

# TOXIC INHALATION

## CARBON MONOXIDE

Airway / Breathing

Circulation / Shock

Cardiac

Medical

Trauma

CO Levels  
 <10% Mild  
 10% - 20% Moderate  
 >20% Severe  
 Special Considerations for Pregnant Females and Children

## UNIVERSAL PATIENT CARE PROTOCOL

Known or Suspected Carbon Monoxide Poisoning

Immediately Remove From Continued Exposure  
 Avoid Exertion to Limit Tissue Oxygen Demand  
 Determine Exposure Time

APPLY HIGH FLOW OXYGEN  
 CPAP PROCEDURE if CO >10 %

CAPNOGRAPHY PROCEDURE

Secure Airway If Comatose or Compromised Airway Follow AIRWAY PROTOCOL

## CARDIAC MONITORING PROCEDURE

PULSE OXIMETRY  
 PULSE CO-OXIMETRY (IF AVAILABLE)

IV / IO PROCEDURE  
 DRAW BLOOD SAMPLE FOR CO LEVELS

TRANSPORT to appropriate facility  
 CONTACT receiving facility  
 CONSULT Medical Control where indicated  
 APPROPRIATE transfer of care

**Aggressive airway management with delivery of 100% oxygen can be lifesaving.**  
 Supportive care with administration of oxygen alone has proven effective in a number of poisonings. It can also treat potential simultaneous CO exposure.

EMT Intervention

AEMT Intervention

PARAMEDIC Intervention

Online Medical Control

# TOXIC INHALATION

## CARBON MONOXIDE

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> <li>Inhalation of potentially carbon monoxide containing atmosphere</li> <li>Duration of exposure</li> <li>Reason (suicidal, accidental, criminal)</li> <li>Past medical history, medications</li> </ul>	<ul style="list-style-type: none"> <li>Malaise, fatigue, drowsiness</li> <li>Flu like symptoms</li> <li>Headache</li> <li>Dyspnea</li> <li>Nausea / vomiting</li> <li>Diarrhea</li> <li>Abdominal pain</li> <li>Dizziness</li> <li>Visual disturbances</li> <li>Memory disturbances</li> <li>Syncope</li> <li>Seizures</li> <li>Coma</li> <li>Incontinence</li> </ul>	<ul style="list-style-type: none"> <li>Flu / severe cold</li> <li>Chronic fatigue</li> <li>Migraine</li> <li>Myocardial infarction</li> <li>Diabetic emergencies</li> <li>Altitude sickness</li> <li>Ingested toxins</li> <li>Meningitis</li> <li>Hypothyroidism</li> </ul>

## CO Levels

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## Special Considerations for Pregnant Females and Children

## KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Consider CO poisoning with any patient exposed to products of combustion.
- Causes and exposure may include malfunctioning gas appliances, vehicle exhaust, improper use of gas burning heaters, animal dung, environmental waste, and fires.
- Normal CO levels do not necessarily mean there was not CO poisoning. This is especially true if the patient has already received extensive oxygen therapy.
- Patients that show signs and symptoms at lower CO levels include pregnant females, infants, children, and the elderly.
- Vitals may be normal but could be tachycardic, hypo or hypertensive.
- Cherry red skin is rarely seen.
- PREGNANT patients are special circumstances as the affinity for fetal hemoglobin to carbon monoxide is very high and therapy including hyperbaric care is considered early on.
- Patients that demonstrate altered mental status may NOT sign refusals for treatment or transport.
- Known or suspected CO poisoning patients should receive high flow oxygen despite SpO<sub>2</sub> readings.
- The use of a pulse oximeter is not effective in the diagnosis of carbon monoxide poisoning, as patients suffering from carbon monoxide poisoning may have a normal oxygen saturation level on a pulse oximeter.
- Pulse oximetry is still used on all CO poisonings as hypoxia in addition to the CO represents serious compounding respiratory issues possibly from other causes.**
- Pulse CO-oximeters estimate carboxyhemoglobin levels with a non-invasive finger clip similar to a pulse oximeter.