2022 STATE PROTOCOL REVIEW

COVER SHEET 6.2.22

The last revision and release for state protocols was 2017, although the process had begun in 2020, COVID-19 greatly impacted the resources needed to carry out the task. Each of the ten sections of protocols will be released for 60-day public comment on a staggered schedule throughout the spring and summer of 2022. The entire suite will be released for adoption upon conclusion of public comment and applicable revisions.

Sections released for public comment will include:

- Cover sheet including dates of recent past revisions and the date of QATF approval for the proposed version (or an indication that no revision was deemed necessary).
- A clean copy of the protocol followed by a track changes version (if revised).
- Public Comment Sheet with the deadline for comments and instructions for submission.

KEY

 EMT-Basic

 EMT-Specialist

 Paramedic

No Icon = all licensure levels

 Medical Control

 Pediatric

RELEASE SCHEDULE

Released	Due			Anticipated Release
		Section 1	General Treatment	TBD
		Section 2	Trauma and Environmental Emergencies	July 2022
		Section 3	Adult Treatment	TBD
		Section 4	Obstetrics and Pediatrics	June 13, 2022 – DUE August 15, 2022
4/25/2022	6/27/2022	Section 5	Adult Cardiac	
		Section 6	Pediatric Cardiac	June 13, 2022 – DUE August 15, 2022
		Section 7	Procedures	TBD
		Section 8	Systems	TBD
6/2/2022	8/5/2022	Section 9 Part A	Medications	
		Section 9 Part B	Medications	July 2022
6/2/2022	8/5/2022	Section 10	Special Operations (minus 4 still in review)	

2022 STATE PROTOCOL REVIEW

				Section 10: Special Operations	**Proposed Version**
Initial Date	**Recent Past Revisions**			**Table of Contents**	
7/1/2005	10/25/2017		10.1	General CBRNE Identification of Agents	NO REVISIONS
7/1/2005	10/25/2017		10.2	Chemical Exposure	NO REVISIONS
4/1/2010	10/25/2017		10.3	Nerve Agent/Organophosphate Pesticide Exposure Treatment	NO REVISIONS
10/25/2017			10.4	Chempack/MEDDRUN	Revised 2022
9/1/2004	10/25/2017		10.5	Cyanide Exposure	Revised 2022
6/1/2009	10/25/2017	10/26/2018	10.6	Mass Casualty Incidents	Will be released at later date
9/1/2004	10/25/2017		10.7	Pre-hospital (EMS) MCA Mutual Aid Agreement	Revised 2022
5/31/2012	10/25/2017		10.8	EMS Immunization & TB Testing	Will be released at later date
5/31/2012	10/25/2017		10.9	Suspected Pandemic Influenza	Will be released at later date
4/28/2017	10/25/2017		10.10	SPRN Transport and Destination Guideline (Optional)	NO REVISIONS
4/28/2017	10/25/2017		10.11	SPRN Patient Contamination Algorithm (Optional)	NO REVISIONS
4/28/2017	10/25/2017		10.12	SPRN Transport Supplies (Optional)	NO REVISIONS
4/28/2017	10/25/2017		10.13	SPRN Transport Procedure (Optional)	Protocol Number Correction Only
4/28/2017	10/25/2017		10.14	SPRN Patient Care During Transport of Suspected Highly Infectious Agent (Optional)	Protocol Number Correction Only
4/28/2017	10/25/2017		10.15	SPRN Ambulance Cleaning and Disinfection (Optional)	Protocol Number Correction Only
10/25/2017			10.16	SPRN Medical Isolation Transport Device (Optional)	NO REVISIONS
4/28/2017	10/25/2017		10.17	SPRN Team Selection Procedure (Optional)	NO REVISIONS
			10.18	SPRN Death During Transport	Will be released at later date

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. Definite pattern of casualties and common symptoms
    - 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 or Emergency Care for Hazardous Materials Exposure.
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 the G series of 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 the worse the exposure.

2. **Nuclear Agents:** Primary risk is massive trauma and devastation as the result of a large scale blast.
3. **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 Treatment** and **Cyanide Exposure 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. 100% Oxygen
      3. If wheezing, administer Albuterol
         a. 2.5 mg/3 ml nebulized
         b. 2-3 puffs from metered dose inhaler
      4. For severe exposure consider early interventional airway and aggressive ventilatory support. (Evidence of non-cardiogenic pulmonary edema)
      5. 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.

Nerve Agent/Organophosphate Pesticide Exposure Treatment

Purpose: This Protocol is intended for EMS personnel at all levels to assess and treat patients exposed to nerve agents and organophosphate pesticides. The protocol includes the use of the Mark I/Duo Dote Antidote Kits and the Atropen auto injector for personnel trained in the use of these devices and authorized by the local medical control authority.

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.

3. Mild Symptoms and Signs:
   A. Threshold Symptoms *plus*:
   B. Constricted Pupils*
   C. Muscle Twitching
   D. Increased Tearing, Drooling, Runny Nose
   E. Diaphoresis
4. Moderate Symptoms and Signs
   A. Any or all above *plus:*
   B. Constricted Pupils
   C. Urinary Incontinence

D. Respiratory Distress with Wheezing
E. Severe Vomiting

5. 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.

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. Antidote administration per Mark I Kit/Duo Dote auto injector Dosing Directive – See Chart


4. Establish vascular access


5. Atropine 2-6 mg IV/IM per Mark I Kit Dosing Directive if Mark I Kit is not available (each Mark I Kit/Duo Dote auto injector contains 2 mg of atropine)

6. Treat seizures
   A. **Adult**

a. Administer **Diazepam** 2-10 mg IV/IM **OR** Midazolam 0.05 mg/kg to max 5 IV/IM
b. Administer **Midazolam** 0.1 mg/kg to max 10 mg IM
c. If available, **Valium** auto-injector

B. **Pediatrics**
a. **Midazolam** 0.15 mg/kg IV/IM (maximum individual dose 5 mg)
b. If available, **Valium** auto-injector

7. Monitor EKG

8. Additional **Atropine** 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatrics) 

*NA Kit Dosing Directive				
	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	1 NA Kit (self-rescue)
ADULT PATIENT	**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)
PEDIATRIC	**Pediatric Patient with Non-Severe Signs/Symptoms**	*Mild or moderate symptoms as above*	Positive evidence of nerve agent or OPP on site	Age ≥8 years old: • As Above Age <8 years old • Per Medical Control
	Pediatric Patient with Severe Signs/Symptoms	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Severe breathing difficulty Weakness	Age ≥ 8 years old: • 3 NA Kits Age < 8 years old: • 1 NA Kit Contact Medical Control as needed

***NOTE: Nerve-agent Antidote (NA) =1 Duo Dote or 1 Mark I**

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 EMS, Trauma and Preparedness (BETP), 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 Communications Agency
         a. Primary: Survival Flight 877-633-7786
         b. Secondary: Aero Med: 616-391-5330
   B. Hospital, Public Health, EOC or Emergency Management
      1. Identifies need
      2. Contact MEDDRUN Communications Agency
         a. Primary: Survival Flight 877-633-7786
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II. CHEMPACK/MEDDRUN Communications Agency:
   A. Conducts analysis & issues deployment orders to selected CHEMPACK/MEDDRUN storage sight, (CSS) Point of Contact (POC).
   B. Contacts the state agency (BETP) Point of Contact: PAGER: 517-232-0007

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. BETP 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 BETP 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, BETP and Communications will prepare a Preliminary After Action Report (AAR) using the format prescribed by BETP. (See AAR attachment) BETP will review each AAR with the intent of improving future responses.

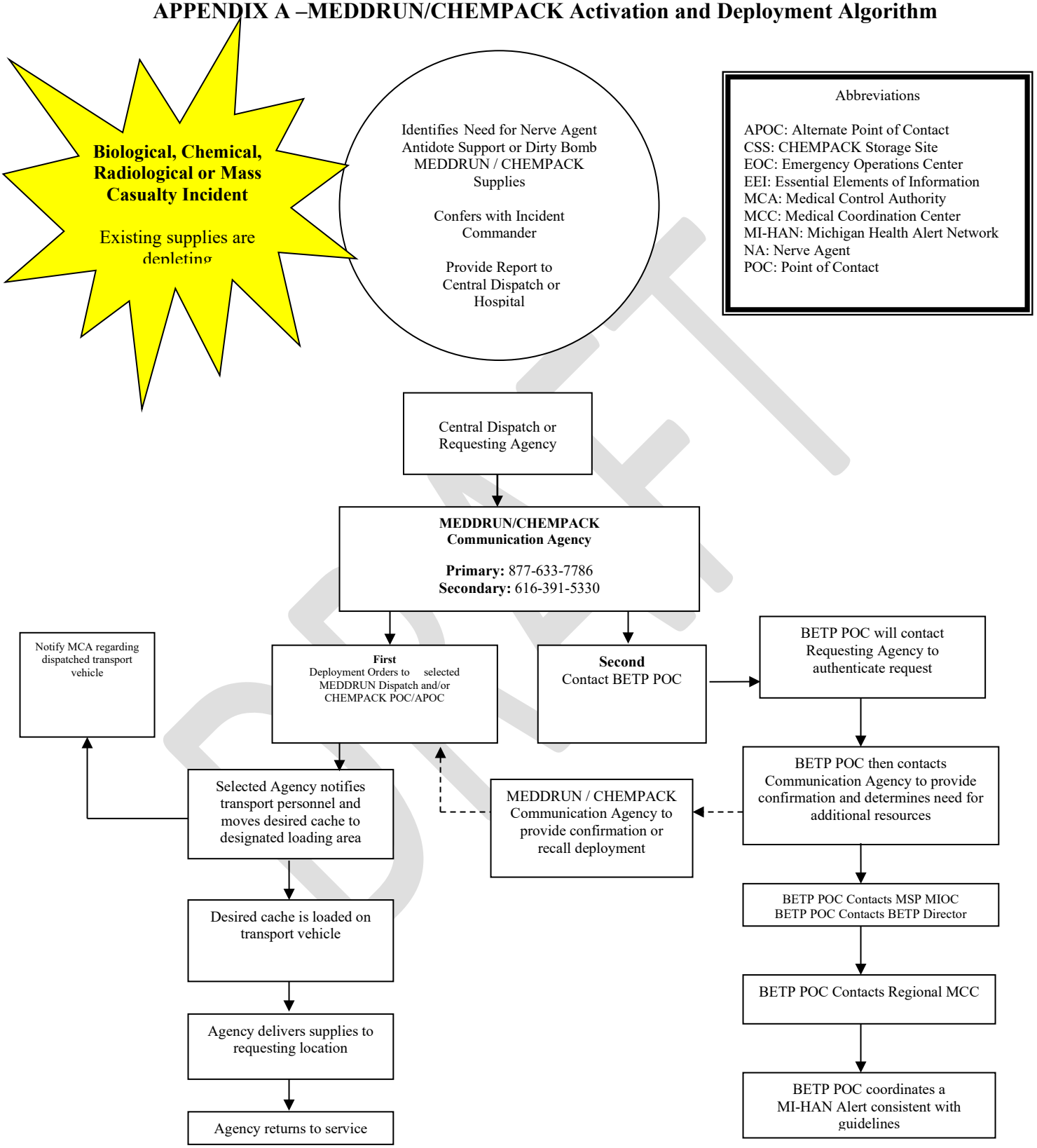
Re-STOCKING MEDPACKS

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 BETP, will be responsible for ordering the supplies to re-stock the MedPack(s)/Chempack(s) used.

II. BETP 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**

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Deleted: BEEPER

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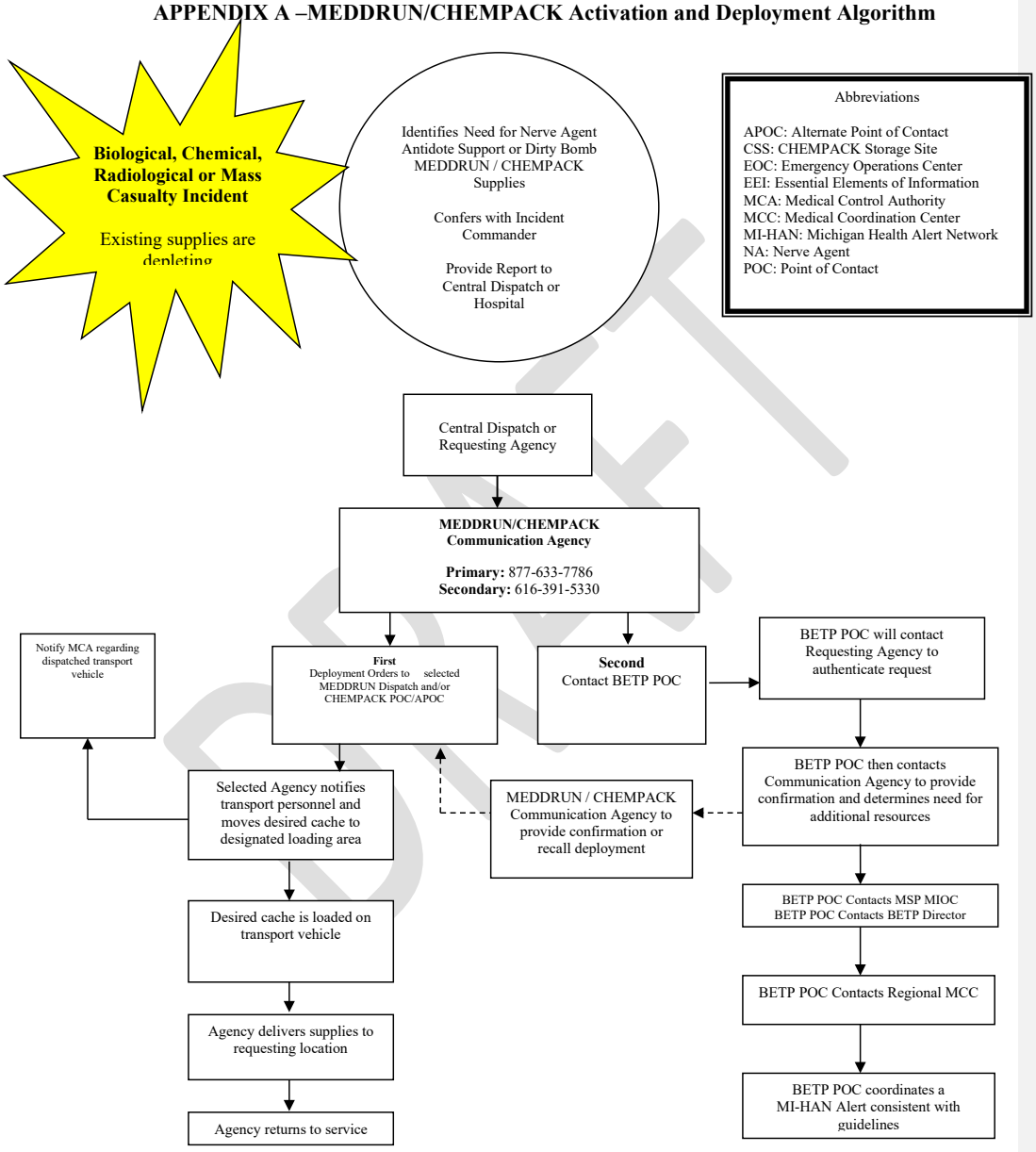
I. It is important that a packs be restocked and placed back in service as quickly as possible. The Agency may be returned to service on a limited basis with a partially depleted MedPack/Chempack. Depending on the availability of federal funds, the Regional Emergency Preparedness Coordinator, in collaboration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

II. BETP 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.

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. Almond Odor
2. Cardiac or Respiratory Arrest
3. Hypotension SBP<90 mm Hg
4. 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**. Refer to Oxygen Administration Protocol and/or Emergency Airway 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 Protocol**
3. Administer antidote:
    a. Cyanokit® (5g. adult IV/IO; 70 mg/kg pediatric maximum dose 1g IV/IO) per **Cyanokit® Protocol** (preferred, per MCA Selection)

Cyanokit® Included?
☐ Yes ☐ No

    b. Each vial of hydroxocobalamin 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. Hydroxocobalamin 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.

Color	Weight	Age	Cyanokit® Concentration	Cyanokit® Dose	Cyanokit® Volume
Grey	3-5 kg (6-11 lbs.)	0-2 months	70 mg/ml	250 mg	10 mL
Pink	6-7 kg (13-16 lbs.)	3-6 months	70 mg/ml	500 mg	20 mL
Red	8-9 kg (17-20 lbs.)	7-10 months	70 mg/ml	625 mg	25 mL
Purple	10-11 kg (21-25 lbs.)	11-18 months	70 mg/ml	750 mg	30 mL
Yellow	12-14 kg (26-31 lbs.)	19-35 months	70 mg/ml	900 mg	36 mL
White	15-18 kg (32-40 lbs.)	3-4 years	70 mg/ml	1100 mg	44 mL
Blue	19-23 kg (41-50 lbs.)	5-6 years	70 mg/ml	1400 mg	56 mL
Orange	24-29 kg (52-64 lbs.)	7-9 years	70 mg/ml	1750 mg	70 mL
Green	30-36 kg (65-79 lbs.)	10-14 years	70 mg/ml	2500 mg	100 mL (1/2 bottle)
ADULT		>14 years	70 mg/ml	5000 mg	200 mL (full bottle)

c. Sodium Thiosulfate
   i. Adults: 50 ml (12.5 g) IV/IO over 10 minutes if available
   ii. For pediatric patients: 1.65 ml/kg (12.5 g/50 ml solution) IV/IO over 10 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).

Cyanide Exposure

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

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

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

Chemical Agent

1. Agents of Concern: 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.
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4. Alert receiving hospital ASAP to prepare additional antidotes

Assessment

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2. Shortness of breath
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Indications for Antidote use in patient with suspected cyanide poisoning:

1. Almond Odor
2. Cardiac or Respiratory Arrest
3. Hypotension SBP<90 mm Hg
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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. **Refer to Oxygen Administration Protocol and/or Emergency Airway 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 Protocol**
3. Administer antidote:
   a. Cyanokit® (5g. adult IV/IO; 70 mg/kg pediatric maximum dose 1g IV/IO) per **Cyanokit® Protocol** (preferred, per MCA Selection)

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

   b. Each vial of hydroxocobalamin 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. Hydroxocobalamin 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.

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Grey	3-5 kg (6-11 lbs.)	0-2 months	70 mg/ml	250 mg	10 mL
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      ii. Presence of soot around the mouth, nose or oropharynx
      iii. Altered mental status
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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.¶
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Initial Date: 09/2004
Revised Date: 10/25/2017
2022 REVISIONS – PUBLIC COMMENT READY Section: 10-7

Pre-hospital (EMS) MCA Mutual Aid Agreement

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.

MCA Name: Click here to enter text.
MCA Board Approval Date: Click here to enter text.
MCA Implementation Date: Click here to enter text.
Protocol Source/References: Click here to enter text.

Michigan
SPECIAL OPERATIONS
PRE-HOSPITAL (EMS) MCA MUTUAL AID
DURING DISASTER~~AGREEMENT~~

Initial Date: 09/2004
Revised Date: 10/25/2017
2022 REVISIONS – PUBLIC COMMENT READY Section: 10-7

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

4. It is in the best interests of ~~participating~~ 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 ~~participating~~ 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.

6. ~~It is agreed that signatories may terminate this agreement without cause by providing a 30 day written notice to all other participating MCAs.~~

MCA Name: Click here to enter text.
MCA Board Approval Date: Click here to enter text.
MCA Implementation Date: Click here to enter text.
Protocol Source/References: Click here to enter text.

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Transportation and Destination Guidelines

Purpose:

This protocol is to assist inter-facility transport of patients believed to be infected with a "*special pathogen*" to a hospital that may be outside of the local Medical Control Authority.

Definition:

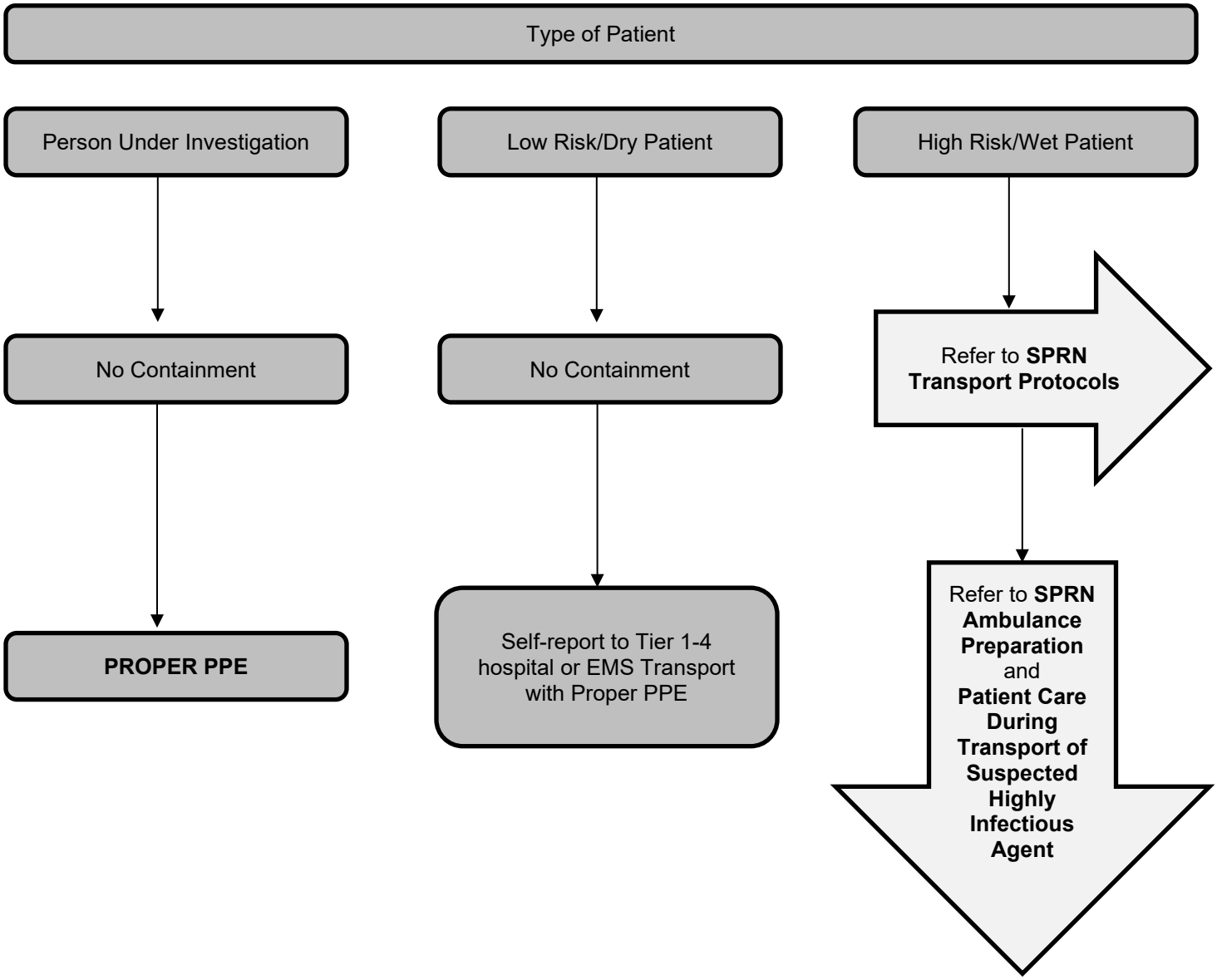
"*Special pathogen*" refers to highly-infectious diseases, including hemorrhagic viral diseases (HVDs) such as Ebola and similar infections.

Transport Destination Decision

1. The patient will be transported to the closest appropriate hospital capable of providing the services needed. *The closest appropriate hospital may be outside of an agency's primary service area.*
2. Inter-facility transport of patients is permitted by pre-identified transport teams to hospitals that may originate and end outside of the transporting agency's Medical Control Authority when no local pre-identified specialty transport team is available.

SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)
PATIENT CONTAINMENT ALGORITHM (Optional)

Initial Date: 04/28/17
Revised Date: 10/25/2017 Section 10-11



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MCA Board Approval Date: Click here to enter text.
MCA Implementation Date: Click here to enter text.
Protocol Source/References:

Transport Supplies

Suggested Supplies to be Immediately Available:

- ☐ Manual Suction
- ☐ BP cuff (manual, disposable)
- ☐ Pulse Ox (disposable)
- ☐ Emesis containers (sealable)
- ☐ Absorbent paper towels
- ☐ Sharps Container (small)
- ☐ Nitrile gloves box (Small, Medium, Large, Extra-large)
- ☐ Small trash bags
- ☐ Disinfectant wipes for surfaces
- ☐ Disinfectant wipes for skin
- ☐ Portable 02 tank (15 LPM capable)
- ☐ Nasal Cannula/NRB
- ☐ Cooler/ice packs
- ☐ Blankets (Space)
- ☐ Pillow
- ☐ Trauma Shears
- ☐ 2 Buckets (for bodily fluids, hold trash bags, use for cleaning)
- ☐ Time Keeping Device
- ☐ Sedation and/or pain control guidelines as applicable
- ☐ Medications, needleless delivery system

Suggested Supplies to be in accompanying vehicle or with driver:

- ☐ IV Kit/Fluid/Saline Lock
- ☐ 4X4 and/or Abdominal Pads
- ☐ Tape
- ☐ Rolled Gauze
- ☐ Body bag
- ☐ Cleaning / decontamination equipment
- ☐ Solidifier for liquids
- ☐ Donning/doffing protocols and checklists

Cleaning and Decontamination supplies (in accompanying vehicle or with driver):

- ☐ Towels & Cleaning Rags (disposable)
- ☐ Solidifier
- ☐ Bucket for cleaning
- ☐ EPA registered cleaning product with instructions for use
- ☐ Biohazard bags (~20)
- ☐ Box for Biocell / Visquine disposal
- ☐ Zip ties for trash

- ☐ Bleach wipes for outside of Biohazard bags
- ☐ Procedure for cleaning/disinfection
- ☐ Procedure for waste handling

Suggested PPE per team members:
(PPE should cover all skin, mucous membranes and protect against inhalation of aerosolized particles)

☐ Fluid-resistant or impermeable coveralls (appropriate sized suits)	2
☐ Fluid-resistant or impermeable boot covers	2
☐ Powered air-purifying respirator (PAPR)	1
☐ PAPR batteries	2
☐ PAPR filters	1 set
☐ PAPR hoods	1
☐ PAPR hose and clamp	1
OR	
☐ Full-face respirators with appropriate cartridges for protection	2
☐ Surgical Cap/Hair Cover (2)	2
☐ N-95 Respirator	1
☐ Biohazard bags (Large)	30
☐ Biohazard Receptacles (1 small for sharps)	
☐ Nitrile gloves box (1 each of Small, Medium, Large, Extra-large)	1EA
☐ Hand sanitizer (1 bottle)	10
☐ Absorbent rags (package)	
☐ Caution tape (yellow 200' roll)	
☐ Duct tape (roll)	
☐ Buckets (2)	2
☐ Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes	
☐ Trauma Shears (for Biocell/Visquine removal)	2
☐ Doffing Pad (Large Fluid Absorbent Fabric) (2)	2

References

January 28, 2016 Guidance for developing a plan for interfacility transport of persons under investigation or confirmed patients with Ebola virus disease in the United States

Nebraska Biocontainment Unit and Healthcare and Emergency Responder Organization Education through Simulation (HEROES)

Transport Procedure

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as "Category A" agents.

1. Patient belongings
   A. All patient belongings shall be kept in transport vehicle and only be removed at the final destination.
   B. Belongings shall be placed in a biohazard bag if possible and sealed in a manner that will prevent any further contamination to its surroundings.
   C. Belongings will be labeled with the patient name and identification.

2. Documentation
   A. Pt documentation may be performed in a normal manner as outlined by the transporting agencies guidelines. A note pad may be used to document vital signs and times during transport.
   B. All documentation should be performed after the transport is complete as to avoid contamination of equipment and materials. Any materials used for documentation in the patient environment (such as Toughbook, tablets, clipboards etc.) shall be cleaned, disinfected, and decommissioned for the same duration as the transport vehicle and equipment involved in transport.

3. Travel plans
   A. The MDHHS will be the central coordinating agency for the patient transport. Local and state authorities will assist in planning the path of travel so as to assist in the event of an emergency.
   B. A predetermined route will be planned in conjunction with the sending facility, transport agency, receiving facility or airport, and any facilities in between sending facility and receiving facility that are willing to participate and accommodate transport crews for crew changes or emergency procedures.
      a. Path of travel should be planned out in a way that will keep transport crews on as many major roads as possible to ease the ability of possible responding ems agencies to locate them in the event of an emergency or accident.
      b. Consider communication to potential Medical Control Authority along the path of travel in the event that assistance is required.
      c. Transport team shall attempt to solve any in transport emergencies without involving any outside responding agencies whenever possible.
      d. During transport, hospitals located along an extended route (over 2 hours) may act as Patient Transfer Points (PTP). PTP will be identified and notified prior to patient transport. Although the patient will not leave the transport vehicle, PTP may be used to allow EMS personnel to change staff.

4. Destination arrival
   A. The patient will be accepted by healthcare workers at the hospital or airport directly from the EMS transport rig. EMS team should not leave the designated "hot zone" or "dirty area" until PPE is doffed per protocol. If there is not an appropriate area for complete decontamination at the receiving facility (such as an airport), decontamination should occur at the closest appropriate doffing area. This will prevent the transmission of the pathogen via accidental contamination to the environment.
   B. After proper doffing of PPE, the safety officer, receiving facility or other team members will evaluate and care for crew members involved in transport.
      a. Post vital signs should be recorded.
      b. Evaluation for any exposure to the pathogen.
      c. Food, fluids and lodging may be provided until the receiving facility feels the personnel are fit and able to make the return trip home.
   C. To minimize further contamination of "clean personnel", only those involved in actual patient transport may operate the transport vehicle during the return trip. It is anticipated that the person will drive the return trip.
   D. Follow cleaning and disinfection of the Ambulance procedure prior to leaving receiving hospital. After airport transfer, the ambulance will go to the designated PTP to doff PPE, and follow cleaning and disinfection procedures prior to resuming the return trip to the agency.
   E. The receiving facility or PTP shall accept and properly dispose of any PPE and other material(s) used in the transport vehicle.
   F. Upon arrival back to the home agency, the vehicle and equipment may be sequestered for a predetermined amount of time to allow for full decontamination.
   G. This time will be dependent on the pathogen and current guidelines.
   H. No vehicles or equipment shall be placed back into general service prior to completion of the vehicle quarantine.
   I. If the vehicle is needed prior to completion of quarantine for transport of like case, guidance will be sought from the MDHHS and CDC.

References:

Guidance for Developing A Plan for Interfacility Transport of Persons Under investigation or Confirmed Patients with Ebola Virus Disease in the United States:
http://www.cdc.gov/vhf/ebola
Bratt, J., Robinson, A., and Alcorta, R. (n.d.). Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak. (Accessed 8/1/2016.) Maryland Institute for Emergency Medical Service Systems.
Lowe et al: *Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. Prehospital Emergency Care* October

Patient Care During Transport of Suspected Highly Infectious Agent

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as "Category A" agents from a health care facility to another, more specialized health care facility.

The EMS Agency Will

A. Prior to transport, the transporting agency will communicate with the sending (departing) and receiving (arriving) hospital facility to coordinate existing and anticipated patient care needs.
    a. Determine the medical authority for the patient while in transit. Refer to the state protocol.
    b. Determine the number and mix of staff needed to provide care during transport.
    c. Assure that equipment, devices, and crew can fit into the load-carrying dimensions of all planned transport vehicles.
    d. Determine if the patient has proper identification for transport.
    e. Determine method for patient tracking.
    f. Determine method to document patient care while preventing contamination.

B. Assess and develop plans for:
    a. Physical needs of the patient: baseline vital signs via non-invasive method. Use blue tooth technology, disposable O2 saturation monitor.
    b. Assess ability to provide for physical comfort of patient:
        i. Heat
        ii. Air flow
    c. Plans for failure of equipment.
    d. Identified pre-existing conditions that will require medication or other means of support (such as diabetes, oxygen therapy, etc.). Identify method to support these conditions if necessary.
    e. Avoid use of sharps (needles, lancets) unless necessary. Dispose in sharps container.
    f. Identify current life support status and identify procedures that will or will not be performed during transport.
    g. Identify medications necessary for patient comfort during transport: sedation, pain, nausea.
    h. Identify method to handle fluid loss (vomiting, diarrhea, urine) during transport.
        i. Patient wipes absorbent pads, solidifier, trash bags, duct tape.
        ii. Wipes for cleaning and disinfection of spills. Minimize the use of bleach wipes during transit to prevent overpowering fumes.

C. Provide for crew safety during transport
    a. Assess how communication will occur among all crew.

b. If PPE is breached, crew should wipe affected area with bleach and communicate breach immediately to supervisor.
c. Plans should include area for emergency doffing of PPE for crew safety.
d. Identify nearest Patient Transfer Point (PTP) to provide relief of staff.

Ambulance Cleaning and Disinfection

Purpose:
Proper cleaning and disinfection of an ambulance and equipment are necessary to reduce the bioburden of disease and prevent secondary transmission of a known or unknown highly contagious disease. The process describes the measures needed to clean and disinfect an ambulance prior to its return to service following the transport of a patient with a known or suspected Category A disease.

Note: *All disinfection should use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces at appropriate concentration and contact time.*

1. This process is to be done after the Biocell or visquine (see procedure) has been removed.
2. Site Set Up
   A. Select an appropriate site for ambulance decontamination that protects the vehicle and the decontamination team from weather elements, preferably a well-ventilated large enclosed structure.
   B. Establish a secure perimeter for safety of the public and decontamination personnel.
   C. Include considerations for waste management, security plan, public perception, and media visibility when selecting decontamination site.
   D. Depending on the location, the ability for climate control is beneficial.
   E. Define and mark hot, warm, and cold zones of contamination[1] around the ambulance that require PPE to enter.
3. Prior to cleaning
   A. The patient care provider (while wearing "dirty PPE") will remove all equipment, supplies, linen, waste PRIOR to leaving the vehicle and before Biocell/Visquine liners are removed from inside the ambulance. Equipment will be placed in the warm zone.

[1] The hot zone is considered an area that is known or suspected to be contaminated and has a high risk of exposure. It should only be entered with full PPE. In ambulance decontamination, this would be the vehicle and an area about a meter beyond the ambulance.
The warm zone can be considered a transitional area between the hot and cold zones that has no known contamination but has a moderate risk of exposure. It should only be entered when wearing full PPE. This is also the area where one begins the initial portion of the doffing process (following a full suit wipe down within the hot zone) when leaving the hot zone. For ambulance decontamination, the warm zone can also be the place where waste barrels are pre-positioned so that the waste bags can be placed directly into the containers without entering the hot zone.
The cold zone is considered an area that has no contamination and no potential risk for exposure. The individuals in this area are not required to wear PPE, although the cold zone will often also serve as the PPE donning area.

B. All waste, including PPE, drapes, and wipes, should be considered Category "A" infectious substance, and should be packaged appropriately for disposal.
C. The driver or other personnel will be responsible for cleaning and disinfection of the transport unit. One to two people will clean and disinfect; a third in PPE will observe and be available to assist as necessary
D. The cleaning teams will don CLEAN PPE per protocol.
E. Any areas that are visibly contaminated with the patient's body fluids should be decontaminated first with an approved EPA-registered disinfectant for the appropriate contact time before soaking up the fluid with absorbent materials.
F. Place biohazard bag in container close to exit for used cleaning cloths.

4. <u>Cleaning and decontamination</u>
   A. Cleaning will be done beginning at an entrance to the ambulance, and moving towards the dirty area. This way, the clean personnel will remain clean as they enter the vehicle and stay in a "clean" area until they exit at the opposite end of the ambulance.
   B. Mix EPA registered cleaning disinfectant per manufacturers' guidelines. All products will have instructions for cleaning and disinfection. Note the manufacturers' "dwell time" or the amount of time a surface must stay wet AFTER cleaning to achieve disinfection.
   C. Using disposable cloths begin cleaning <u>all surfaces</u> as the vehicle is entered.
   D. Remove visible soiling of all surfaces.
   E. Allow surface to stay wet during dwell time. Reapply cleaner if necessary.
   F. Change cloths frequently during cleaning process. Place cloths in biohazard bag.
   G. Manually wipe down the ambulance's exterior patient loading doors and handles, and any areas that may have been contaminated, with disinfectant. The exterior of the ambulance does not require a full disinfectant wipe down.
   H. After ambulance is cleaned, clean re-usable medical equipment.
      a. Using the above process, clean then disinfect the outside of any prepositioned but unused medical equipment (still inside the protective bags they were placed in).
      b. If the equipment was removed from a protective bag in transit, assess the equipment to determine if it can be properly cleaned and disinfected, or disposed of.
   I. Once cleaning and disinfection has been completed, collect and package all waste as Category "A" waste. Dispose of all waste according to organization protocols as well as local and federal regulations for Category "A" infectious substances.

J. Remove PPE per checklist. A third person who has been in the cold zone should supervise doffing, which should be performed according to organization doffing protocols.

5. Further options for decontamination
   A. Additional cleaning methods can also be used. While not required, this may provide additional assurance to personnel and public prior returning the vehicle to service.
   B. Ultraviolet germicidal irradiation, chlorine dioxide vapor, or hydrogen peroxide vapor can be used for an additional decontamination step. However, these should not replace the manual cleaning and disinfection, as their efficacy against organisms in body fluids has not been fully established and these methods may require specialized equipment and PPE.
   C. The ambulance can then be returned to service.

Materials and equipment needed to decontaminate an ambulance (items listed are per person decontaminating)

	Fluid-resistant or impermeable coveralls (appropriate sized suits)	2
	Fluid-resistant or impermeable boot covers	2
	Powered air-purifying respirator (PAPR)	1
	PAPR batteries	2
	PAPR filters	1 set
	PAPR hoods	1
	PAPR hose and clamp	1

OR

	Full-face respirators with appropriate cartridges for protection	2

	Surgical Cap/Hair Cover	2
	N-95 Respirator	1
	Biohazard bags (Large)	30
	Biohazard Receptacles (1 small for sharps)	
	Nitrile gloves box (Small, Medium, Large, Extra-large)	1 EA
	Hand sanitizer (1 bottle)	10
	Absorbent rags (package)	
	Caution tape (yellow 200' roll)	
	Duct tape (roll)	
	Buckets	2
	Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes	
	Trauma Shears (for Biocell/Visquine removal)	2
	Doffing Pad (Large Fluid Absorbent Fabric)	2

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Medical Isolation Transport Device

Definition:

A Medical Isolation Transport Device is a vinyl enclosed patient containment device. It creates a negative air environment when closed. It is used for the transport of highly infectious disease patients either internally at a facility or from one facility to another.

1. Patient will be transported in impervious suit if ambulatory, in impervious suit and sheets (as tolerated) if stretcher bound or in isolation pod, as indicated. All transferred patient belongings are considered contaminated and are typically bagged, labeled, and transferred with patient.
2. Any patient care documents should be free of contamination. When in doubt, consider them contaminated and package as appropriate for transport with patient. It may be desirable to store and transmit patient care records electronically if feasible.

Indications for use:

1. A known or suspected case of highly infectious disease that may have been acquired via travel, health care provider, or lab.
2. Drug resistant organism
3. Some Medical Isolation Transport Devices may be used as a positive air environment to transport a patient with known immune deficiency or burns.

Things to know regarding use of Medical Isolation Transport Device:

1. Assess if MEDICAL ISOLATION TRANSPORT DEVICE outside straps are approved for transportation. General rule: vinyl straps are not tested and approved, but some material straps (such as those used in seat belts) may have been tested and approved.
2. The head of the Medical Isolation Transport Device should be placed at the head of the gurney or cart, so the patient is always moving feet first.
3. The white noise created by the blower motor will reduce patient and staff level of hearing.
4. Be careful that wind may catch and move the Medical Isolation Transport Device, especially when unsecured.
5. As the outside temperature increases, the temperature inside the Medical Isolation Transport Device will also increase.
6. After using the Medical Isolation Transport Device during a drill, it may be cleaned and disinfected for future use. Some disinfectants may leave a residue that can be wiped off with a clean towel.
7. In some cases where the disease is treatable, the Medical Isolation Transport Device can be cleaned, disinfected and readied for re-use as per direction of MDHHS, Subject Matter Experts (SME), and in consultation with manufacture.

Readying for use and patient placement:

1. Consider equipment that will be used for the patient and how it will be placed into the Medical Isolation Transport Device.
   a. Blankets and pillows will not fit through the access ports.

   b. IV's, defibrillator, and pulse oximetry will remain outside the Medical Isolation Transport Device with the wires and tubes snorkeled through the ports.
   c. Keep the snorkel port closed tightly with Velcro to minimize the potential for contamination outside the Medical Isolation Transport Device.
   d. Keep the access ports closed.
   e. Wear exam gloves when using the glove ports.
   f. If the gloves inside the Medical Isolation Transport Device become damaged, gently twist the glove at the port, and secure with tape to maintain air pressure and prevent contamination outside the Medical Isolation Transport Device.
2. Roll the Medical Isolation Transport Device on the gurney. Use Belts to attach to the gurney. Assure that the belts do not interfere with any moving parts of the gurney.
   a. Restraints within the Medical Isolation Transport Device may only be used per order of a physician.
3. Connect the blower motor, inlet and outlet filters as per manufacturer's recommendations. Turn on blower.
   a. Assure the motor remains unobstructed.
   b. Assure that the battery is charged and know how long the charge will last.
4. Place patient in the Medical Isolation Transport Device. Patient may be wearing gown, gloves, and mask to minimize contamination of the outside of the Medical Isolation Transport Device.
5. Place ribs/spine of the Medical Isolation Transport Device per manufacturer's instructions. Close zipper. Patient should remove mask while in Medical Isolation Transport Device.
6. Wearing clean PPE, clean and disinfect the outside of the Medical Isolation Transport Device before transport. Follow dwell times for disinfectant.
7. Transport patient.

Patient Handoff:

1. EMS removes Medical Isolation Transport Device from rig into designated "dirty" area outside the rig.
2. Hospital personnel in PPE will clean and disinfect the outside of the Medical Isolation Transport Device. Gurney will be placed so as to straddle dirty and clean area. Patient bed will be placed in clean area. Staff who have cleaned the Medical Isolation Transport Device will remain on dirty side of gurney and will assist 2nd team of PPE donned staff on clean side to move Medical Isolation Transport Device onto patient bed.
3. "Soiled" Hospital personnel (who cleaned the Medical Isolation Transport Device) will assist EMS to doff in designated "dirty area". After doffing, these hospital personnel will doff PPE per protocols.
4. EMS will use 2nd team to clean and disinfect rig before leaving. Waste will be contained at the receiving hospital. Gurney will be cleaned and disinfected.
5. 2nd team of Hospital personnel in clean PPE will move patient to care area.
6. Medical Isolation Transport Device may be disposed of per manufacturer's instructions or consultation with SME.

Team Selection Procedure

Purpose
The purpose of this procedure is to provide guidance in selecting qualified and support training of EMS personnel willing to transport a patient with known or suspected highly infectious disease including pathogens referred to as “Category A” agents.

1. The selected team members will be chosen according to
   A. Previous physical and mental health history
   B. Ability to be in service and away from home for an extended period of time
   C. Knowledge of the potentially hazardous situation to which they may be placed
   D. Additional assets of team members may include:
      a. Able to work in a restrictive environment
      b. Critical thinking skills
      c. Participation in education sessions, exercises and drills
      d. Able to follow strict guidelines to ensure the safety of the entire unit

2. It is recommended that each team member may have on file with their agency
   A. Two or more emergency contacts
   B. Hospital or Health care system of preference
   C. Blood type
   D. Religious preference
   E. Advanced directives (if applicable)

3. Team member health status
   A. Each team member shall be compliant with and have documentation they have passed the medical screening requirements of the agencies Respiratory Protection Program. This includes acknowledging a new history of respiratory diseases (i.e. asthma, chronic lung disease, or upper respiratory infection) that would interfere with wearing a fully enclosed respiratory device, such as a PAPR or would involve removal of the PAPR hood for medication administration.
   B. Consideration should be given to any team member having a condition that affects them while being in an enclosed environment.
   C. Each team member shall be free of any medical conditions that require medication administration in any less than 6 hour increments.

4. Prior to transport:
   A. Team members providing care in patient compartment shall have vital signs assessed prior to transport.
      a. Vital signs must fall with preset parameters (suggestions e.g.: systolic blood pressure less than 150; diastolic blood pressure less than 90; resting heart rate less than 100).
   B. The name of each team member who has direct contact with the patient or the patient environment will be recorded.

5. Post-transport:
   A. Team members will receive a medical evaluation to include
      a. Blood pressure
      b. Heart rate
   B. May include
      a. Blood glucose
      b. Assessment for dehydration
   C. Information will be kept in the employee health file

6. Team member roles and responsibilities: The number and make up of healthcare providers needed during the transport may be based on the patient's condition and length of the transport. Below are suggestions that define roles and responsibilities of team members.
   A. One or more **direct care providers** will remain with the patient in the back of the transport vehicle to provide care and comfort. This area is considered "contaminated" or "soiled". Team members should attempt to limit their time in full PPE to two (2) hours.
   B. The **driver of the transport vehicle** will remain in the front cab. This area is considered "clean". Although the driver may wear PPE, the driver is considered "clean".
   C. The **chase team** may consist of enough personnel (up to 6 to 7 employees) to accommodate crew changes, to take place at designated site and at designated intervals. The purpose of the chase team is to ensure personnel do not become fatigued or in danger of dehydration or malnourishment. The chase team may be members of another transport agency.
   D. The chase team may consist of a **medical officer** who will not be involved in the actual transport and care of a patient; his or her sole responsibility will be to attend to any personnel that fall ill or succumb to any injury during transport.
   E. The chase vehicle shall carry enough Personal Protective Equipment (PPE) to cover each team member on the transport team. Extra PPE shall also be carried in chase vehicle in the event of rips or tears in PPE gowns or malfunctions in PAPR operation.
   F. It is recommended that an operations supervisor or special operation supervisor be included in the transport chase team and act as **safety officer**.
   G. A second ambulance may follow transport vehicle and supervisor vehicle in the event of a mechanical failure during transport.

7. Post trip monitoring
   A. Any crew member that had any duration of time spent in the transport vehicle with the patient may be placed on a paid leave for a duration determined by his or her employer.
   B. Any crew member that had any duration of time spent in the transport vehicle with the patient will be appropriately monitored according to their employer procedure.

8. Public information
   A. Any communication with the public, media or other EMS, fire or police agencies shall be handled by a designated person, as outlined in transport agency or sending facilities policies.
   B. At no time shall any transport team member be subject to inquiries from outside agencies, media, or family members.
   C. Team members shall follow the State of Michigan Communicable disease rules when divulging any details of patient transport.

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