE** to smoke or CO with SpCO $>$ or equal to **15%** and any one or more of the following:
 - o LOC
 - o Decreased GCS, less than or = to 13
 - o Pregnancy
 - o Chest pain
 - o Extremes of age
 - o Provider discretion