Cyanide Exposure

Purpose: This Protocol is intended for EMS personnel at all levels to assess and treat patients exposed to cyanide. Additionally, the protocol allows trained and authorized paramedics to administer antidotes when available.

NOTE: A single medical control order in a mass casualty incident may be applied to all symptomatic patients.

Medications in this protocol are not required to be carried on EMS vehicles and may be available through special response units.

Chemical Agent

1. Agents of Concern (e.g. Hydrogen Cyanide, Potassium/Sodium Cyanide, Cyanogen Chloride)
2. Detection: The presence of these agents can be detected through specialized environmental monitoring equipment available to hazardous materials response teams.
3. Modes of Exposure
    A. Inhalation (including smoke inhalation)
    B. Ingestion
    C. Skin absorption unlikely
4. Alert receiving hospital ASAP to prepare additional antidotes

Assessment

1. Shortness of breath
    A. Generally not associated with cyanosis
    B. Pulse oximetry levels usually normal
    C. Usually associated with increased respiratory rate and depth
    D. Potential for rapid respiratory arrest
2. Chest pain
3. Confusion, decreased level of consciousness, coma
4. Seizures
5. Headache, dizziness, vertigo
6. Pupils may be normal or dilated.

Personal Protection

1. Be Alert for secondary device in potential terrorist incident
2. Personal Protective Equipment (PPE) as directed by Incident Commander.
3. Assure EMS personnel are operating outside of Hot and Warm Zones, unless appropriately trained and in proper PPE.
4. Avoid contact with vomit if ingestion suspected – off gassing possible
5. Decontamination of victims usually not indicated unless additional unknown chemical(s) suspected

Patient Management (in Cold zone)

1. Evaluate and maintain the airway
2. Provide oxygenation and support ventilation as needed
3. Note: Patients in respiratory arrest (i.e., not breathing but still having a pulse) have been found to respond to antidote therapy and should receive positive pressure ventilation when operationally feasible.
4. This is in contrast to most triage systems that would categorize non-breathing patients as non-survivable.
5. Establish vascular access
6. Administer antidote:
   a. Cyanokit® (5g. adult; 70 mg/kg pediatric maximum dose 1g.) per **Cyanokit® Protocol** (preferred, per MCA Selection)

Cyanokit® Included?	
☐ **Yes**	■ **No**

   b. Sodium Thiosulfate
      i. Adults: 50 ml (12.5 g) IV over 10 minutes if available
      ii. For pediatric patients: 1.65 ml/kg (12.5 g/50 ml solution) IV over 10 minutes
7. Cardiac monitoring
8. Special Considerations for Smoke Inhalation
   a. Smoke inhalation victims may have cyanide poisoning along with burns, trauma, and exposure to other toxic substances making a diagnosis of cyanide poisoning particularly difficult.
   b. Prior to administration of Cyanokit®, smoke inhalation victims should be assessed for the following:
      i. Exposure to fire or smoke in an enclosed area
      ii. Presence of soot around the mouth, nose or oropharynx
      iii. Altered mental status
   c. The Cyanokit® should be considered for all serious smoke inhalation victims (including cardiac arrest).