

A. Introduction

The following protocol focuses on victims of fire and smoke inhalation. Victims who have evacuated or are rescued from occupancies with a significant presence of smoke must be evaluated and treated by MDFR and an ePCR must be completed.

B. Procedure

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1. Initial Assessment (**Protocol 1**)
2. Establish and maintain a patent airway (**Protocol 7**)
 - a) Airway compromise must be anticipated in patients who have visible signs of smoke inhalation such as:
 - Soot around the nostrils and mouth
 - Burns to the face or neck
 - Signs of respiratory distress

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3. Establish IV / IO access.
 - a. IV / IO access should be considered early in cases of suspected smoke inhalation in order to provide airway management. See "Intubation with sedation" (**Procedure 9**)
4. Perform ECG with continuous monitoring and 12 lead ECG (**Procedure 22**)

Patients showing signs of shock secondary to smoke inhalation are indicated for CyanoKit administration. Signs / symptoms may include:

- Patients trapped in a compartmentalized fire for extended periods of time
- Severe respiratory distress / depression
- Altered mental status / unconsciousness
- Hypotension
- Obvious cyanosis
- ETCO₂ <29mmHg
- Cardiac Arrest (**Section C.**)

5. Administer the **CyanoKit (Hydroxocobalamin)** infusion:
 - **Reconstitute:** Add 200 mL of 0.9% Sodium Chloride Solution to vial using transfer spike. Fill to line. Vial in upright position.
 - **Mix:** Rock or rotate vial for 60 seconds to mix solution. Do not shake.
 - **Infuse:** Use vented IV tubing to hang and infuse over 15 minutes. Run IV wide-open.

CyanoKit (Hydroxocobalamin) is only for adult patients.
6. If the CyanoKit is not available, Administer **Sodium Thiosulfate 12.5g over 10 minutes.**
 - a) Remove 40ml of NS from a 50ml IV bag
 - b) Draw 50ml (the entire vial) of Sodium Thiosulfate and inject into the IV bag.
 - c) Connect a 10gtt/ml (Macro-drip) IV administration set
 - d) Run at 60gtts/min (1 drop per second)

C. Cardiac Arrest secondary to Smoke Inhalation:

1. Treat signs, symptoms and rhythm according to **(Protocol 9)**
2. Administer the **CyanoKit (Hydroxocobalamin)** infusion:
 - a) **Reconstitute:** Add 200 mL of 0.9% Sodium Chloride Solution to vial using transfer spike. Fill to line. Vial in upright position.
 - b) **Mix:** Rock or rotate vial for 60 seconds to mix solution. Do not shake.
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D. Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, and tasteless gas that is non-irritating to the respiratory tract. It is a common byproduct of the incomplete combustion from any organic material, and is a major toxic component in smoke inhalation.

Carbon Monoxide binds readily with hemoglobin to create carboxyhemoglobin. This interferes with oxygen's ability to bind with hemoglobin, thus reducing the oxygen carrying capacity of the blood. Carbon Monoxide levels can be measured in a non-invasive manner using the RAD-57 (**Procedure 44**). Measurements are read as a percentage of carboxyhemoglobin (SpCO).

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1. Remove patient from the contaminated environment
2. Initial Assessment/Care (**Protocol 1**)
3. Apply the RAD-57 (**Procedure 44**) and document a pre-oxygen SpCO reading in the "Narrative" section of ePCR
4. CO Exposure specific signs and symptoms in order of progression include: headache, dizziness, tinnitus, nausea, muscle weakness, chest pain, dyspnea, syncope, seizures, and coma. (Cherry red skin color is not an early sign of CO poisoning and is usually seen post-mortem).
5. Administer Oxygen 15L/min via a NRB mask. If the patient is unresponsive, ventilate via BVM with 100% oxygen.

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6. Perform endotracheal intubation and continue to hyperoxygenate.
 1. If CO poisoning is due to a suicide attempt, and the patient shows signs of respiratory depression, administer **Narcan (naloxone) 0.4mg IV / IM SLOWLY** as needed.

NOTE: Narcan (Naloxone) should be administered only to patients showings signs of respiratory depression (Protocol 8).

8. Transport to appropriate facility (refer to Hospital Compatibilities Chart and information below).

Transport considerations based upon SpCO levels using Pulse-CO Oximeter	
SpCO %	Transportation Requirements per Protocol 25
0-3%	Transport NOT required unless patient has another medical/trauma complaint
3-12%	No signs/symptoms = No Transport required unless patient has another medical/trauma complaint
3-12%	WITH signs/symptoms = ALS Transport to closest appropriate facility
≥13%	ALS Transport REQUIRED to closest appropriate facility

Note: Readings outside of the normal range will be confirmed on the opposite extremity.

E. Transportation

All smoke inhalation victims should be transported ALS via Rescue unit to the closest appropriate hospital.