General CBRNE Identification of Agents

Purpose: This is written to provide general pre-arrival information for suspected HAZMAT and CBRNE (chemical, biological, radiological, nuclear, and explosive) incidents.

NOTE: This information is an overview of different types of incidents and agents.

Signs of an Incident

1. A chemical or biological incident may not always be obvious.
2. Many of the early signs and symptoms produced by chemical agents may resemble those of a variety of disorders. Biological symptoms are generally delayed.
3. The patient's clinical presentation may offer clues about the type of toxic substance exposure.
    - A. **CHEMICAL INCIDENT**
        - i. Explosions or suspected release of liquids, vapors or gases
        - ii. Mass casualties without obvious trauma
        - iii. Similar presentation and/or symptoms for multiple patients.
    - B. **BIOLOGICAL INCIDENT**
        - i. An unusual increase in the number of individuals seeking care, especially with similar symptoms such as respiratory, neurological, gastrointestinal, or dermatological symptoms.
        - ii. Any clustering of patients in time or location (e.g., persons who attended the same public event).
    - C. **RADIOLOGICAL INCIDENT**
        - i. Notification of the detonation of a nuclear device.
        - ii. Dirty bomb
        - iii. Known issues with nuclear power plant or other radioactive source.
    - D. **NUCLEAR INCIDENT**
        - i. Explosion with mushroom cloud and devastation of a large geographical area
    - E. **EXPLOSIVE INCIDENT**
        - i. Responders should be aware of the possibility of secondary incendiary devices and agents.
        - ii. Obvious trauma.

Medical Response

4. First responding units must approach with caution.
5. Approach upwind, uphill and upstream, as appropriate.
6. Utilize resource materials such as the Emergency Response Guidebook, Emergency Care for Hazardous Materials Exposure, or smart phone applications.
7. Utilize appropriate PPE.
8. Be aware of contaminated terrain and contaminated objects.
9. Hazmat response protocols must be initiated, as well as unified incident command.
10. Maintain a safe distance from the exposure area.

11. Attempt to identify the nature of the exposure by looking for placards, mode of dispersal (vehicle explosion, bomb, aerosolized gas, etc.)
12. Victims and potential victims must be evacuated rapidly from the contaminated area and decontaminated as quickly as possible, if appropriate.
13. Treatment may be initiated within the hot and/or warm zones of an incident by properly trained, protected, and equipped personnel.
14. Be alert for secondary devices.

Select Agents

1. **Chemical Agents**
   A. Chemical agents are compounds that may produce damaging or lethal effects.
   B. The potential of the agent to do damage is measured by how readily it disperses. Wind and rain will increase the dispersion rate of a chemical agent.
      i. **Persistent agents** have low volatility, evaporate slowly and are particularly hazardous in liquid form. They stay around for long periods of time (24 hours or longer) and contaminate not only the air but objects and terrain as well. Mustard and the nerve agent VX are examples of persistent agents.
      ii. **Non-persistent agents** are volatile and evaporate quickly, within several hours. Gases, aerosols, and highly volatile liquids tend to disperse rapidly after release. Phosgene, cyanide and certain nerve agents (with the exception of GD-Soman) are non-persistent agents. Because of their volatility, they pose an immediate respiratory hazard but are not particularly hazardous in liquid form.
   C. Chemical agents are classified by their effects:
      i. **Nerve agents**, the most deadly of all chemical agents, disrupt nerve transmission within organs and are quickly fatal in cases of severe exposure.
      ii. **Blood agents** (cyanides) interfere with the blood's ability to transport oxygen throughout the body; often rapidly fatal.
      iii. **Blister agents,** or vesicants, cause a blistering of the skin and mucous membranes, especially the lungs.
      iv. **Choking agents,** or pulmonary agents, irritate the lungs, causing them to fill with fluid.
      v. **Incapacitating agents,** cause an intense (but temporary) irritation of eyes and respiratory tract.
2. **Biological Agents:** Micro-organisms and toxins, generally, of microbial, plant or animal origin to produce disease and/or death in humans, livestock and crops.
   A. Biological agents
      i. Bacterial Agents (e.g. Anthrax, Cholera, Plague, Tularemia, Q-Fever)
      ii. Viral Agents (e.g. Smallpox, Viral Hemorrhagic Fevers)
      iii. Biological Toxins (e.g. Botulinum Toxins, Staphylococcal Enterotoxin B, Ricin, Trichothecene Mycotoxins (T2))

*Biological agents utilized as a CBRNE may not become evident until hours, days, or weeks after the exposure due to the various incubation periods for each pathogen.

3. **Radiological Agents:** Exposure typically has no immediate effect. The sooner the victim has symptoms (example: nausea and vomiting) the more significant the exposure.
4. **Nuclear Agents:** Primary risk is massive trauma and devastation as the result of a large-scale blast.
5. **Explosives:** Threats with explosive devices may be or large or small scale.

Personal Protective Equipment

1. **NIOSH/OSHA/EPA classification system:**
   A. **Level A:** Fully encapsulating, chemical resistant suit, gloves and boots, and a pressure demand, self-contained breathing apparatus (SCBA) or a pressure-demand supplied air respirator (air hose) and escape SCBA. (Maximum protection against vapor and liquids)
   B. **Level B:** Non-encapsulating, splash-protective, chemical-resistant suit that provides Level A protection against liquids but is not airtight. (Full respiratory protection is required but danger to skin from vapor is less)
   C. **Level C:** Utilizes chemical resistant clothing along with a full-faced/half mask air purifying respirator or PAPR rather than an SCBA or air-line.
   D. **Level D:** Limited to coveralls or other work clothing, boots, and gloves
2. **Universal Precautions:**
   A. Assume that all patients are potentially contagious and use appropriate barriers to prevent the transmission of pathogenic organisms. PPE include gloves, gowns, HEPA respirators, face shields and appropriate handwashing.
   B. If a chemical exposure is suspected, appropriate protective suits and respirators (PAPR) with Organic Vapor/HEPA cartridges should be donned.

Chemical Exposure

Purpose: To provide guidance for the treatment of chemical exposure patients.

Assessment/Management – Chemical Agents
If there is a confirmation of, or symptoms indicative of, a chemical incident, utilize appropriate protective suits and respirators (PAPR) with Organic Vapor/HEPA cartridges should be donned.

I. Nerve Agents & Cyanide Compounds – refer to **Nerve Agent/Organophosphate Pesticide Exposure-Special Operations Protocol** and **Cyanide Exposure-Special Operations Protocol.**

II. Choking Agents (e.g., Phosgene, Chlorine, Chloropicrin)
- A. Exposure Route: Inhalation
- B. Signs and symptoms:
  1. Cough, dyspnea, irritation of mucous membranes, pulmonary edema
- C. Patients should be promptly removed from the area to a clean atmosphere.
- D. Treatment
  1. Assist ventilations, as necessary.
  2. Provide 100% oxygen
  3. If wheezing, administer **albuterol** 2.5 mg/3ml **NS** nebulized per **Nebulized Bronchodilators-Medication Protocol** (Per MCA selection may be EMT skill)

Nebulized **albuterol** administration
☑ EMT

  a. 4 puffs from patient's own prescribed albuterol metered dose inhaler (with spacer if available)
  3. For severe exposure consider early interventional airway and aggressive ventilatory support (including CPAP per **CPAP-Procedure Protocol**)
  4. If eye exposure,
     a. Eye irrigation
        i. Remove contact lenses
        ii. Flush with 1000cc of **NS** each eye
     b. For eye pain, use **tetracaine hydrochloride** 1-2 drops in each eye, if available.

III. Vesicant Agents (Blister agents)
- A. Examples: Sulfur Mustard (HD), Nitrogen Mustard (HN), Lewisite, Phosgene Oxime (CX) Vesicant agents are named for their tendency to cause blisters.
- B. Exposure Route: Dermal/Inhalation
- C. Decontamination is critical:
  1. Medical providers will require the proper PPE as determined by unified command before decontaminating patient.

2. Remove patient's clothing, if necessary.
3. Patients may begin self-decontamination by removing clothing and using soap (if available) and water.
4. Decontaminate by blotting and cleansing with soap (if available) and water.
5. Remember that time is critical for effective mustard decontamination.

D. Management/Treatment
   1. Immediate attention should be directed toward:
      a. Assisted ventilation
      b. Administration of 100 % oxygen
   2. Symptomatic treatment per protocol.

IV. Lacrimator Agents (Tear Gas)
   A. Information: Lacrimator (tearing) agents are widely used by law enforcement, the military, and widely available to the public.
   B. Exposure Route: Inhalation/Ocular
   C. Signs and Symptoms: The most common effects are nasal and ocular discharges, photophobia, and burning sensations in the mucous membranes.
   D. Decontamination:
      1. Patients should be decontaminated with soap and water.
      2. Medical providers require protective masks and clothing for patient management since lacrimator agents are transmitted by physical contact.
      3. Decontaminate by blotting and cleansing with soap (if available) and water.
   E. Treatment
      1. Symptomatic treatment per protocol (no specific antidote).
      2. Eye irrigation
         a. Remove contact lenses
         b. Flush with 1000cc of **NS** each eye
         c. Use **Tetracaine hydrochloride**, if available, 1-2 drops in each eye.

<u>Medication Protocols</u>
Albuterol
Tetracaine hydrochloride

Nerve Agent/Organophosphate Pesticide Exposure Treatment

Purpose: This protocol is intended for EMS personnel at all levels that have been trained in the use of these devices and authorized by the medical control authority to assess and treat patients exposed to nerve agents and organophosphate pesticides utilizing the **Duo Dote/Mark I Antidote Kits** and/or a combination of auto injectors and/or nasal sprays. Administration of non-prepackaged kits is restricted to ALS.

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

Medications/Definitions:

A. One (1) Nerve Agent (NA) Antidote Kit – for the purpose of this protocol means either one (1) Duodote OR one (1) Mark I
   1. **Duodote** – a single device with 2 chambers. The front chamber contains 2.1 mg atropine, the back chamber contains 600 mg pralidoxime (2-PAM). When activated the device sequentially administers both drugs through a single needle.
   2. **Mark I Antidote kit**– 2 separate injectors. One containing 2mg atropine, the second containing 600 mg of pralidoxime (2-PAM).
B. **Atropine auto injector**- a single auto-injector of atropine that comes in 3 doses: atropine 0.5 mg, atropine 1 mg, atropine 2 mg.
C. **Midazolam auto-injector** – 20 mg midazolam per device
D. **Midazolam nasal spray** – 5 mg per device
E. **Diazepam auto-injector** – 10 mg per device
F. Non prepackaged kit administration: Administer 600 mg **pralidoxime** and 2 mg of **atropine** for every one (1) NA Antidote Kit.(ALS only)

Chemical Agents

1. Agents of Concern
   A. Military Nerve Agents including: Sarin (GB), Soman (GD), Tabun (GA), VX
   B. Organophosphate Pesticides (OPP) including Glutathione, Malathion, Parathion, etc.
2. Detection: The presence of these agents can be detected through a variety of monitoring devices available to most hazardous materials response teams and other public safety agencies.

Patient Assessment

1. **SLUDGEM** Syndrome
   A. **S** Salivation / Sweating / Seizures
   B. **L** Lacrimation (Tearing)
   C. **U** Urination
   D. **D** Defecation / Diarrhea
   E. **G** Gastric Emptying (Vomiting) / GI Upset (Cramps)

F. **E** Emesis
G. **M** Muscle Twitching or Spasm

2. Threshold Symptoms: These are symptoms that may allow rescuers to recognize that they may have been exposed to one of these agents and include:
   A. Dim vision
   B. Increased tearing / drooling
   C. Runny nose
   D. Nausea/vomiting
   E. Abdominal cramps
   F. Shortness of breath

NOTE: Many of the above may also be associated with heat related illness.

1. Mild Symptoms and Signs:
   A. Threshold Symptoms *plus*:
   B. Constricted Pupils*
   C. Muscle Twitching
   D. Increased Tearing, Drooling, Runny Nose
   E. Diaphoresis
2. Moderate Symptoms and Signs
   A. Any or all above *plus:*
   B. Constricted Pupils
   C. Urinary Incontinence
   D. Respiratory Distress with Wheezing
   E. Severe Vomiting
3. Severe Signs
   A. Any or All of Above *plus*
   B. Constricted Pupils*
   C. Unconsciousness
   D. Seizures
   E. Severe Respiratory Distress

***NOTE**: Pupil constriction is a relatively unique finding occurs early and persists after antidote treatment. The presence of constricted pupils with SLUDGEM findings indicates nerve agent / OPP toxicity. Constricted pupils may not be present with localized dermal exposure.

Personal Protection

1. Be Alert for secondary device in potential terrorist incident
2. Personal Protective Equipment (PPE)
   A. Don appropriate PPE as directed by Incident Commander.
   B. Minimum PPE for Non-Hot Zone (i.e., DECON Zone)
      a. Powered Air Purifying Respirator or Air Purifying Respiratory with proper filter
      b. Chemical resistant suit with boots
      c. Double chemical resistant gloves (butyl or nitrile)
      d. Duct tape glove suit interface and other vulnerable areas
3. Assure EMS personnel are operating outside of Hot Zone
4. Avoid contact with vomit if ingestion suspected – off gassing possible

5. Assure patients are adequately decontaminated *prior* to transport
    A. Removal of outer clothing provides significant decontamination
    B. Clothing should be removed before transport
    C. DO NOT transport clothing with patient
6. Alert hospital(s) as early as possible

Patient Management (After Evacuation and Decontamination)

1. Evaluate and maintain the airway, provide oxygenation and support ventilation as needed.
2. NOTE: Anticipate need for extensive suctioning
3. Administer appropriate number of NA Antidote kits (**Duo Dote OR Mark I)** kits per Chart A. below.
    A. NOTE: For NA kit administration only:
        i. Adult is > 8 years of age
        ii. Pediatrics is ≤ 8 years of age
    
    B. NOTE: Medical Control contact is required prior to administration for:
        i. Patients that meet self-administration criteria
        ii. Patients that meet mild symptoms and signs criteria in chart below:

	Clinical Findings	Signs/Symptoms	Required Conditions	NA Kits To Be Delivered
SELF-RESCUE	**Threshold Symptoms**	• Dim vision • Increased tearing • Runny nose • Nausea/vomiting • Abdominal cramps • Shortness of breath	Threshold Symptoms *-and-* Positive evidence of nerve agent or OPP on site Medical Control Order	1 NA Kit (self-rescue)
ADULT PATIENT > 8 years of age	**Mild Symptoms and Signs**	• Increased tearing • Increased salivation • Dim Vision • Runny nose • Sweating • Nausea/vomiting • Abdominal cramps • Diarrhea	Medical Control Order	1 NA Kit
	Moderate Symptoms and Signs	• Constricted pupils • Difficulty breathing • Severe vomiting	Constricted Pupils	2 NA Kits
	Severe Signs	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Constricted Pupils	3 NA Kits (If 3 NA Kits are used, administer 1st dose of available benzodiazepine)

	Clinical Findings	Signs/Symptoms	Required Conditions	NA Kits To Be Delivered
PEDIATRIC ≤ 8 years of age	**Pediatric Patient with Non-Severe Signs/Symptoms**	*Mild or moderate symptoms as above*	Threshold Symptoms *-and-* Positive evidence of nerve agent or OPP on site Medical Control Order	1 NA Kit
	Pediatric Patient with Severe Signs/Symptoms	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Severe breathing difficulty Weakness	1 NA Kit

4. Establish vascular access per **Vascular Access and IV Fluid Therapy-Procedure Protocol** when feasible, do NOT delay medication administration
5. If NA Antidote kit is not available:
   - A. Administer **atropine auto injector** 2 mg IM for every 1 NA Kit- that is required.
   - B. Administer atropine 2 mg IV/IM for every 1 NA Kit that is required
   - C. Administer 600 mg pralidoxime IV/IM for every 1 NA Kit that is required (when available)
6. Treat seizures
   - A. Adult (> 14 years of age)
     - a. Administer **midazolam** 10 mg IM or 5 mg IN
       1. If available, midazolam auto-injector or midazolam nasal spray may be utilized, ensure total dose (regardless of dosage per device) equals 10 mg IM or 5 mg IN.

     OR
     - b. Administer **Valium (diazepam**) auto-injector.
   - B. Pediatrics (≤ 14 years of age)
     - a. Administer **midazolam** 0.1 mg/kg IM (maximum individual dose 10 mg) or 5 mg IV/IO/or IN

     OR
       1. If available, **diazepam auto-injector** or **diazepam nasal spray** may be utilized, ensure total dose (regardless of dosage per device) does not exceed 10 mg IM or 5 mg IN.

7. Monitor EKG
8. For continued secretions, contact Medical Control and administer additional **atropine** per orders.
   A. Adults (> 14 years of age) **atropine** 2 mg IV/IM
   B. Pediatrics (< 14 years of age) **atropine** 0.05 mg/kg IV/IM

Nerve Agent/Organophosphate Antidotes/Countermeasures

Weight	Age	Duodote[1] Mod-Severe Sxs	Atropen[2] (1 mg) Mod-Severe Sxs	Atropine Dose (0.1 mg/kg) IM/IV/IO	Atropine Vial[2] (1 mg/mL)	Cardiac Atropine[2,3] (1 mg/10 mL)	Midazolam[4] (10 mg/2 mL) IM/IV/IO
3-5 kg (6-11 lbs)	**0-2 months**	**1**	**1**	0.4 mg	**0.4 mL**	**4 mL**	**0.1 mL**
6-7 kg (13-16 lbs)	**3-6 months**	**1**	**1**	0.7 mg	**0.7 mL**	**7 mL**	**0.2 mL**
8-9 kg (17-20 lbs)	**7-10 months**	**1**	**1**	0.9 mg	**0.9 mL**	**9 mL**	**0.2 mL**
10-11 (21-25 lbs)	**11-18 months**	**1**	**1**	1 mg	**1 mL**	**10 mL**	**0.2 mL**
12-14 kg (26-31 lbs)	**19-35 months**	**1**	**2**	1.3 mg	**1.3 mL**	**13 mL**	**0.25 mL**
15-18 kg (32-40 lbs)	**3-4 years**	**1**	**2**	1.6 mg	**1.6 mL**	**16 mL**	**0.3 mL**
19-23 kg (41-51)	**5-6 years**	**1**	**2**	2 mg	**2 mL**	**20 mL**	**0.4 mL**
24-29 kg (52-64)	**7-9 years**	**2**	**3**	2.6 mg	**2.6 mL**	**26 mL**	**0.5 mL**
30-36 kg (65-79 lbs)	**10-14 years**	**2**	**3**	3.3 mg	**3.3 mL**	**33 mL**	**0.6 mL**
Adult	**>14 years**	**2 to 3**	**4 to 6**	4 to 6 mg	**4 to 6 mL**	**40-60 mL**	**2 mL**

[1]Preferred initial autoinjector, [2]May Repeat atropine every 5 minutes until airway secretions decrease (6 mg maximum), [3]Not available in MEDDRUN, [4]Patients with severe symptoms should receive midazolam even if not obviously seizing

Medication Protocols
Atropine
Midazolam
Nerve Agent Antidote Kit
Pralidoxime

CHEMPACK/MEDDRUN

Purpose: The CHEMPACK Project provided the State of Michigan, in collaboration with the Center for Disease Control (CDC) and the U.S. Department of Homeland Security, with a sustainable, supplemental source of pre-positioned nerve agent/organophosphate antidotes and associated pharmaceuticals. A large-scale event would rapidly overwhelm both the pre-hospital and hospital healthcare systems.

The CHEMPACK project is one component of the Michigan Emergency Preparedness Pharmaceutical Plan (MEPPP), a comprehensive statewide plan for coordinating timely application of pharmaceutical resources in the event of an act of terrorism or large-scale technological emergency/disaster.

The Michigan Emergency Drug Delivery and Resource Utilization Network (MEDDRUN) established standardized caches of medications and supplies strategically located throughout the State of Michigan. In the event of a terrorist incident or other catastrophic event resulting in mass casualties, MEDDRUN is intended to rapidly deliver medications and medical supplies, when local supplies are not adequate or become exhausted. The goal is to deploy MedPack within 15 minutes of the request.

Only authorized agencies and officials can request MEDDRUN. These agencies include any Michigan Hospital, local public health agency, or emergency management program. Authorized officials include designated representatives from the Bureau of Emergency Preparedness, EMS, and Systems of Care (BEPESOC), the Michigan State Police (MSP) and the Regional Bioterrorism Preparedness projects.

Activation

I. Recognition of need can come from EMS personnel, or it may be a hospital, public health, EOC, or Emergency management that identifies the need for activation.
   A. EMS Identifies a need for medication support.
      1. Contact Central Dispatch or a hospital/MCA
      2. Central Dispatch or hospital/MCA contacts MEDDRUN and/or CHEMPACK Communications Agency
   B. Hospital, Public Health, EOC or Emergency Management
      1. Identifies need
      2. Hospital, Public Health, EOC or Emergency Management contacts MEDDRUN and/or CHEMPACK Communications Agency
   C. To activate MEDDRUN and/or CHEMPACK call:
      1. Primary Communication Agency: 877-633-7786
      2. Backup Communication Agency: 616-391-5330

II. CHEMPACK/MEDDRUN Communications Agency:
   A. Conducts analysis & issues deployment orders to selected CHEMPACK/MEDDRUN storage sight, (CSS) Point of Contact (POC).

III. Storage site notifies the transport unit and moves cache to designated loading area.

A. If confirmed, the Agency loads CHEMPACK/MEDDRUN supplies onto transport unit.
B. If deployed, Dispatch notifies the MCA regarding dispatching transport vehicle.

Responsibilities

I. BEPESOC follow-up will include:
   A. Contacting the requesting agency to authenticate the request.
   B. Contacting Communications Agency to provide confirmation or initiate recall. If confirmed, advise if Alert Orders should be initiated.
   C. Contacts Michigan State Police (MSP) East Lansing Operations Center (ELOP)
   D. Coordinates potential Inter-Hospital Formulary Distribution.
   E. Coordinates a MI-HAN Alert.

II. Communications:
   A. Provides Certificate Order/Recall Order.
   B. Notifies storage site Point of Contact of either a Certification Order or Recall Order.
   C. If BEPESOC issues an alert, Communications Agency issues an Alert Order to appropriate CHEMPACK storage site(s) for possible deployment.

III. Storage Site:
   A. Once confirmed, the Agency loads the supplies into the transportation vehicle and transports to the specific location.

IV. Designated Transportation Agency:
   A. Ensure adequate security of the cache materials while being transported to the delivery point.
   B. Maintain communications with the storage site's Point of Contact while en route to the delivery point, providing periodic updates regarding present location/circumstances that may impact time of delivery.
   C. Follow the routes specified by the CSS POC and advise upon arrival to the delivery point.

DELIVERY OF CACHE

I. When the cache arrives at the delivery point, the Incident Command (IC) will take receipt of the cache as the person in charge by completing the Transfer of Custody form that will accompany the cache. The IC will ensure accurate accounting of the antidote supplies in coordination with the senior medical/EMT at the scene.
   A. If additional antidotes are required, the IC will Inform Central Dispatch/911.
   B. If it appears that the amount of antidote needed will be less than anticipated, the transport vehicle will remain in the area to take custody of the unused antidotes to return them to the CSS POC.
   C. Advise the CSS POC when the mission is completed.

POST DEPLOYMENT

I. Within 72 hours of a deployment, the Agencies, BEPESOC and Communications will prepare a Preliminary After Action Report (AAR) using the format prescribed by BEPESOC. (See AAR attachment) BEPESOC will review each AAR with the intent of improving future responses.

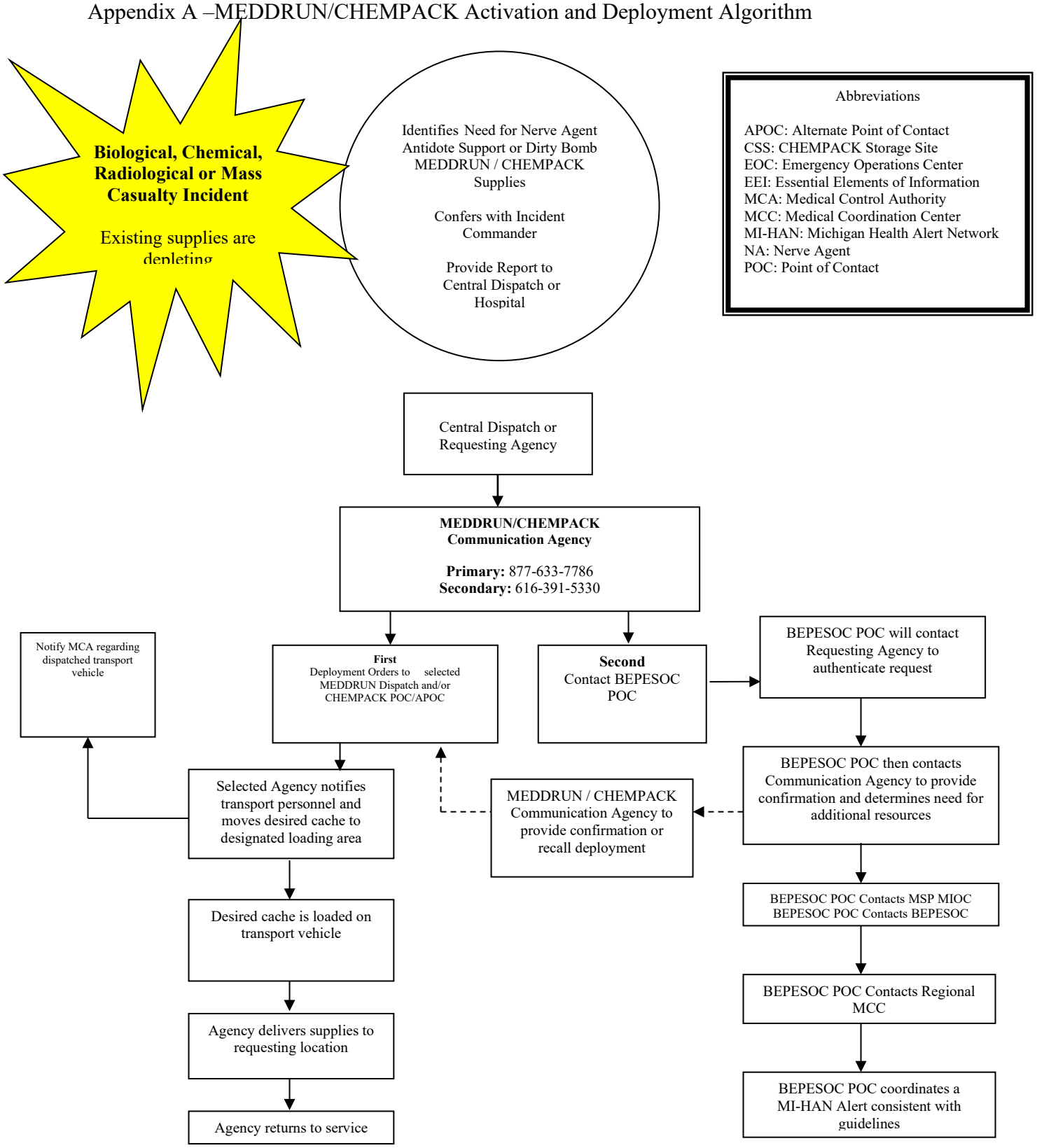
Re-STOCKING MEDPACKS

I. It is important that a packs be restocked and placed back in service as quickly as possible. The Agency may be returned to service on a limited basis with a partially depleted MedPack/Chempack. Depending on the availability of federal funds, the Regional Emergency Preparedness Coordinator, in collaboration with BEPESOC, will be responsible for ordering the supplies to re-stock the MedPack(s)/Chempack(s) used.

II. BEPESOC and Communications will be notified upon the MedPack/Chempack being returned to FULL SERVICE.

**MEDDRUN may also be pre-deployed for special events, designated by the State and Regional Leadership.*

Appendix A –MEDDRUN/CHEMPACK Activation and Deployment Algorithm



Essential Elements of Information (EEI) Report

Essential Elements of Information Report		
1.	**Name, Position, and Contact Information for the Individual Requesting Deployment of CHEMPACK Cache**	**Name:** _____ **Position/Title:** _____ **Telephone/Other Contact:** _____
2.	**Name of Physician/Officer in Charge of Medical Management at the Scene (if different than above)**	**Name:** _____ **Position/Title:** _____ **Employer:** _____ **Telephone/Other Contact:** _____
3.	**Location of Incident**	**Jurisdiction Name:** _____ **Closest Intersection:** _____ OR **Name of Site:** _____
4.	**Estimated Number of Casualties**	**None** **5-10** **100-300** **1** **10-20** **300-500** **2-3** **20-40** **500-1000** **4-5** **40-100** **1000+**
5.	**Symptoms of Casualties**	**Pinpoint Pupils** **Twitching** **Dimness of Vision** **Seizures** **Slurred Speech** **Chest Tightness** **Difficulty Breathing** **Unconsciousness**
6.	**Local Supplies of Antidotes and Pharmaceuticals are Exhausted, multiple lives remain at risk, and CHEMPACK supplies are needed to save lives**	☐ **Yes** ☐ **No**

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.

Definitions: For the purposes of this protocol Cyanokit (brand name) refers to **Hydroxocobalamin**

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: 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
4. Alert receiving hospital ASAP to prepare additional antidotes

Assessment

1. Hypotension
2. Shortness of breath
    a. Possibly accompanied by chest pain
    b. Generally, not associated with cyanosis
    c. Pulse oximetry levels usually normal
    d. Usually associated with increased respiratory rate and depth
    e. Potential for rapid respiratory arrest
3. Confusion, decreased level of consciousness, coma
4. Seizures
5. Headache, dizziness, vertigo (sense of things spinning)
6. Pupils may be normal; dilation is a late sign

Indications for Antidote use in patient with suspected cyanide poisoning:

1. Cardiac or Respiratory Arrest
2. Hypotension SBP<90 mm Hg
3. GCS <= 9

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. Administer oxygen 10-15 LPM via non-rebreather mask and support ventilation as needed**.** Per **Oxygen Administration-Procedure Protocol and/or Airway Management-Procedure Protocol**
   a. 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.
   b. This is in contrast to most triage systems that would categorize non-breathing patients as non-survivable.
2. Establish vascular access. Refer to **Vascular Access & IV Fluid Therapy-Procedure Protocol**
3. Administer antidote:
   a. **Cyanokit**® (5g. adult IV/IO; 70 mg/kg pediatric IV/IO) per **Hydroxocobalamin (Cyanokit®)-Medication Protocol** (preferred, per MCA Selection)

Cyanokit® Included?
(●) **Yes** ( ) **No**

   b. Each vial of **Cyanokit**® for injection is to be reconstituted with diluent (not provided with **Cyanokit**®) using the supplied sterile transfer spike.
      i. The recommended diluent is **0.9% Sodium Chloride** injection (0.9%NaCl).
      ii. 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 60 seconds for the 5g bottles, 30 seconds for the 2.5g bottles prior to infusion.
      iii. **Cyanokit**® solutions should be visually inspected for particulate matter and color prior to administration.
      iv. 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.
      v. There are a number of drugs and blood products that are incompatible with **Cyanokit**®, thus **Cyanokit**® requires a separate intravenous line for administration.
      vi. Depending upon the severity of the poisoning and the clinical response, a second dose of 5 g may be administered by IV/IO 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.

Cyanokit® Administration for Suspected Cyanide Poisoning (including serious smoke inhalation)

Weight	Age	Cyanokit® Dose[1] (~70 mg/kg +/-) IV/IO	Cyanokit® Volume to Administer[2] IV/IO
3-5 kg (6-11 lbs)	**0-2 months**	250 mg	**10 mL[3]**
6-7 kg (13-16 lbs)	**3-6 months**	500 mg	**20 mL[3]**
8-9 kg (17-20 lbs)	**7-10 months**	625 mg	**25 mL[3]**
10-11 (21-25 lbs)	**11-18 months**	750 mg	**30 mL[3]**
12-14 kg (26-31 lbs)	**19-35 months**	900 mg	**36 mL[3]**
15-18 kg (32-40 lbs)	**3-4 years**	1100 mg	**44 mL[3]**
19-23 kg (41-51)	**5-6 years**	1500 mg	**60 mL[3]**
24-29 kg (52-64)	**7-9 years**	1750 mg	**70 mL[3]**
30-36 kg (65-79 lbs)	**10-14 years**	2500 mg	**100 mL[4] (1/2 bottle)**
Adult 37 40 kg (80 88 lbs)	**>14 years**	3000 mg	**120 mL[4]**
Adult 41 49kg (89 108 lbs)	**>14 years**	3500 mg	**140 mL[4]**
Adult > or 50 kg (> or 109 lbs)	**>14 years**	5000 mg	**200 mL[4] (full bottle)**

[1]The safety and efficacy in pediatrics has not been established, [2]Administer slowly over 15 minutes.
[3]Push slowly over 15 minutes, [4]Infuse over 15 minutes

4. Cardiac monitoring
5. 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).

<u>Medication Protocols</u>
Hydroxocobalamin (Cyanokit®)

Mass Casualty Incidents

The purpose of this protocol is to provide a uniform initial response to a Mass Casualty Incident (MCI).

I. **Definition of MCI**: For the purpose of this document, an MCI will be defined as any incident, which because of its physical size, the number and criticality of its victims, or its complexity, is likely to overwhelm those local resources, which would typically be available.

II. **Overall MCI Management – DISASTER Paradigm™**
The DISASTER Paradigm™ is part of the National Disaster Life Support (NDLS) Program and provides a framework for management of MCIs. The components may be pursued concurrently.
A. ***D****etection*: Do we have an MCI? If yes, immediately declare to dispatch.
B. ***I****ncident Command*: Establish or interface with the Incident Command System (ICS)
C. ***S****afety and Security*: Immediate action steps to immediately protect responders, casualties, public.
D. ***A****ssess Hazards*: Actively assess (initially and ongoing) for hazards that can harm responders, casualties, public.
E. ***S****upport*: Request resources needed to effectively manage incident
F. ***T****riage and Treatment*: Initiate SALT Triage and provide treatment to casualties
G. ***E****vacuation:* Transport of casualties to appropriate hospitals (avoiding overloading individual hospitals) or alternate treatment centers
H. ***R****ecovery:* Return responders and community to pre-incident status and identify lessons learned.

III. **MCI Detection**
A. Actively assess the scene to determine if MCI is (or maybe) present
B. Alert dispatch and assure hospitals and other stakeholders made aware
C. For major incidents (including incidents involving multiple counties/MCA resources) RMCC should be alerted

IV. **Incident Command System**
A. All incidents shall be managed in accordance with the National Incident Management System and the National Response Framework.
B. If Incident Command (IC) has not been established, the most qualified EMS personnel shall assume the role of IC until command is transferred.
C. The IC is responsible for all functions of the Incident Command System (ICS) until other personnel are assigned those functions**.**
D. Establish EMS Branch Director/EMS Group Supervisor
    1. Established by IC
    2. Responsible for all EMS activities
    3. Reports to IC or Operations Chief
E. Establish functional subordinate EMS ICS positions, as appropriate. Note, positions may be combined (e.g., Treatment/Transport) when appropriate.
    1. Triage Unit Leader Role
        a. Report to EMS Branch Director/Group Supervisor

b. Coordinates rapid triage process
c. Determines number/severity of casualties

2. Treatment Unit Leader Role
   a. Within EMS Branch/Group Operations, establish Casualty Collection Point (CCP)
   b. Assigns personnel to treatment area(s)
   c. Supervise care in treatment areas and/or establish subordinate treatment unit leaders for selected casualty types (e.g., Red, Yellow, Green, etc.).
3. Transportation Unit Leader Role
   a. Prioritize transportation of patients from scene assuring high priority patients transported first and departing ambulances maximally utilized.
   b. With information from coordinating resource, assigns destination hospital or alternate care center
   c. Maintains log and tracking of patients transported

V. **Safety and Security**
   A. Responders should don appropriate personal protective equipment (PPE)
   B. Identify any immediate threats to responders, patients, or the public

VI. **Assess for Hazards**
   A. Actively assess scene for hazards
   B. Ongoing assessment for new hazards

VII. **Support – Request Additional Resources for Incident**
   A. Ambulances
      1. Request additional ambulances
      2. Ideally, one ambulance for every two Red/Yellow patients
   B. Non-Ambulance Medical Transport
      1. Non-licensed vehicles may be used for emergency transport when licensed ambulances are not readily available.

If an ambulance operation is unable to respond to an emergency patient within a reasonable time, this part does not prohibit the spontaneous use of a vehicle under exceptional circumstances to provide, without charge or fee and as a humane service, transportation for the emergency patient. Emergency medical personnel who transport or who make the decision to transport an emergency patient under this section shall file a written report describing the incident with the medical control authority. MCL 333.20939

      2. Non-Licensed vehicles include (but are not limited to):
         a. Wheelchair vans
         b. Busses
         c. Other public safety vehicles
   C. Request specialized resources, as appropriate
      1. Local/regional mass casualty resources
      2. Decontamination units
      3. Air medical units
      4. Activate MEDDRUN/CHEMPAC per protocol

D. For major incidents, RMCC may be appropriate for coordination of support

VIII. **Triage and Treatment**

A. Initiate SALT Triage - Preferred
   1. Sort – Perform global assorting
   2. Assess – Perform individual assessment
   3. Life Saving Interventions
      a. Control major hemorrhage
      b. Open airway (if child, 2 rescue breaths)
      c. Chest decompression, as needed (Paramedic only)
      d. Auto-injector antidote (e.g., Duodote®)
   4. Treatment and Transport

B. Triage other than SALT must be compliant with the Model Uniform Core Criteria for Mass Casualty Incident Triage (MUCC)[1]

C. Categorize Patients
   1. **Immediate (Red):** Unable to follow commands or make purposeful movements, OR they do not have a peripheral pulse, OR they are in obvious respiratory distress, OR they have a life-threatening external hemorrhage; provided their injuries are likely to be survivable given available resources. Examples include:
      a. Physiologic and anatomic Trauma Triage Criteria
      b. Major burns (>20% BSA)
      c. Moderate to severe respiratory distress
   2. Delayed (Yellow): Able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND they have injuries that are not considered minor. Examples include:
      a. Mechanism of injury Trauma Triage Criteria
      b. Isolated fractures/dislocations
      c. Large and/or multiple lacerations with controlled bleeding
      d. Deep burns <20% BSA
   3. **Minimal (Green):** Able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND their injuries are considered minor. Examples include:
      a. Minor wounds (abrasions, isolated laceration)
      b. Contusions
      c. Minor head trauma (GCS 15)
   4. Expectant (Gray): unable to follow commands or make purposeful movements OR they do not have a peripheral pulse, OR they are in obvious respiratory distress, OR they have a life-threatening external

[1] Model Uniform Core Criteria for Mass Casualty Triage. Disaster Med Public Health Preparedness.2011;5:125-128, doi: 10.1001/dmp.2011.41.

hemorrhage, AND they are unlikely to survive given the available resources. These patients should receive resuscitation or comfort care when sufficient resources are available. Examples include:

a. Major head trauma (open skull fracture with exposed brain, blown pupil, etc)
b. Major burns (>75% BSA)

5. Dead (Black): No spontaneous breathing after establishing a basic airway (and 2 ventilations in a child). Patients triaged as Dead should be reassessed after initial triage to confirm no signs of life.

D. Establish Casualty Collection Point(s)
1. One or more sites to provide triage and treatment
2. May be subdivided into treatment areas based on triage category
3. Emphasis should be on providing lifesaving treatment and rapid transport
4. Minimal patients can be sequestered in a designated area
5. Perform secondary triage within each treatment area as able

E. Treatment
1. Treatment should be provided in accordance with Michigan EMS State Protocols
2. ALS should be limited to essential medical interventions, including pain relief

IX. Evacuation

A. Transport Unit Leader should assure all departing ambulances and non-licensed transport vehicles depart scene with highest acuity patients
1. Assure distribution of patients to appropriate hospitals (e.g., trauma centers)
2. Maintain a tracking log of patients, acuities, and destinations

B. Non-hospital alternate care centers may be established in major incidents for lower acuity patients

C. Licensed EMS personnel should accompany injured patients when transported in non-licensed vehicles whenever possible

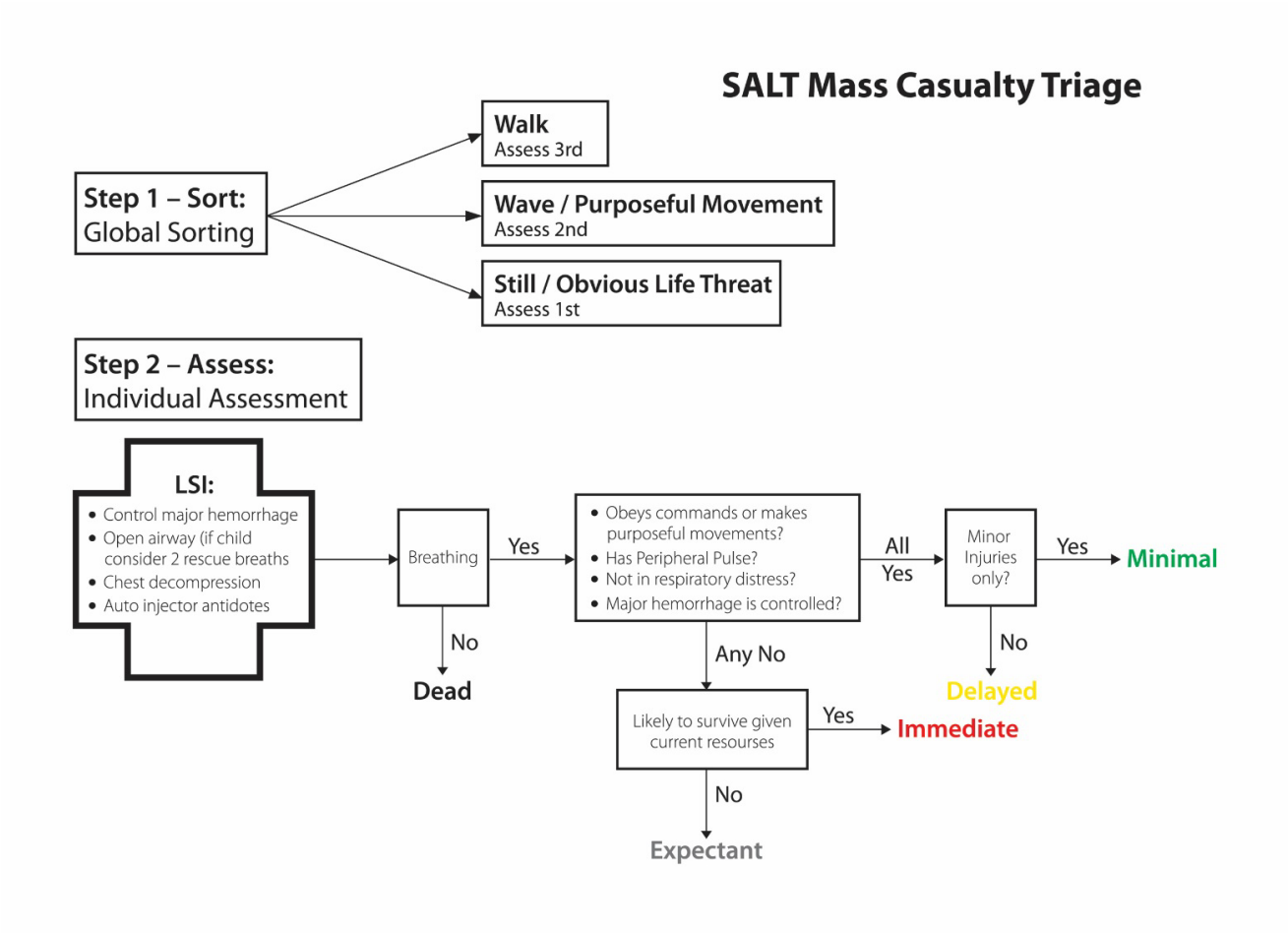
X. Recovery

A. Responder rehabilitation (e.g., hydration, nutrition)

B. Responder recovery (e.g., physical and emotional)

C. Agency recovery (e.g., resupply, workforce recovery) and completion of After Action Review

D. Community recovery



XI. REGIONAL MEDICAL COORDINATION CENTER (RMCC)

The RMCC serves as a regional multi-agency coordination center entity as defined by the National Incident Management System (NIMS). The RMCC serves as a single regional point of contact for the coordination of healthcare resources. The RMCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The RMCC serves as a link to the Community Health Emergency Coordination Center (CHECC).

The RMCC acts as an extension and agent of the Medical Control Authority.

A. RMCC Responsibilities include, but are not limited to:
   1. Maintain communications with all involved entities
      a. EMS Branch Directors
      b. EMS Division/Group Supervisors
      c. EMS Unit Leaders
      d. Hospitals
      e. Local EOCs (when activated)
      f. CHECC (when activated)
      g. Alternate care sites (when activated)
      h. Other RMCCs (as appropriate)
   2. Provide initial and update alerts via available communications resources.
   3. Provide frequent updates to on-scene EMS Branch Directors/Group/ Supervisors (or designee) regarding hospital casualty care capacity.
   4. May relay casualty transport information to receiving facilities.
   5. May relay urgent and routine communications to appropriate entities.
   6. May assist in coordination and distribution of resources.
   7. Other appropriate tasks as necessary for an effective regional medical response.

B. RMCC Immunity from Liability

It is the intent of this protocol that the Regional Medical Coordination Center and the personnel staffing the RMCC and performing the functions are afforded immunity from liability whether or not a Mass Casualty Incident has occurred, as provided through MCL 333.20965 of Part 209 of PA 368 of 1978, as amended. This section specifically provides immunity from liability protection to Medical Control Authorities in the development and implementation of department-approved protocols (see language below):

Sec. 20965 (3) Unless an act or omission is the result of gross negligence or willful misconduct, the acts or omissions of any of the persons named below, while participating in the development of protocols under this part, implementation of protocols under this part, or holding a participant in the emergency medical services system accountable for department-approved protocols under this part, does not impose liability in the performance of those functions:

(a) The medical director and individuals serving on the governing board, advisory body, or committees of the medical control authority or employees of the medical control authority.
(b) A participating hospital or freestanding surgical outpatient facility in the medical control authority or an officer, member of the medical staff, or other employee of the hospital or freestanding surgical outpatient facility.
(c) A participating agency in the medical control authority or an officer, member of the medical staff, or other employee of the participating agency.
(d) A nonprofit corporation that performs the functions of a medical control authority.

333.20965 Immunity from liability

XII. STATE COMMUNITY HEALTH EMERGENCY COORDINATION CENTER (CHECC)
- A. Operated by MDHHS Bureau of EMS, Trauma and Preparedness
- B. EMS Personnel should be aware of the existence of CHECC but are not expected to directly interface with CHECC.

Appendix 1:

Definitions:

Incident Command System: The ICS organizational structure develops in a top-down fashion that is based on the size and complexity of the incident, as well as the specific hazard environment created by the incident.

Unified Command: In incidents involving multiple jurisdictions, a single jurisdiction with multi-agency involvement, or multiple jurisdictions with multi-agency involvement, unified command can be implemented. Unified command allows agencies to work together effectively without affecting individual agency authority, responsibility, or accountability

Incident Commander (IC): The IC is the individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. EMS will typically fall under the IC through a subordinate Branch, Division or Group.

Section Chief: A Section Chief may be assigned to Operations, Logistics, Planning, or Administration/Finance depending on the size of the incident. Not all incidents will require all 4 sections to be assigned.

Branch Director: A Branch Director may be assigned under the Operations Section Chief. Branch Directors are responsible for managing a specific discipline including Fire, EMS, Law Enforcement, Public Works, Public Health, etc.

Division Supervisor: A Division Supervisor is assigned to an area that is separated by a barrier. Examples of a Division would be a multi-level structure, include separated by a river, etc. Numbers are primarily used to identify divisions.

Group Supervisor: A Group Supervisor functions within the Operation Section and is assigned to a specific group. Letters of the alphabet are primarily used to identify groups.

Unit Leaders: Units can be assigned to the Command and General Staff or within a Group or Division.

Medical Unit Officer: The Medical Unit Officer is the individual responsible for the management of incident responder medical treatment and rehab.

Safety Officer: The IC shall appoint a Safety Officer who will ensure safety of responders and victims during the incident operations. With the concept of Unified Incident Command there is valid reasoning to have Assistant Safety Officers to include all disciplines involved in the operation. The Safety Officer appointed by the IC shall have the authority designed within the Incident Command System with the input and advice of all Assistant Safety Officers.

Deputies: Deputies are used within the Command and General Staff or Sections of the ICS. A Deputy may be a higher-ranking responder that assists the IC or Section Chief however does not assume Command.

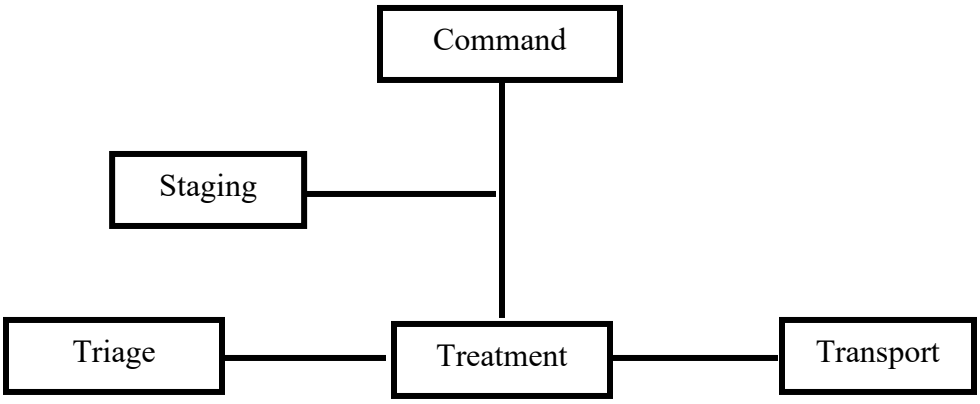
Coordinating Resource: the entity within the local EMS system responsible for the notification and coordination of the mass casualty response. Examples include: medcom, resource hospital, MCA, medical control, dispatch

Regional Medical Coordination Center: The RMCC serves as a regional multi-agency coordination entity as defined by the National Incident Management System (NIMS). The RMCC serves as a single regional point of contact for the coordination of healthcare resources. The RMCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The RMCC serves as a link to the Community Health Emergency Coordination Center (CHECC).

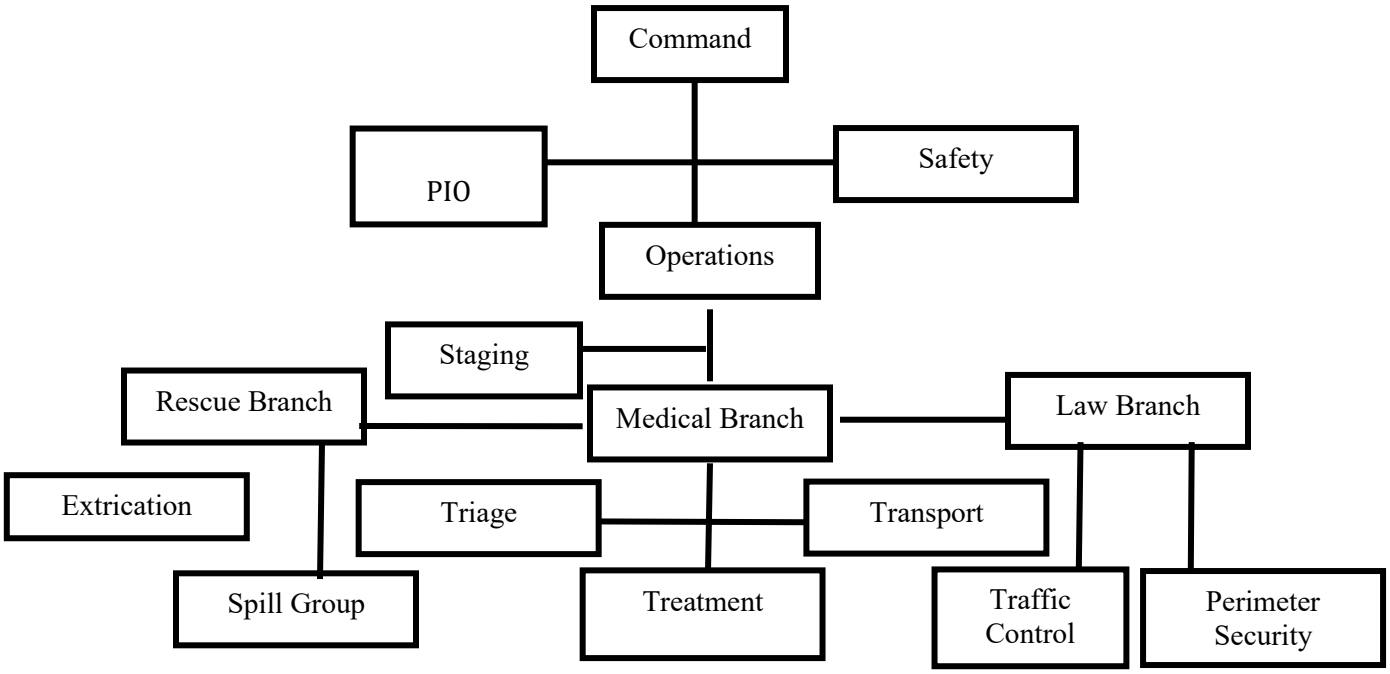
Community Health Emergency Coordination Center: The CHECC serves as a statewide multi-agency coordination entity as defined by NIMS. CHECC is intended to coordinate state-level healthcare and public health resources, to serve as a central point of contact for regional RMCC's, and to serve as a resource to the State EOC. CHECC is expected to be activated following a major disaster or other public health emergency and should be operational within hours of activation.

Appendix 2:

Example ICS Organizational Chart for Simple Incident



Example ICS Chart for Complex Incident



Pre-hospital (EMS) MCA Mutual Aid During Disaster

Purpose: Establish a mechanism allowing EMS agencies/Medical Control Authorities (MCA) to give prehospital care across MCA boundaries during "disaster" conditions.

1. This agreement between the MCAs demonstrates the intention to assist and support each other during a disaster situation. It provides an approved/authorized process allowing EMS agencies to function within a MCA under their originating MCAs protocols, during a disaster.

2. During "disaster" conditions, whether natural or otherwise, MCAs may need assistance from other MCAs. For the purpose of this agreement, a "disaster" is considered to be an emergency event where a "declared" emergency and/or disaster condition as defined by local, state, or federal statutory laws, exists in which the responding MCA and EMS resources may be unable to handle the patient care needs without additional resources from outside its own Medical Control area.

3. Requests for support may be made to any MCA or any EMS agency. It is agreed that mutual aid response is dependent on the availability of equipment and personnel.

4. It is in the best interests of MCAs to include each other in disaster planning efforts. It is expected that upon request, participating MCAs will extend any relevant information on emergency planning to other MCAs as deemed reasonably appropriate by the MCA distributing the information.

5. Participating MCAs agree to adopt, as a minimum, the State Protocols for responding to a disaster event, and those agencies/EMS personnel will follow these when responding outside their own MCA, unless prior arrangements with that MCA.

Hazard Contaminated Patient

I. Identification of the Contaminated Patient
   a. Use all your senses. Suspect hazardous material situation if you:
      i. **See** containers, labels or placards, or a location suggesting a hazardous substance
      ii. **Hear** explosions, or reports of possible contamination, pre-arrival or on scene
      iii. **Smell** unusual odors – be suspicious

II. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.

III. The responding EMS agencies must prevent further contamination to themselves or others. Determine if any contaminated patients have already left the scene and promptly notify the hospital(s).

IV. The responding EMS agency must not spread any contamination outside the response area until the responding fire or public safety department incident commander, or appropriate designee, has confirmed that decontamination is complete. Contaminated patients will not be transported out of the decontamination area until field decontamination is complete.

V. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.

VI. Invasive patient care procedures (IV/IO, OPA, NPA, ET, and Emergency Airway Devices) should not begin until decontamination of the patient is confirmed or until personal protective equipment is in place.

VII. Prior to transport of a decontaminated patient, on-line medical control will be contacted to assure the patient is transported to a facility equipped to handle the specific needs of the patient.

VIII. Once the scene Incident Commander, or the appropriate designee, has confirmed that the patient is decontaminated, the responding EMS agency may transport the patient to the designated facility.

Suspected Pandemic

Purpose: To have a standard approach to patients during a period of a declared pandemic or state of Public Health Emergency. This approach should increase awareness and protection of first responders and prehospital care while maximizing supplies that may become limited.

Criteria:

1. This protocol will apply to patients encountered by all levels of EMS, during an infectious disease epidemic/pandemic. All agencies should frequently check the CDC.gov website for the latest recommendations with Personal Protective Equipment (PPE) and treatment. These recommendations may change frequently during an evolving and ongoing epidemic/pandemic as regulatory standards are influenced by CDC recommendations.
2. The center for Disease Control and Prevention (CDC) has declared that an epidemic and/or the Michigan Department of Public Health has declared a statewide or local public health emergency.
3. “Acute Febrile Respiratory Illness” (AFRI) is defined as fever and at least one of the following (cough, nasal congestion/runny nose, or sore throat).

EMS System / Medical Control Authority (MCA) Recommendations:

1. Encourage all EMS personnel to receive seasonal and disease specific vaccinations.
2. Each life support agency shall maintain a supply of fit tested N-95 respirators and eye protection (e.g., goggles, eye shield), disposable non-sterile gloves, and gowns.
3. Each life support agency shall provide approved pathogen neutralizing hand sanitizer to staff.
4. Each life support agency should instruct their personnel to stay home and not report for duty if they have signs or symptoms of acute febrile respiratory illness. A staff member that develops these symptoms during a shift must inform the agency supervisor for appropriate follow up procedures.
5. Dispatch centers should be encouraged to screen callers to determine if the patient may have an AFRI. Information should be provided to EMS personnel prior to arriving on the scene if suspected AFRI.
6. If it is determined by EMS that the patient may have an AFRI, early notification to the receiving facility should be done so that appropriate infection control may be taken prior to patient arrival.

Procedure and Patient Categorizations/Situations

1. **Limiting Personnel Exposure:**
    A. If the patient has symptoms of an “Acute Febrile Respiratory Illness” (AFRI) based upon the dispatch information the responding agency should consider limiting the initial number of personnel that approach or enter a residence.

2. **Patients with a medical condition that requires immediate care (e.g., cardiac arrest) and have a recent history of AFRI will be assessed and treated after:**
   A. EMS Personnel don appropriate PPE prior to proceeding with assessment and treatment.

3. **Patient Assessment:**
   A. Begin patient assessment while maintaining a 6-foot distance from the patient exercising appropriate routine respiratory droplet precautions (hand hygiene, cough etiquette, and distance) while assessing patient .
   B. Assess patient for “Acute Febrile Respiratory Illness” which is fever and at least one of the following (cough, nasal congestion/ runny nose, or sore throat).
   C. If **patient does not have an Acute Febrile Respiratory Illness (AFRI)** proceed to appropriate treatment protocol.

4. If **patient has an AFRI,** EMS personnel with direct patient care shall:
   A. Don appropriate PPE.
   B. Place a surgical mask on the patient if tolerated.
   C. Treat patient according to appropriate protocol.
   D. Notify Medical Control of assessment findings.
   E. Encourage good patient compartment vehicle airflow/ventilation to reduce the concentration of aerosol accumulation when possible.

5. **Post Exposure**
   A. Health care personnel, who have had a recognized unprotected close contact exposure to a person with AFRI can be considered for treatment according to current post-exposure guidelines.
   B. Clean EMS Transport Vehicles after Transporting a Suspected AFRI.

MARQUETTE ALGER MEDICAL CONTROL AUTHORITY
Special Operations

Initial Date: 6-28-2016
Revised Date: 11-14-2023

Protocol 10-19

Marquette County Active Violence Protocol

Purpose:
To acknowledge the use of specialty trained and equipped EMS personnel in our Medical Control Authority working alongside with law enforcement (LE) during an active violence incident. The Marquette County Sheriff's Office is identified to staff the initial entry, warm zone medical response through its life support agency. Other EMS and fire departments may seek training as secondary evacuation teams.

EMS personnel who have trained with law enforcement are allowed to enter into the warm zones. When responding to these types of incidents, the trained and equipped EMS personnel will respond along with a State licensed EMS unit from their Agency, licensed at an appropriate level. Because the Sheriff's Office life support agency is non-transport, a transporting advanced life support agency will also be dispatched.

This protocol does not provide liability coverage as prescribed under the EMS law for tactical teams that originate and/or operate out of a *non-life support agency,* i.e. police departments, sheriff departments; SWAT teams.

EMS and Fire Risk Paradigm:

- Accept no significant risk when no lives or property can reasonably be saved at an emergency incident.
- Accept some limited level of risk, within normal operational procedures, when it is likely that lives or property can reasonably be saved.
- Accept a significant amount of risk within operational guidelines when it is likely that a life can be saved.

Requirements:
Initial Life Support Agencies

1. Michigan EMS licensure.
2. Medical Control privileging for initial entry teams.
3. Tactical Emergency Care.
4. Law procedures and education.

Secondary Evacuation Team:

1. Michigan EMS licensure or Fire I certification for secondary evacuation teams.
2. Completion of RESCUE TEAM training and continuing education approved by your agency.

Initial and Secondary Rescue Team Personnel Training should also include the following topics:

- Program overview with differentiation from initial entry teams and secondary evacuation teams
- Mass Casualty Incident (MCI) procedures
- Rescue Team protocol

Awareness Training for non-Rescue Team personnel:

- Provide training for non-rescue team EMS and Fire so they understand the concept and procedures of the warm zone versus where they are in the cold zone.

Drills and Exercises

- Interoperable, collaborative, and multi-jurisdictional exercises and drills including all entities should be organized and provided as often as possible.
- In addition to LE and EMS, participating entities in local drills should include schools, hospitals, businesses, and other community stakeholders at every opportunity.
- Improve interdisciplinary communications and relationships with LE and involve LE personnel in Incident Command or Unified Command (IC/UC) as appropriate in your local area.
- Provide training specifically for LE and suggested additional language for LE standard operating procedures (SOPs) discussing Rescue Team integration with emphasis also on the LE personnel assigned to Rescue Teams.
- Assure LE advance teams' trainings stress importance of ignoring victims until there is absolute certainty that all perpetrators have been contained.
- Provide training dispatchers.

RESCUE TEAM EQUIPMENT CONSIDERATIONS:
Tactical equipment, such as bullet-resistant vests with or without rifle plates and ballistic helmets, should be considered to meet local needs with guidance from personnel with experience in tactical equipment and stakeholders. A system for team identification will be in place for safety purposes. Medical equipment must focus on life-saving interventions and triage. Types of equipment considered should include victim movement equipment, rapid triage category patient markers, tourniquets, vented chest seals, dressing materials. Large, heavy, or unwieldy equipment (e.g., oxygen tanks, cardiac monitors) should not be carried by the Rescue Team.

PROCEDURE:

Response:

1. Arriving Rescue Team personnel and caches should report to Command, through a staging area if established.
2. First arriving Rescue Team should meet with Command.
3. Make Command aware of the presence of the Team and its capabilities.
4. Form Warm Zone Entry Rescue Teams as EMS and LE personnel with equipment become available. Ideally, the Rescue Team composition should include an Advanced Emergency Medical Technician (AEMT) or Paramedic. Subsequently form Evacuation Teams.
5. Establish a communications plan.
    a. Considerations should include:
        i. Radio equipment
        ii. Radio channels or talk groups
    b. Identify positions to which Rescue Teams and Evacuation Teams members report
6. Emergency procedures
    a. Recognize that people may reach a point of sensory saturation when they simply stop hearing the messages. It is important to repeat messages, ask for read-back, and consider deploying runners for critical information.
    b. Determine the evacuation signal within the authority having jurisdiction (AHJ) and convey this information to all Team personnel.
7. Discuss the location for staging area for Team location and personnel.
8. Maintain accountability for all Team personnel on scene.
9. Non-Entry Team EMS personnel should not enter warm or hot zones.

Pre-Entry:

1. Rescue Teams deploy after LE initiates entry with a contact team or teams. Risk is decreased, even though the scene is not completely secure.
2. Authorization for entry must be obtained from LE (preferably through the shared command post).
3. Entry into active shooter scenes will not occur until Rescue Team personnel have appropriate protective equipment and LE escort.
4. Subsequent Rescue Teams, with the goal of evacuation and (possibly) initial treatment, will be established as additional personnel arrive.
5. Each Rescue Team should be comprised of two Rescue Team-trained EMS personnel equipped with PPE and medical gear, and law enforcement officers (LEOs).
6. LEOs provide security while EMS personnel attend to casualties. The goal is to get medical resources to patients within minutes of being wounded while continuing to mitigate Rescue Team risk.
7. There may be physicians who are trained and part of a Rescue Team. Roles for those physicians may include entry. Within a Rescue Team, EMS personnel are not to defer to the physician. The same protocols apply to all.

LE Officers Assigned to an RESCUE TEAM:

- The roles of a LEO assigned as a member of a Rescue Team are security and coordination of team movement only.
- LEOs assigned to Rescue Teams will not assist in lifting, carrying, or treatment of any patient until it is confirmed by command that all perpetrators have been contained.
- Safety of the Rescue Team is the primary concern for those officers, including searching for other secondary threats (e.g., IEDs, tripwires).
- One LEO will have 180-degree front security and one will have 180-degree rear security, minimally.
- The front LEO will communicate with police in command. All movement in the building should be directed by Police Command. This allows for accountability of each Rescue Team, and precludes accidental entry into hot zones.
- At no time will the Rescue Team LEOs freelance or move outside of their directed destination/area of operation.
- At no time will LEOs assigned to a Rescue Team leave the EMS personnel further than close direct line of sight.
- LEOs must be able to provide effective defensive fire cover for the Rescue Team at all times.
- The Rescue Team will move as a team with the LEOs controlling the speed of movement.

Initial Entry:

1. A Rescue Team may approach the scene in a vehicle such as an ambulance or tactical vehicle, on foot, or by other means as directed by command.
2. Ingress and egress corridors will be designated by command. Teams will move in and out of the building only through entrances and corridors primarily cleared by LE contact teams.

3. The first one or two Rescue Teams that enter the building or site move deep inside to stabilize as many casualties as possible before any victim is evacuated.
4. As victims are reached, the Rescue Team LEOs provide security while the EMS personnel treat the casualties. RESCUE TEAMs stabilize only immediately life-threatening wounds on each casualty they encounter, but leave casualties where they are found and move on.
5. Emphasis is on treatable immediate life threats. Casualties are treated in place, and the RESCUE TEAM moves on.
6. Walking wounded and uninjured individuals are directed to exit away from the direction of shooting, if it is reasonably safe to do so. The LEO will communicate this with command.
7. Additional Rescue Teams are formed as personnel and equipment caches arrive on the scene and enter the building as directed by command.
8. A supply depot will be set up near a secured entry point to allow for quick re-supply and turnaround for Rescue Teams. This area may also serve as the Extraction Casualty Collection Point (CCP).
9. Rescue Team personnel must be aware of surroundings, potential threats such as IEDs, and open routes of rapid egress.

SCAB-E MEDICAL TREATMENT PROTOCOL {credit to Arlington County Fire)

- Situational awareness, Circulation, Airway, Breathing, and Evaluate/Evacuate (SCAB-E)
- Rescue Teams when functioning in the warm zone only provide stabilizing treatment, primarily following tactical care guidelines and life-saving interventions.
- Airway control is not first priority. Exsanguinating extremity wounds are more common in active shooter situations, and a person can bleed to death from a large arterial wound. Life-threatening bleeding is addressed first, followed by airway control. Open chest wounds and tension pneumothorax are addressed third, following the Circulation-Airway-Breathing sequence (CAB).
- Tourniquets are emphasized and prioritized as a quick and effective method to control extremity hemorrhage. Rescue Teams are providing initial temporizing care, then moving on to care for other victims.
- For non-exsanguinating hemorrhage, mechanical pressure dressings with wound packing are used.
- All patients within a reasonable geographic area, not more than earshot of a quiet voice and direct line of sight from the Rescue Teams, will be rapidly triaged and marked with a triage marking system that can be rapidly applied (colored ribbon). Triage tags are not appropriate for use in a warm zone because the time to complete them tends to delay care. It is especially important to identify deceased victims to prevent teams from wasting time re-triaging them.

Secondary Evacuation Team for Patient Evacuation:

- Secondary Evacuation Teams are composed of trained EMS and/or Fire personnel who are tasked with the primary mission of evacuating stabilized casualties.

- Standard triage, treatment, and transport areas must be established far enough away from the scene to afford protection to casualties and medical personnel.
- LEOs assigned to Secondary Evacuation may consider establishing an internal Warm Zone (Tactical) Casualty Collection Point in a secured area approved by LE Command.
- Secondary Evacuation may also consider establishing an Extraction Casualty Collection Point to serve as a temporary way station at the location of the external supply depot.
- Victims will be evacuated as quickly as feasible and safe to the Treatment or Transport Areas operated by non-Rescue Team EMS personnel and located in the cold zone.

Emergency Evacuation of Rescue Team:

- If the zone in which the Rescue Team is operating changes from warm to hot due to a direct and immediate threat, immediate evacuation of the Rescue Team will occur according to direction from the LE members of the Rescue Team or command. This may include partial or complete evacuation from the building.
- If any member of the Rescue Team is injured during operations, immediate evacuation will occur.

Secure Scene:

- Once it is determined by command that the scene is secure (i.e., all perpetrators are under control and there is no risk of secondary threats), Rescue Team procedures will cease. The scene will revert to standard MCI procedures using all available EMS personnel for treating and transporting patients regardless of location.
- Remember that Rescue Team personnel have likely learned more about issues with Active Shooters than most personnel on the scene, and their advice and assistance will be invaluable even after the threat has been eliminated.