

Southeast Michigan Regional Protocol
TRAUMA AND ENVIRONMENTAL
POISONING/OVERDOSE/ENVIRONMENTAL EXPOSURE

Initial Date: 11/15/2012
Revised Date: 10-22-2020
Section 2-9

Poisoning/Overdose/Environmental Exposure

GENERAL MANAGEMENT OF TOXIC EXPOSURE (INCLUDING INGESTION)

1. Follow **General Pre-hospital Care Protocol**.
2. Use proper protective equipment and prepare for decontamination if necessary.
3. Remove clothing exposed to chemical (dry decon).
4. Identification of the substance (patient has been exposed to).
5. If altered mental status, refer to **Altered Mental Status Protocol**.
6. If respiratory distress, refer to **Respiratory Distress Protocol**.
7. If the patient is seizing, refer to **Seizure Protocol**.



8. Alert receiving hospital if patient may present HAZMAT risk.
9. Sample of drug or substance and any medication or poison containers should be brought in with patient if it does NOT pose a risk to rescuers.



10. Refer to **Pain Management Procedure**

INHALATION EXPOSURES:

1. Ensure high concentration of oxygen is provided.
2. If suspected cyanide gas exposure, refer to **Cyanide Exposure Protocol** and contact medical control immediately.

INGESTION:

1. Use protective eye equipment.
2. If suspected opioid overdose, refer to **Naloxone Administration Procedure**.



3. If cardiac dysrhythmia, refer to appropriate dysrhythmia protocol.

4. For extrapyramidal dystonic reactions, administer Diphenhydramine
 - a. For adults, 50 mg IV.
 - b. For pediatrics 1 mg/kg IV (max dose 50 mg).



5. For symptomatic tricyclic antidepressant ingestions (tachycardia, wide complex QRS), administer sodium bicarbonate
 - a. Adults 50 mEq IV, repeat as needed.
 - b. Pediatrics 1mEq/kg IV, repeat as needed.
6. For symptomatic calcium channel blocker overdose, consider Calcium Chloride
 - a. Adults 1 gm IV.
 - b. Pediatrics 20 mg/kg IV (max dose 1 gm).

EYE CONTAMINATION:

1. Irrigate continuously with Normal Saline or tap water for 15 minutes (attempt to continue enroute) or as directed by Medical Control.
2. For alkali exposure, maintain continuous irrigation.

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3. If available, administer Tetracaine, 1-2 drops per eye to facilitate irrigation. Ensure patient does not rub eye.

SKIN ABSORPTION:

1. Brush off dry chemicals before irrigation
2. Irrigate continuously with Normal Saline or tap water for 15 minutes or as directed by Medical Control.

MANAGEMENT OF BITES AND STINGS

SNAKES:

1. Follow **General Pre-hospital Care Protocol**.
2. Initiate general care for snake bites:
 - a. Remove patient from proximity of snake
 - b. Determine if Localized or Systemic symptoms:
 - i. Localized Signs/Symptoms (pain and swelling, numbness/tingling, bruising)
 1. Consider pain management, refer to **Pain Control Protocol**
 - a. Fentanyl is preferred - avoid Morphine if possible as the histamine release from morphine may lead to confusion between envenomation vs medication effects
 - ii. Systemic Signs/Symptoms (hypotension, altered mental status, hemorrhage, airway swelling/compromise)
 1. Prepare to manage obstructed airway & hypotension; if necessary, refer to **Respiratory Distress Protocol, Shock Protocol** and/or **Anaphylaxis/Allergic Reaction Protocol**
 2. Consider pain management, refer to **Pain Control Protocol**
 - a. Avoid morphine if possible
 - c. Obtain specific snake information:
 - i. Snake description: species, color, rattle, elliptical pupils, or thermal pit (photos are encouraged, **DO NOT** collect a dead snake unless you are certain that it is deceased as snakes can reflexively bite after “death”)
 - ii. Appearance of wound: location, puncture marks and number, timing of bite, and prior first aid
 - d. Remove all constricting items from bitten limb (rings, jewelry, watch, clothing etc.)
 - e. Immobilize bitten part below the level of the heart (sling, loose wrapping)
 - f. Initiate prompt transport
 - g. If present, mark margins of erythema and/or edema with a marker and include time measured
 - h. Do **NOT** use ice, refrigerants, tourniquets, scalpels or suction devices
 3. Specific Precautions:
 - a. Eastern Massasauga Rattlesnake is the only venomous snake native to Michigan.

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- b. Exotic venomous snakes i.e. pets/zoo animals, are common; please obtain pet owner/zookeeper species information and antivenom if available on-scene. Antivenom should be available on-site if patient is coming from a zoo.
- c. Transport should be to the nearest medical facility with antivenom for patients that have systemic signs/symptoms as listed above.

SPIDERS AND SCORPIONS:

1. Protect rescuers. If possible, take a photo of the spider or scorpion for identification; do NOT bring in spider or scorpion unless absolutely certain it is dead.
2. Ice for comfort on spider or scorpion bite.

BEEES, CENTIPEDES, SLUGS, AND WASPS:

1. Remove stinger by scraping out. Do not squeeze venom sac if this remains on stinger.
2. Provide wound care.
3. Observe patient for signs of systemic allergic reaction. Treat anaphylaxis per **Anaphylaxis/Allergic Reaction Protocol**.

ANIMAL BITES:

1. Assure scene safety and contact Police or Animal Control Officer if necessary.
2. DO NOT collect live animals to avoid self-injury; delegate collection of animals to Animal Control Officer, if necessary, for rabies identification. Do NOT bring live animals to the Emergency Department or healthcare facility.
3. Follow **General Pre-hospital Care Protocol**.
4. If necessary, refer to **Pain Control Protocol**.
5. If necessary, control major external bleeding. Refer to **Soft Tissue and Orthopedic Injuries Protocol**.
6. Rabies evaluation:
 - a. The following animals are known transmitters and confer risk requiring emergent evaluation: Bat, Skunk, Fox, Dog, Cat, Ferret, Livestock, Opossum, Woodchuck
 - b. Obtain the following animal information: type/species of animal, wild/stray vs domestic, bite vs scratch, animal immunization status, and if animal collection was possible
 - c. All patients at risk for rabies exposure should be transported, follow local MCA transport protocols. If patient refuses transport, they should be advised to seek immediate medical evaluation for rabies evaluation and possible vaccination. Document the refusal per the **Refusal of Care; Adult and Minor Protocol**.
7. For additional information, see www.michigan.gov/rabies or contact Michigan Department of Health and Human Services: Communicable Disease Division
8. Contact Medical Control as necessary

NERVE AGENT/ORGANOPHOSPHATE EXPOSURE

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1. **Evaluate for signs and symptoms of exposure:** Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermotility, Emesis, Muscle twitching or spasm (seizures)
 - a. **Minor symptoms only** – alert, salivation, eye watering, dim vision, drooling, nasal drainage, constricted pupils, abdominal cramps, diaphoresis
 - b. **Moderate symptoms** – alert, vomiting, muscle twitching, increase in minor symptoms
 - c. **Severe signs & symptoms** – decline in LOC, urinary incontinence, defecation, severe muscle twitching, seizure, respiratory distress/wheezing
2. Evaluate and maintain the airway, provide oxygenation and support ventilation as needed.
3. NOTE: Anticipate need for extensive suctioning
4. Antidote administration per Mark I Kit/Duo Dote auto-injector Dosing Directive – See Chart
5. Establish vascular access 
6. 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) 
7. Treat seizures
 - a. **Adult**
 - i. Administer Midazolam 10 mg IM prior to IV start
 - ii. (or) if IV/IO already established, administer Midazolam 5 mg IV/IO
 - iii. (or) If available, Valium auto-injector
 -  **b. Pediatrics**
 - i. Administer Midazolam 0.1 mg/kg IM (maximum individual dose 10 mg) prior to IV start
 - ii. (or) if IV/IO already established, administer Midazolam 0.05 mg/kg IV/IO (maximum individual dose 5 mg)
 - iii. (or) If available, Valium auto-injector
8. Monitor EKG
9. Additional **Atropine** 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatric: 
10. For severe symptoms (if 3 Nerve-agent Antidote kits are administered), administer benzodiazepine as noted for seizures.

*NA Kit Dosing Directive			
Clinical Findings	Signs/Symptoms	Required Conditions	NA Kits To Be Delivered

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S E L F - R E S C U E	Threshold Symptoms	<ul style="list-style-type: none"> • 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)
A D U L T P A T I E N T	Mild Symptoms and Signs	<ul style="list-style-type: none"> • Increased tearing • Increased salivation • Dim Vision • Runny nose • Sweating • Nausea/vomiting • Abdominal cramps • Diarrhea 	Medical Control Order	1 NA Kit
	Moderate Symptoms and Signs	<ul style="list-style-type: none"> • Constricted pupils • Difficulty breathing • Severe vomiting 	Constricted Pupils	2 NA Kits
	Severe Signs	<ul style="list-style-type: none"> • Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing 	Constricted Pupils	3 NA Kits (If 3 NA Kits are used, administer 1 st dose of available benzodiazepine)
P E D I A T R	Pediatric Patient with Non-Severe Signs/Symptoms	<i>Mild or moderate symptoms as above</i>	Positive evidence of nerve agent or OPP on site	Age ≥8 years old: <ul style="list-style-type: none"> • As Above Age <8 years old <ul style="list-style-type: none"> • Per Medical Control
	Pediatric Patient with Severe Signs/Symptoms	<ul style="list-style-type: none"> • Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing 	Severe breathing difficulty Weakness	Age ≥ 8 years old: <ul style="list-style-type: none"> • 3 NA Kits Age < 8 years old: <ul style="list-style-type: none"> • 1 NA Kit Contact Medical Control as needed

MCA Name: DEMCA

MCA Board Approval Date: January 19, 2021

MCA Implementation Date: June 1, 2021

Protocol Source/References:

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

