HAZMAT Medical Response Team Treatment Protocols Index

8-00  HAZMAT Medical Response Team Treatment Protocols Index
8-01  General HAZMAT Treatment
8-02  Ammonia (Liquid & Gas)
8-03  Asphyxiants - Simple
8-04  Chlorine and Related Compounds
8-05  Corrosive Agents
8-06  Cyanide Exposure
8-07  HAZMAT Eye Irrigation
8-08  Hydrocarbons and Halogenated Hydrocarbons
8-09  Hydrogen Fluoride
8-10  Hydrogen Sulfide, Sulfides and Mercaptans
8-11  Methemoglobinemia
8-12  Organophosphate Poisoning
8-13  Hazardous Materials Medication Box and Exchange Procedure
8-14  Cyanokit® Medication Pack Exchange Procedure and Use Replacement Form
**General HAZMAT Treatment**

**Purpose:** This is written to provide general pre-arrival information for suspected HAZMAT incidents. **Hazardous Materials** pose a threat during every phase of their existence: production, packaging, storage and delivery. Many common hazardous materials used in industry pose a threat to emergency responders. The Hazardous Materials Medical Response Team is designed to support the HAZMAT response team as its primary mission, but may treat other exposed patients as well.

In general, standard MCA treatment should be used in treating a patient exposed to hazardous materials. The protocols contained in this section are to be used by the systems hazardous materials medical response teams for situations that are amenable to treatment based on the team’s training and equipment.

Contact Medical Control as soon as possible. If possible contact should be made as soon as arriving on a scene. Be prepared to provide the following information:

- Name and form of the chemical(s) involved
- Amount of chemical(s)
- Routes of exposure
- Number of victims

Any updated information should be relayed to Medical Control as soon as possible.

**Pre-Medical Control**

**PARAMEDIC**

1. Approach the scene with caution only after a safety perimeter has been established.
2. Maintain a safe distance.
3. Approach upwind, uphill and upstream, as appropriate.
4. Be aware of potential contaminated terrain and contaminated objects.
5. Determine the HAZMAT involved in the incident, medics should not enter a hot zone.
6. The patient's clinical presentation may offer clues about the type of HAZMAT substance.
7. Victims and potential victims must be evacuated rapidly from the contaminated area. Major decontamination should be conducted by the HAZMAT team and decontaminated as quickly as possible. Additional decontamination may be necessary as described under protocol.
8. Assume that all patients are potentially contaminated and use appropriate PPE to prevent the transmission of contaminants.
9. Start an IV NS KVO when practical.
10. Monitor for shock and pulmonary edema, treat as indicated.
11. Seizure precautions should be maintained. Treat according to Seizures protocol as indicated.
12. If in respiratory distress or arrest follow the Emergency Airway Procedure.
13. Follow the appropriate HAZMAT treatment protocol
Ammonia (Liquid & Gas)

FORMS: Gas (anhydrous) and liquid (aqueous solutions, variable concentrations).

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion.

SIGNS AND SYMPTOMS:

**CNS:** Stupor, lethargy and coma. Seizures may be present.

**Eye:** Chemical conjunctivitis with vapors, necrosis and blindness with liquids and anhydrous gas exposures.

**Cardiovascular:** Ventricular arrhythmias and hypotension.

**Respiratory:** Acute pulmonary edema, bronchospasm, stridor, cough, dyspnea and chest pain. Respiratory tract irritation with possible laryngeal edema.

**Gastrointestinal:** G.I. bleeding due to liquefaction necrosis of the G.I. tract.

**Other:** Respiratory damage can be severe with potential fatal results. Respiratory symptoms may be delayed.

**Pre-Medical Control**

PARAMEDIC

1. Follow **General HAZMAT Treatment** Protocol.
2. If the patient is unconscious, follow the **Altered Mental Status** protocol and the **Emergency Airway Procedure**. Aggressive airway management may be indicated.
3. If the patient is wheezing, administer Albuterol 2.5 mg/3 ml NS nebulized. Repeat as needed.
4. Follow **HAZMAT Eye Irrigation** protocol.
Asphyxiants - Simple

FORMS: Carbon Dioxide (CO2), Nitrogen, Helium, Methane and Propane Gas

ROUTES OF EXPOSURE: Inhalation displaces oxygen in the normal environment causing hypoxia, hypercapnea or other potentially incapacitating condition.

SIGNS AND SYMPTOMS:

CNS: Altered mental status, stupor, lethargy and coma.

Cardiorespiratory: Respiratory or cardiopulmonary arrest due to hypoxia.

Pre-Medical Control
PARAMEDIC

1. Follow General HAZMAT Treatment protocol.
2. Administer oxygen 10-15 L via non-rebreather mask or BVM.
3. Follow Emergency Airway Procedure.
**Chlorine and Related Compounds**

FORMS: Found in liquid and gaseous forms. Colorless to amber-colored liquid, and greenish-yellow gas with a characteristic odor. Some solid compounds may generate chlorine when in contact with water. Phosgene (COCl₂) and Nitrogen Dioxide (NO₂) are related compounds.

THERMAL DECOMPOSITION PRODUCTS: Reacts with water to form hydrochloric and hypochlorous acid. Chlorine reacts with carbon monoxide to form phosgene. Slightly water-soluble toxicants Phosgene (COCl₂) and Nitrogen Dioxide (NO₂) may produce prolonged exposure. Toxic substances are formed when combustibles burn in chlorine.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion

TARGET ORGANS: *Primary* - Skin, eyes, respiratory system

*Secondary* - Central nervous system, cardiovascular system, gastrointestinal system, renal, hepatic, metabolism

LIFE THREAT: Severe respiratory tract irritant that may cause pulmonary edema. Skin, eye and mucous membranes irritant. Patients may have delayed life threatening symptoms (Chlorine or Phosgene).

SIGNS AND SYMPTOMS:

**CNS:** Decreased level of consciousness to coma. Headache and dizziness.

**Eye:** Chemical conjunctivitis with lacrimation. Severe and painful irritation and burns.

**Cardiovascular:** Cardiovascular collapse and possible ventricular arrhythmias.

**Respiratory:** Acute or delayed non cardiogenic pulmonary edema, dyspnea and tachypnea. Upper airway irritation and burns to the mucous membranes and lungs. Cough, choking or burning sensation, rhinitis, sinusitis, rhinorrhea, pneumonitis and pneumonia.

**Gastrointestinal:** Nausea and vomiting

**Skin:** Irritation and chemical burns. Cyanosis. Possible frostbite secondary to exposure to expanding gas.
Renal: Kidney damage

Hepatic: Liver damage

Other: Metabolic acidosis

Pre-Medical Control
PARAMEDIC

1. Follow General HAZMAT Treatment protocol.
2. Follow HAZMAT Eye Irrigation protocol as indicated.
3. Follow Emergency Airway Procedure as indicated.
4. For Bronchospasm administer Albuterol 2.5 mg/3 ml NS nebulized.
5. For other respiratory symptoms (burning sensation) administer 5 ml NS nebulized.
6. If the other respiratory symptoms persists, administer 5 ml ½ strength Sodium Bicarbonate (2.5 ml Sodium Bicarbonate (1 meq/ml) mixed with 2.5 ml Sterile Water) nebulized.
7. Consider CPAP.
Corrosive Agents

Common Acids: Acetic acid, Hydrochloric acid, Nitric acid, Phosphoric acid and Sulfuric acid
Common Bases: Ammonium hydroxide, Potassium hydroxide, Sodium hydroxide
Oxidizers include: Chlorine dioxide, Hydrogen peroxide, Methyl ethyl ketone peroxide, Sodium chlorate. May cause hemolysis and methemoglobinemia.
White phosphorus is found in fireworks and explosives. Monitor for cardiogenic shock and arrhythmias.

FORMS: A corrosive agent may be found as solids in pellets, flakes, lumps or sticks and liquid.

USES: Acid neutralizer in petroleum refining, cleaning agents, hair straighteners, paint removers, solvents, water treatment, processing of cellulose, paper, textiles and plastics.

ROUTES OF EXPOSURE: Skin and eye contact, inhalation, ingestion

TARGET ORGANS: Primary – Skin, eyes, respiratory system, gastrointestinal system
Secondary – Central nervous system, cardiovascular system

LIFE THREAT: Severe tissue irritant that may cause upper airway burns and edema, pulmonary edema and skin burns. May cause GI perforation, hemorrhage and peritonitis leading to circulatory collapse.

SIGNS AND SYMPTOMS:

CNS: Apathy, mental confusion, blurred vision and tremors.

Eye: Chemical conjunctivitis, corneal ulceration, severe scarring, permanent blindness.

Cardiovascular: Tachycardia, hypotension and shock.

Respiratory: Dyspnea, tachypnea, sneezing, coughing, stridor, burns, upper airway edema and pulmonary edema.

Gastrointestinal: Nausea, vomiting, hemorrhage, perforation, abdominal pain, painful swallowing, profuse salivation, and burns to
the mouth, esophagus, stomach and gastrointestinal tract may occur.

**Skin:** Deep tissue chemical burns, skin rash (in milder cases), cold and clammy skin with cyanosis or pale color.

Symptom onset for acute exposure is generally immediate. Some symptoms such as pulmonary edema, GI perforation and cardiovascular collapse possibly delayed.

**Pre-Medical Control**

**PARAMEDIC**

1. Follow **General Hazardous Materials Treatment** protocol. **Aggressive airway management may be necessary.**
2. Do not attempt to neutralize with an acid because of exothermic chemical reaction.
4. Remove clothing for liquid dermal exposure – initiate body wash with water.
5. Refer to **HAZMAT Eye Irrigation** protocol for eye exposure.
6. Pain may be treated per the **Pain Management Procedure**.
Cyanide Exposure

Chemical Agents
1. Agents of Concern Include: Cyanide
   a. Hydrogen Cyanide
   b. Potassium / Sodium Cyanide
   c. 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

Assessment
1. Shortness of breath
   a. Possibly accompanied by chest pain
   b. Generally not associated with cyanosis (blue skin membranes)
   c. Pulse oximetry levels usually normal
   d. Usually associated with increased respiratory rate and depth
   e. Potential for rapid respiratory arrest
      i. Confusion, decreased level of consciousness, coma
      ii. Seizures
      iii. Headache, dizziness, vertigo (sense of things spinning)
      iv. Pupils dilate (late)

Pre-Medical Control
PARAMEDIC
1. Follow the General HAZMAT Treatment protocol.
3. Caution: Responders must protect themselves from secondary contamination due to offgassing and body fluids.
4. Transport with good ventilation and appropriate respiratory protection.
5. If in respiratory arrest follow the Emergency Airway Procedure. 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.

In the symptomatic patient with a significant exposure, administer treatment in the following order. (Use the Cyanide Antidote Kit or the Cyanokit. The Cyanokit is the preferred antidote, especially for unknown cases or CO/smoke inhalation.)
6. Administer Amyl Nitrite: Break pearl into gauze sponge and hold under patient's nose or BVM intake for 30 seconds of every minute until sodium nitrite solution is ready. Change ampule every 3 minutes. Avoid if uncertain or smoke inhalation.

Post-Medical Control

1. Administer Sodium Nitrite (3% IV solution):
   Adult: 10 ml (300 mg) over 5 – 10 minutes, or 0.33 ml/kg slow IV push over 5 – 10 minutes.
   Pediatric: 0.33 ml/kg, maximum of 10 ml, over 5 – 10 minutes slow IV push.
2. Sodium Thiosulfate (25 % IV solution). Use alone if uncertain or smoke inhalation:
   Adult: 12.5 gm (50 ml of 25 % solution) IV push over 10-20 minutes or as an infusion in 100 ml D5W.
   Pediatric: 1.65 ml/kg of 25% solution, maximum dose 50 ml, over 10-20 minutes slow IV push.
3. Repeat antidote at 50% of initial dose if symptoms persist after 20 minutes. If symptoms worsen after treatment consider nitrite toxicity causing Methemoglobinemia. Follow Methemoglobinemia protocol, but do not treat with Methylene Blue.
4. If available, administer the Cyanokit (preferred for CO/smoke inhalation):
   A. The starting dose of hydroxocobalamin for adults is 5 g (i.e., two 2.5g vials OR one 5g vial) administered as an intravenous (IV) infusion over 15 minutes (approximately 15 ml/min), i.e., 7.5 minutes/vial. See charts below for pediatric dosing (70 mg/kg).

### Two Vial Kit (2.5g/100mL):

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>AMOUNT</th>
<th>DOSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant/Toddler (0-2 years)</td>
<td>¼ bottle</td>
<td>0.625g</td>
</tr>
<tr>
<td>Preschool (3-5 years)</td>
<td>½ bottle</td>
<td>1.25g</td>
</tr>
<tr>
<td>Grade School (6-13 years)</td>
<td>1 bottle</td>
<td>2.5g</td>
</tr>
<tr>
<td>Adult ≥14 years (entire kit)</td>
<td>2 bottles</td>
<td>5g</td>
</tr>
</tbody>
</table>

### One Vial Kit (5g/200mL):

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>AMOUNT</th>
<th>DOSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant/Toddler (0-2 years)</td>
<td>½ bottle</td>
<td>0.625g</td>
</tr>
<tr>
<td>Preschool (3-5 years)</td>
<td>¼ bottle</td>
<td>1.25g</td>
</tr>
<tr>
<td>Grade School (6-13 years)</td>
<td>½ bottle</td>
<td>2.5g</td>
</tr>
<tr>
<td>Adult ≥14 years (entire kit)</td>
<td>1 bottle</td>
<td>5g</td>
</tr>
</tbody>
</table>

B. Each vial of hydroxocobalamin for injection is to be reconstituted with diluent (not provided with Cyanokit) using the supplied sterile transfer spike.
1. The recommended diluent is 0.9% Sodium Chloride injection (0.9% NaCl).
2. The line on each vial label represents the volume of diluent. Following the addition of diluent to the lyophilized powder, each vial should be repeatedly inverted or rocked, not shaken, for at least 30 seconds for the 2.5g bottles prior to infusion, 60 seconds for the 5g bottles.
3. Hydroxocobalamin solutions should be visually inspected for particulate matter and color prior to administration.
   a. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should **not be administered to the patient** and should be discarded.

C. There are a number of drugs and blood products that are incompatible with Cyanokit, thus Cyanokit requires a separate intravenous line for administration.

D. Depending upon the severity of the poisoning and the clinical response, a second dose of 5 g may be administered by IV infusion for a total dose of 10g in adults. The rate of infusion for the second dose may range from 15 minutes (for patients in extremis) to two hours, as clinically indicated. Contact medical control for second dose instructions for pediatric patients.

**SPECIAL CONSIDERATION FOR SMOKE INHALATION:**
Many, but not all, smoke inhalation victims will have cyanide poisoning and may present with burns, trauma, and exposure to other toxic substances making a diagnosis of cyanide poisoning particularly difficult. Prior to administration of Cyanokit, smoke-inhalation victims should be assessed for the following:
- Exposure to fire or smoke in an enclosed area
- Presence of soot around the mouth, nose or oropharynx
- Altered mental status

The Cyanokit should be considered for all serious smoke inhalation victims (including cardiac arrest).
HAZMAT Eye Irrigation

Eye irrigation should be performed on all patients with a significant exposure to a gas or when the eye is contaminated by a substance.

Pre-Medical Control

PARAMEDIC

1. Remove contact lenses.
2. Eyes should be flushed with 1000cc of Normal Saline minimum for each eye.
3. Use Tetracaine hydrochloride 0.5% 1 - 2 drops in each eye.
4. Insert an irrigation lens into each eye.
5. Hook lenses up to Normal Saline and irrigate with minimum of 1000 cc for each eye.
6. If the chemical the patient was exposed to creates a potential for secondary exposure, care should be taken to contain the run-off.
7. For corrosive agents, continue eye irrigation until arrival at hospital.
8. For Hydrogen Flouride irrigate with a 1% aqueous solution of Calcium Gluconate (50ml of 10% Calcium Gluconate in 450 ml of NS).

SPECIAL CONSIDERATIONS:

Care should be taken that the patient does not rub eyes after administration of Tetracaine as damage can occur.

If available, perform a pre treatment pH test.
Hydrocarbons and Halogenated Hydrocarbons

Hydrocarbons: Methane, Propane, Gasoline, Mineral spirits, Kerosene, Turpentine, and Pine tar
Halogenated hydrocarbons: Chloroform, Ethyl Chloride, Methylene Chloride, and Trichloroethane

FORMS: Gas and liquid

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion.

SIGNS AND SYMPTOMS:
  CNS: Stupor, lethargy and coma. Seizures may be present.
  Eye: Chemical conjunctivitis with vapors, irritation or corneal injury with liquids.
  Cardiovascular: Arrhythmias and hypotension.
  Respiratory: Respiratory depression.
  Skin: Chemical burns with prolonged contact.

Pre-Medical Control
PARAMEDIC

3. Place the patient on cardiac monitor.
4. Monitor level of consciousness for possible deterioration.
5. Wash patient with mild soap/detergent and large quantities of water, for at least 15 minutes.
6. Follow HAZMAT Eye Irrigation protocol if necessary.
Hydrogen Fluoride

Hydrogen Fluoride (Fluoric acid, Hydrofluoric acid, Fluorine monohydridel, ammonium bifluoride)

FORMS: Gas, liquid. (Fluoride salts in the presence of acids may generate Hydrogen Sulfide) Metal cleaners and tire rim cleaners.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion.

SIGNS AND SYMPTOMS:
  CNS: Symptoms of hypoxia, stupor, lethargy and coma.
  Eye: Chemical conjunctivitis, opafication of the cornea and blindness.
  Respiratory: Acute pulmonary edema, asphyxia and chemical pneumonitis. Upper airway obstruction with stridor, pain and cough due to edema.
  Gastrointestinal: Acute toxicity results in burns to the mouth, esophagus, stomach and lower G.I. tract. Nausea, vomiting and diarrhea, possibly containing blood.
  Skin: Severe pain with normal looking skin surface. Burn is in lower skin layers. Bone may be involved. Damage may be severe with no outward signs, except patient will complain of intense pain.
  Other: Hydrogen fluoride will form hydrofluoric acid upon contact with water, such as in the respiratory system. It binds with the calcium in bones and cause extreme pain. Both hypocalcemia and hyperkalemia can be associated with cardiac complications.
Pre-Medical Control
PARAMEDIC

1. Follow **General HazMat Treatment** protocol.
2. Dysrhythmias may be treated with IV injections of Calcium Gluconate 1 gm of 10% solution IVP in flushed line. Repeat if dysrhythmia persists.
3. In addition to Calcium Gluconate treatment, pain may also be treated per the **Pain Management Procedure**.

Inhalation Exposure
1. Add 5ml Calcium Gluconate 10% to 20ml sterile water. Use 5ml for nebulizer. Repeat as needed.
2. Consider CPAP to improve ventilation if needed

Eye Exposure
1. Follow **HAZMAT Eye Irrigation** protocol.
2. Remove contact lenses if present.
3. Irrigate with a 1% aqueous solution of Calcium Gluconate (50ml of 10% Calcium Gluconate in 450 ml of NS).
4. Continue irrigation with NS until arrival at the hospital or directed by medical control.

Skin Exposure
1. Large volume irrigation may be necessary.
2. Prepare a Calcium Gluconate gel by mixing 1 amp of 10% Calcium Gluconate per ounce of K-Y jelly.
3. Apply the gel to burned areas. Apply an occlusive dressing over the gel.

Ingestion Exposure
1. Do not induce emesis or administer Activated Charcoal.
2. If patient is alert and able to swallow give 4-8 oz. of water.
3. Treat dysrhythmias according to appropriate protocol in addition to the Calcium Gluconate.

Post-Medical Control
1. Medical Control may also order Magnesium Sulfate for treatment of dysrhythmias.

SPECIAL CONSIDERATIONS:
Pain relief is usually used as an end point for Calcium Gluconate treatment.

The patient who has a significant exposure and is experiencing severe complications has a very poor prognosis. Treatment should be geared towards calcium replacement and care should be given to prevent the possibility of secondary contamination.

Hyperkalemia presents initially with peaked T-waves and may progress to widening of the complex, with either tachy or bradyarrythimias.

Hypocalcemia produces Q-T prolongation, which can progress into frank arrhythmias.
Hydrogen Sulfide, Sulfides and Mercaptans

FORMS: Gas (hydrogen sulfide, methyl & short-chain alkyl mercaptans), liquid (other mercaptans).

ROUTES OF EXPOSURE: Skin and eye contact, inhalation, skin absorption.

SIGNS AND SYMPTOMS:
- **CNS:** Headache, confusion, dizziness, excitement, tiredness and a garlic taste in mouth. Decreased LOC, coma and seizures.
- **Eye:** Chemical conjunctivitis, lacrimation and photophobia.
- **Cardiovascular:** Cardiovascular collapse, tachycardia and arrhythmias.
- **Respiratory:** Irritation of respiratory tract, cough, dyspnea and tachypnea. Respiratory arrest and pulmonary edema may be present.
- **Gastrointestinal:** Nausea, vomiting, hemorrhage, perforation, abdominal pain, painful swallowing, profuse salivation, and burns to the mouth, esophagus, stomach and gastrointestinal tract may occur.
- **Skin:** Dermatitis, sweating and local pain. Cyanosis may be present.
- **Other:** Symptoms may be delayed. The ability to detect the product by smell may be lost after a short exposure time.

Pre-Medical Control
PARAMEDIC

2. Administer oxygen 10-15 L via non-rebreather mask or BVM.
3. In the symptomatic patient with significant exposure administer the Cyanide Poisoning Kit.

Cyanide Poisoning Kit – Note Sodium Thiosulfate is not effective for Hydrogen Sulfide exposure.

1. Administer Amyl Nitrite: Break pearls into gauze sponge and hold under patient's nose or BVM intake valve for 30 seconds of every minute until sodium nitrite solution is ready. Change ampule every 3 minutes.
Post-Medical Control

1. Administer Sodium Nitrite (3% IV solution):
   Adult: 10 ml (300 mg) over 5 – 10 minutes, slow IVP, or 0.33 ml/kg over 5 – 10 minutes slow IV push.
   Child: 0.33 ml/kg, maximum of 10 ml, over 5 – 10 minutes slow IV push.
2. Repeat antidote at 50% of initial dose if symptoms persist after 20 minutes. If symptoms worsen after treatment consider nitrite toxicity causing Methemoglobinemia. Follow Methemoglobinemia protocol, but do not treat with Methylene Blue.
**Methemoglobinemia**

METHEMOGLOBINEMIA should be suspected in patients who have been exposed to Nitrogen Oxides. METHEMOGLOBINEMIA can also be induced when treating a patient with Cyanide Poisoning.

FORMS: Gas, liquid and solid. Substances tend to be brown or yellow in color, especially when impure.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion

**SIGNS AND SYMPTOMS:**

- **CNS:** Fatigue, restlessness and decreasing LOC are usually delayed signs.

- **Eye:** Chemical conjunctivitis.

- **Cardiovascular:** Cardiovascular collapse with a rapid and weak pulse. Reflex bradycardia may occur.

- **Respiratory:** With most agents a mild and transient cough is the only symptom at the time of exposure. A delayed onset of dyspnea, rapid respirations, violent coughing and pulmonary edema follows. Some agents work immediately on the upper airway, resulting in pain and choking, spasm of the glottis, temporary reflex arrest of breathing and cause upper airway obstruction from spasm or edema of the glottis.

- **Gastrointestinal:** Burning of the mucous membranes, nausea, vomiting and abdominal pain.

- **Skin:** Irritation of moist skin areas. Pallor and prominent cyanosis.

- **Other:** With most products, symptoms will be delayed for 5 to 72 hours. Certain products or high concentrations can bring on symptoms immediately. Blood may be a "chocolate brown" color.
Pre-Medical Control
PARAMEDIC

2. Administer oxygen 10-15 L via non-rebreather mask or BVM.
3. Aggressive airway management may be necessary!

Post-Medical Control

In the symptomatic patient with a significant exposure administer treatment in the following order.

1. Methylene Blue 1% solution (10 mg/ml) 1 to 2 mg/kg slow IV push over 5 minutes (equivalent to 0.1 to 0.2 ml/kg, or a total of 5 to 20 ml). Total dose should not exceed 7 mg/kg in adults or pediatrics. Observe for elevated BP, nausea, disorientation.
2. Repeat dose in 30 - 60 minutes if cyanosis or severe symptoms persist.
3. Oxygen for at least 2 hours following Methylene Blue administration.

WARNING! Methylene Blue is itself toxic and may produce disorientation, elevated BP, nausea, diarrhea and delayed hemolytic anemia.

Once patient is stable rule out other causes for METHEMOGLOBINEMIA.

SPECIAL CONSIDERATIONS:

Sedative medications may cause further damage and may be contraindicated.
Organophosphate Poisoning

FORMS: Liquids, solids (dusts, wettable powders) and aerosols.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion, skin absorption

SIGNS AND SYMPTOMS:
  CNS: Altered mental status, seizures, coma, fasciculation and death
  Eye: Pain, lacrimation, blurred vision and constricted pupils.
  Cardiovascular: Bradycardia or tachycardia, ventricular arrhythmias, A-V blocks, hypotension or hypotension.
  Respiratory: Respiratory failure or arrest, prominent wheezing, acute pulmonary edema, bronchial secretions, dyspnea and tightness of the chest.
  Gastrointestinal: Nausea/vomiting/diarrhea, abdominal cramps, excessive salivation, urination and defecation.
  Skin: Pale, cyanotic skin with excessive diaphoresis.
  Other: SLUDGE syndrome (salivation, lacrimation, urination, defecation, G.I. pain and emesis)
         DUMBELS (diarrhea, urination, miosis, bronchorrhea, bronchospasm, and bradycardia, emesis, lacrimation, salivation)

NOTE: In general, cardiac dysrhythmias and seizures can be corrected with atropine therapy. Lasix is not effective in treating pulmonary edema!

Pre-Medical Control
PARAMEDIC

2. Consider CPAP.

In the symptomatic patient with significant exposure administer treatment in the following order:
1. **Administer Atropine**: Adult dose: 0.5 – 2 mg IV/IO push or IM. Pediatric dose: 0.05 mg/kg IV/IO push or IM, min 0.1 mg, max 5 mg. Initial dosing should be given as soon as possible.

2. If no effect (which helps confirm the diagnosis) repeat Atropine q 2-5 minutes until lungs are dry, patient ventilates easily and the MAP is > 60 mm Hg. There is no maximum dose in Organophosphate Poisoning.

3. If available, as an alternative to individual Atropine and Pralidoxime, Mark 1 or Duo Dote Auto injector kits may be used. Administration per Mark I Kit/Duo Dote auto injector Dosing Directive – See Chart

4. Follow **Seizures** protocol and administer a benzodiazepine IV or IM for a patient with either seizure or arrest.

**Post-Medical Control**

1. **Pralidoxime (2-PAM)**, Adult: 1 gm IV or IM (max 1 gm IV, 2 gm IM) over 5 – 10 minutes. Pediatric: 25 mg/kg IV or IM (max 1 gm IV, 2 gm IM) over 5 – 10 minutes. Dose may be repeated in 30 – 60 minutes (1 – 2 doses) for weakness or high Atropine requirements.

**NOTES:**

In cases of skin absorption atropine may not reverse respiratory paralysis. Do not give aminophylline, theophylline, morphine, furosemide or succinylcholine.

Pupillary dilation is an early response and can’t be used to guide therapy. Tachycardia is not a contraindication to Atropine therapy and may actually lessen as the hypoxia resolves with drying up of the secretions and clearing of the bronchospasm. The patient must be observed carefully for ventricular arrhythmias secondary to hypoxia, especially when administering atropine. In massive organophosphate overdoses huge amounts of atropine may be needed.
### Mark I Kit Dosing Directive

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>Signs/Symptoms</th>
<th>Required Conditions</th>
<th>Mark I Kits To Be Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SELF-RESCUE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Threshold Symptoms</strong></td>
<td>• Dim vision • Increased tearing • Runny nose • Nausea/vomiting • Abdominal cramps • Shortness of breath</td>
<td>Threshold Symptoms —and— Positive evidence of nerve agent or OPP on site</td>
<td>1 Mark I Kit (self-rescue)</td>
</tr>
<tr>
<td><strong>MILD SYMPTOMS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mild Symptoms and Signs</strong></td>
<td>• Increased tearing • Increased salivation • Dim Vision • Runny nose • Sweating • Nausea/vomiting • Abdominal cramps • Diarrhea</td>
<td>Medical Control Order</td>
<td>1 Mark I Kit</td>
</tr>
<tr>
<td><strong>MODERATE SYMPTOMS</strong></td>
<td>• Constricted pupils • Difficulty breathing • Severe vomiting</td>
<td>Constricted Pupils</td>
<td>2 Mark I Kits</td>
</tr>
<tr>
<td><strong>Severe Signs</strong></td>
<td>• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing</td>
<td>Constricted Pupils</td>
<td>3 Mark I Kits (If 3 Mark I Kits are used, administer 1st dose of available benzodiazepine)</td>
</tr>
<tr>
<td><strong>PEDIATRIC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Patient with Non-Severe Signs/Symptoms</strong></td>
<td><em>Mild or moderate symptoms as above</em></td>
<td>Positive evidence of nerve agent or OPP on site</td>
<td>Age ≥8 years old: • As Above Age &lt;8 years old • Per Medical Control</td>
</tr>
<tr>
<td><strong>Pediatric Patient with Severe Signs/Symptoms</strong></td>
<td>• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing</td>
<td>Severe breathing difficulty Weakness</td>
<td>Age ≥8 years old: • 3 Mark I Kits Age &lt;8 years old: • 1 Mark I Kit Contact Medical Control as needed</td>
</tr>
</tbody>
</table>

*NOTE: 1 Mark I Kit equals 1 Duo Dote*
Hazardous Materials Medication Box and Exchange Procedure

EMS Service Stock

1. Each EMS Agency will be responsible for the security and storage of the supply of hazardous material drug boxes for their ALS vehicles.

2. All drugs, needles, syringes and supplies will be stored in a securely locked, temperature controlled location in the base station. Drug boxes will remain sealed at all times except when in actual use.

3. Hazardous materials drug boxes are to be inspected on the first of each month by the hazardous materials paramedic supervisor for the expiration date listed on the label. Expiring or used drug boxes are to be taken to the designated participating emergency department within 7 days for exchange.

4. Hazardous Materials Drug Boxes are to be inspected daily by the EMS provider supervisor for evidence of loss, theft, discrepancy and expiration date. It is recommended that this inspection be included in a standard documented check list.

Hospital Stock/Expired/Used Box Exchange

1. Any replacement hazardous material drug box must be maintained in a locked area, under the control of hospital staff available 24 hours per day. This area will be located in the emergency department of the participating hospital. Appropriate record keeping and security measures are required at each exchange site to insure that only appropriately licensed and authorized personnel have access to medications and other related supplies.

2. Hazardous materials drug boxes stocked in the emergency department will be checked regularly by pharmacy staff for expiration and updated as needed.

3. Expiring/used drug boxes will be exchanged for an updated drug box in the emergency department. At the time of exchange, the paramedic will notify the charge nurse. If present, the white pharmacy lock will be removed and the drug box supplies with morphine and diazepam from ER supplies and the green lock applied.

Use/Replacement/Exchange

1. Hazardous Materials Drug Boxes will only be opened by a paramedic who has met the criteria for hazardous materials protocol training and who is responding to a hazardous material incident. The broken green numbered lock will be placed in the drug box to be delivered when exchanging the boxes.
2. Use of any supplies contained in the Hazardous Materials Drug Box will be documented on the Hazardous Materials Use Replacement Form and submitted with the used drug box.

3. In cases of contamination of the drug box it should be treated as any other contaminated object even if the means destruction of the box. Prior to disposal, the narcotics should be destroyed and attested to by a witness and documented on the run report.

Box Cleaning

1. All empty containers and packaging and used materials will be properly disposed of on site by the Hazardous Materials team which used the drug box.

2. The EMS crew, using standard hard surface decontamination techniques, will clean any blood or body fluid contamination to the exterior of the drug box.

3. If there is blood or body fluid or hazardous material contamination to the interior of the box, or to any unused materials or packaging, the EMS crew will contact the receiving hospital pharmacy or emergency department staff for direction in cleaning and disposal of contaminated materials.

4. All unused, uncontaminated supplies will be returned to the drug box.

5. Any used hazardous materials drug box should be relocked with the red numbered lock contained in the box prior to return to a participating facility.

6. In the event that controlled substances are prepared for use and not used or the entire contents of a container are not used, the remaining medication will be appropriately wasted by EMS personnel in the presence of licensed personnel. The following will be recorded on the Documentation of Use form:
   1. The name and amount of the medication wasted
   2. The initials of the EMS personnel and hospital personnel witnessing the waste

7. In the event of a serious hazardous materials incident the boxes may have to be left at the participating facilities for several days for restocking. This is due to the large quantities of drugs carried in the drug boxes that are not considered “normal” supplies in the pharmacy or emergency department.

8. Should a delay in refilling the boxes occur the pharmacy restocking the boxes will call the respective EMS facility to arrange a pickup of the restocked drug boxes.

Expiration of Drugs/Solutions

1. All items in a Hazardous Materials Drug Box will have expiration dates not less than 120 days after the box is prepared, provided that the products are available with a 120 day dating.
2. Each Hazardous Materials Drug Box will have a label securely attached to the outside of the box containing the following information:
   1. The name of the participating hospital pharmacy which restocked the box
   2. The date the box was restocked
   3. The printed name and initials of the pharmacists or pharmacy technician who inventoried and restocked the box
   4. The expiration date is the last day of the month of the earliest expiring medication. The box will include the month/day/year in the “Use or Replace by _______” section.
   5. The red and green lock numbers
   6. The box number

3. After the inventory/restocking is complete, a red lock bearing the number appearing on the external label will be replaced in the box to be used by the Hazardous Materials team member after it has been issued.

4. Expired, unopened drug boxes are to be exchanged within seven (7) days of the “Use or Replace by” date.

Discrepancies
1. DEFINITION: For purposes of this policy a “discrepancy” is any breakage, expiration, shortage, theft or diversion of a Hazardous Materials Drug Box or any contents thereof.

2. A standard “MEDICATION DISCREPANCY REPORT” will be completed each time a discrepancy occurs. The form may be initiated by either pre-hospital or hospital staff discovering the discrepancy. The person initiating the report will be responsible for distributing the forms as required.

3. The Medical Control copy of the discrepancy report will be sent to the medical control authority in which the discrepancy occurred, which will serve as the central filing point.

4. A copy of the Hazardous Materials Incident Report on which the discrepancy occurred/was discovered is to be attached to each copy of the discrepancy report where applicable.

5. The participating hospital pharmacist is to be notified immediately if controlled substances are involved in a discrepancy. The participating hospital pharmacist will determine if the discrepancy constitutes a diversion of controlled substances.

6. In addition, the following are to be notified of controlled substance diversion:
   1. The medical control authority in which the diversion occurred
   2. Drug Enforcement Agency (DEA)
   3. Michigan State Board of Pharmacy
   4. Appropriate local law enforcement agency
   5. Michigan Department of Community Health
# Hazardous Materials Medication Box and Exchange Procedure

**Date:** April 2017  
**Page:** 4 of 5

## TOP DRAWER (Front of Box)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine Sulfate 0.4mg/ml 20ml</td>
<td>12 Multidose Vial</td>
</tr>
<tr>
<td>Atropine Sulfate 0.4mg/ml 20ml</td>
<td>8 Multidose Vial</td>
</tr>
<tr>
<td>Atropine Sulfate 0.4mg/ml 20ml</td>
<td>5 Multidose Vial</td>
</tr>
<tr>
<td>Sodium Bicarbonate 50 meq/50 ml bottle</td>
<td>2 ea</td>
</tr>
<tr>
<td>Dopamine 200 mg/5ml</td>
<td>5 Single Dose Vials</td>
</tr>
</tbody>
</table>

## Methylene Blue 5 mg/ml 50 mg
- 2 Amps

## Magnesium Sulfate 50% 10 ml (5 x 2ml) 2 Vials

## Pralidoxime Chloride 1 gram 3 Vials

## Albuterol 2.5 mg/3ml 5 Vials

## Blunt Cannula 18g-1" Qty 6 Vial Adapter Qty 3 Labels 6 Needles 21g Needles 6 23g – 6

## SECOND DRAWER (Front of Box)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetracaine 0.5% Ophth Drops 0.3 ml inhalant</td>
<td>2 Bottles 24</td>
</tr>
<tr>
<td>Amylnitrate</td>
<td>5 Vials</td>
</tr>
<tr>
<td>Calcium Gluconate 10% 10 ml</td>
<td>5 Vials</td>
</tr>
<tr>
<td>Calcium Gluconate 10% 10 ml</td>
<td>5 Vials</td>
</tr>
<tr>
<td>Sterile Water 20 ml</td>
<td>5 Bottles</td>
</tr>
<tr>
<td>Sterile Water 20 ml</td>
<td>5 Bottles</td>
</tr>
<tr>
<td>K-Y Jelly 3g water soluble 24 Foil Packet</td>
<td>pH paper 1 Roll</td>
</tr>
</tbody>
</table>

## THIRD DRAWER (Front of Box)

- 5% Dextrose 100 ml – 10 Bags
- 5% Dextrose 250 ml – 1 Bag
- 0.9% Sodium Chloride 250 ml – 1 Bag
- Cyanide Antidote Kit (Taylor Pharm) – 1 Kit OR Nithiodote Sodium Nitrite & Sodium Thiosulfate Injection – 1 Kit
- IV set 60 gtt/ml (minidrip) w/ Y Site pre-pierced – 2 Sets
- Nebulizer – 2
- Syringe 1 ml – 6
- Syringe 3 ml – 6
- Syringe 10 ml – 6
- Syringe 30 ml – 6
- Pralidoxime Chloride (box of 6) 1 gram Vials

**Discrepancy / Incident Report Form**
HAZARDOUS MATERIAL MEDICATION BOX  
MEDICATION SUPPLIES USE/REPLACEMENT LIST

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>UNIT/ SIZE</th>
<th>QNTY</th>
<th>USED</th>
<th>CHRG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol 2.5mg/3ml</td>
<td>Vial</td>
<td>3ml</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Amylnitrate 0.3ml Inhalant</td>
<td>Inhalant</td>
<td>0.3ml</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Atropine 0.4mg/ml</td>
<td>Vial</td>
<td>20ml</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Calcium Gluconate 10%</td>
<td>Vial</td>
<td>10ml</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Cyanide Antidote Kit OR Nithiodote Sodium Nitrate &amp; Sodium Thiosulfate</td>
<td>Kit</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 5%</td>
<td>Bag</td>
<td>100ml</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Dextrose 5%</td>
<td>Bag</td>
<td>250ml</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dopamine 200mg/5ml</td>
<td>Vial</td>
<td>5ml</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Mag. Sulfate 50%</td>
<td>Vial</td>
<td>10ml</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Methylen Blue 5 mg/ml</td>
<td>Amp</td>
<td>50mg</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Naloxone 1mg/ml</td>
<td>Amp</td>
<td>2mg</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Nitroglycerin 0.4mg/tab</td>
<td>Bottle</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tetracaine 0.5%</td>
<td>Bottle</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Pralidoxime Chloride</td>
<td>Vial</td>
<td>1gm</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Sodium Bicarbonate 50mg/50ml</td>
<td>Vial</td>
<td>50ml</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride 0.9%</td>
<td>Bag</td>
<td>250ml</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CONTROLLED SUBSTANCES</td>
<td>UNIT/ SIZE</td>
<td>QNTY</td>
<td>USED</td>
<td>CHRG</td>
</tr>
<tr>
<td>Fentanyl 50 mcg/ml</td>
<td>Vial/Amp</td>
<td>2 ml</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Morphine 10mg/1ml</td>
<td>Ampule</td>
<td>10mg</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Valium 10mg/2ml</td>
<td>Vial</td>
<td>2ml</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MISCCELLANEOUS</th>
<th>UNIT/ SIZE</th>
<th>QNTY</th>
<th>USED</th>
<th>CHRG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Preps</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Blunt Cannulas</td>
<td>18g 1&quot;</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-Y jelly (water soluble) foil packet</td>
<td></td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Tubing 60gtt/ml (minidrip) w/Y Site Pre-Pierced Reseal</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication Additive Labels</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebulizer</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH paper</td>
<td>Roll</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needles 21g 1.5&quot;</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needles 23g 1.5&quot;</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Lock</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterile Water</td>
<td>Bottle</td>
<td>20ml</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Syringe 1ml</td>
<td>Syringe</td>
<td>1ml</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Syringe 3ml</td>
<td>Syringe</td>
<td>3ml</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Syringe 10ml</td>
<td>Syringe</td>
<td>10ml</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Syringe 30ml</td>
<td>Syringe</td>
<td>30ml</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Vial Adapters</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MISCELLANEOUS</th>
<th>UNIT/ SIZE</th>
<th>QNTY</th>
<th>USED</th>
<th>CHRG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication Supply Use/Replacement Form</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Discrepancy/Incident Report Form</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPLETE ALL INFORMATION

Date: ____________________  
Patient’s Name: ____________________
Complete Address: ____________________  (include Zip)
Ordering Hospital: ____________________
Ordering Physician: ____________________
Replacing Hospital: ____________________
Receiving Physician: ____________________
Signature: ____________________

Date: ____________________  
REPLACING PHARMACIST’S STATEMENT

The medications in the sealed SEM EMS Medication Box # ______ have been distributed according to the Medication/Use and Replacement Policy of the participating Medical Control Authority. All medications are in the correct concentration, dosage form, volume, amount, and not expired.

Signature of  
Replacing Pharmacist: ____________________

Date: ____________________  
Hospital: ____________________

PRESCRIPTION NUMBER: ____________________

MCA Name: Washtenaw/Livingston  
MCA Approval Date: April 26, 2017  
MDHHS Approval Date:  
MCA Implementation Date:  
Section 8-13
Cyanokit® Medication Pack Exchange Procedure and Use Replacement Form

Medical Control Authority Cyanokit Medication Pack Stock

1. MCA created Cyanokit Medication Packs (CMPs) will be available to the HAZMAT Medical Response Team (HAZMAT MRT). Packs will be available and should be maintained for pickup, when needed by the HAZMAT MRT, at the participating hospital ED(s). Alternatively, the CMPs may be issued to the HAZMAT MRT(s). Each HAZMAT Medical Response Team (HAZMAT MRT) will provide an A-Pack style pack or equivalent to the designated cooperating Hospital. The hospital will be responsible for stocking and restocking the Pack.

HAZMAT MRT Sponsoring EMS Agency

1. When issued to the HAZMAT MRT, the EMS agency will be responsible for the security and storage of the Cyanokit Medication Pack.

2. All drugs, needles, syringes and supplies will be stored in a securely locked, temperature controlled location. The Medication Pack will remain sealed at all times except when in actual use.

3. Cyanokit Medication Packs (CMPs) are to be inspected on the first of each month by the hazardous materials paramedic supervisor for evidence of loss, theft, and expiration date. It is recommended that this inspection be included in a standard documented check list.

4. Used CMPs are to be taken to the emergency department within 7 days for exchange as follows: HVA exchanges with the UMMC emergency department/pharmacy, LCEMS exchanges with the SJM-Livingston emergency department/pharmacy. CMPs due to expire must be exchanged at least 30 days prior to the expiration date.

Hospital Stock/Expired/Used Box Exchange

1. Any replacement Cyanokit Medication Packs must be maintained in a locked area, under the control of hospital staff available 24 hours per day. This area will be located in the emergency department or pharmacy of the participating hospital. Appropriate record keeping and security measures are required at each exchange site to insure that only appropriately licensed and authorized personnel have access to medications and other related supplies.

2. CMPs stocked in the emergency department will be checked regularly by pharmacy staff for expiration and updated as needed.

3. Expiring/used Packs will be exchanged for an updated Pack in the designated pharmacy. The hospital pharmacy contact must be contacted to arrange the restocking/exchange.
Use/Replacement/Exchange

1. The Cyanokit Medication Pack will only be opened by a paramedic who has met the criteria for hazardous materials protocol training and who is responding to a hazardous material incident. The broken green numbered lock will be placed in the Pack to be delivered when exchanging the Pack.

2. Use of any supplies contained in the CMP will be documented on the Hazardous Materials Use Replacement Form and submitted with the used Pack.

3. In cases of contamination of the CMP it should be treated as any other contaminated object even if the means destruction of the Pack.

Pack Cleaning

1. All empty containers and packaging and used materials will be properly disposed of on site by the Hazardous Materials team which used the CMP.

2. The EMS crew, using standard decontamination techniques, will clean any blood or body fluid contamination to the exterior of the Pack.

3. If there is blood or body fluid or hazardous material contamination to the interior of the Pack, or to any unused materials or packaging, the EMS crew will contact the receiving hospital pharmacy for direction in cleaning and disposal of contaminated materials.

4. All unused, uncontaminated supplies will be returned to the CMP.

5. Any used CMP should be relocked with the red numbered lock contained in the Pack prior to return to a participating pharmacy.

6. Once a Pack is used contact the designated pharmacy to arrange for restocking. Replacement medication may not be immediately available.

Expiration of Drugs/Solutions

1. All items in a Cyanokit Medication Pack will have expiration dates not less than 120 days after the Pack is prepared, provided that the products are available with a 120 day dating.

2. Each CMP will have a label securely attached to the outside of the box containing the following information:
   1. The name of the participating hospital pharmacy which restocked the Pack
   2. The date the Pack was restocked
3. The printed name and initials of the pharmacists or pharmacy technician who inventoried and restocked the Pack
4. The expiration date is the last day of the month of the earliest expiring medication. The CMP will include the month/day/year in the “Use or Replace by ________” section.
5. The red and green lock numbers
6. The box number

3. After the inventory/restocking is complete, a red lock bearing the number appearing on the external label will replaced in the Pack to be used by the Hazardous Materials team member after it has been issued.

4. Unopened Packs should be exchanged a minimum of 30 days prior to the “Use or Replace by” date.

**CYANOKIT MEDICATION PACK LAYOUT**

Cyanokit Medication Pak Use/Replacement Form – One (1), Folded in half and placed along inside back of Cyanokit Medication Pack

Red Lock – One (1)
Alcohol Preps – Two (2)
Medication Additive Labels – Two (2)

Cyanokit (Hydroxocobalamin) One Vial Kit 5g/200 ml (2 kits) **OR**
Cyanokit (Hydroxocobalamin) Two Vial Kit 2.5g/100 ml (2 kits)

IV Tubing 60 gtt/ml (Minidrip) with Y Site & Pre-pierced Reseal – Two (2)

(Inside Front Pocket)

Yellow Pharmacy Label
**CYANOKIT MEDICATION PACK**  
**MEDICATION SUPPLIES USE/REPLACEMENT FORM**

<table>
<thead>
<tr>
<th>Agency/Unit#:</th>
<th>Base Hospital:</th>
<th>Incident #:</th>
<th>EMS Crew (Names):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDICATION</strong></td>
<td><strong>UNI T/ SIZE</strong></td>
<td><strong>QNTY</strong></td>
<td><strong>USED</strong></td>
</tr>
<tr>
<td>Cyanokit (hydroxocobalamin) 2.5g/100ml</td>
<td>Two vial kit</td>
<td>100ml</td>
<td>2 kits</td>
</tr>
<tr>
<td>OR</td>
<td>Cyanokit (hydroxocobalamin) 5g/100ml</td>
<td>One vial kit</td>
<td>200ml</td>
</tr>
</tbody>
</table>

**Distribution**  
(Responsibility of the EMS personnel completing the exchange) Replacing Hospital Pharmacy (Must be presented at time of exchange along with the used medication Pack and any clean, unused supplies.) All requests for information from this document by other agencies are to be directed to the Medical Control Authority. The EMS crew completing the exchange must also provide a photocopy of the run report form if this form is presented for exchange at a facility other than the hospital to which the patient was transported.

**PARAMEDIC’S STATEMENT**

Cyanokit Medication Pack #__________ has been opened and the above noted medication(s) used as prescribed. I accept pharmacy sealed Cyanokit Medication Pack #__________ sealed with breakaway tag number ____________

Signature of Accepting Paramedic:

Date: ____________ Agency/Unit#: ____________

<table>
<thead>
<tr>
<th>Medical Supplies</th>
<th>UNI T/ SIZE</th>
<th>QNTY</th>
<th>USED</th>
<th>CHRG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Preps</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Tubing 60gtt/ml (minidrip) w/Y Site Pre-Pierced Reseal</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication Additive Labels</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Lock</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyanokit Medication Pak Use/Replacement Form</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPLETE ALL INFORMATION**

Date: ____________________________

Patient’s Name: ____________________________

Complete Address: ____________________________  
(include Zip)

Ordering Hospital: ____________________________

Ordering Physician: ____________________________

Replacing Hospital: ____________________________

Receiving Physician Signature: ____________________________

Date: ____________________________  

**REPLACING PHARMACIST’S STATEMENT**

The medications in the sealed Cyanokit Medication Pack #__________ have been distributed according to the Medication/Use and Replacement Policy of the participating Medical Control Authority. All medications are in the correct concentration, dosage form, volume, amount, and not expired.

Signature of Replacing Pharmacist:

Date: ____________________________  
Hospital: ____________________________

MCA Name: Washtenaw/Livingston  
MCA Board Approval Date: February 27, 2013  
MDCH Approval Date: April 26, 2013  
MCA Implementation Date: August 1, 2013  

Section 8-14