Bayfield-Ashland Counties EMS TOXINS / ENVIRONMENTAL Chemical Exposure	EC-1 ACETYLCHOLINESTERASE INHIBITORS

SITUATION: Exposure to acetylcholinesterase inhibitor, ATNAA®, carbamate, Duodote®, insecticide, nerve agent, organophosphate, pesticide, weapons of mass destruction (WMD)

SYMPTOMS: **D**iarrhea, **U**rination, **M**iosis (constricted pupils) or **M**uscle weakness, **B**ronchospasm, **B**ronchorrhea, **B**radycardia, **E**mesis, **L**acrimation, **S**alivation or **S**weating. [DUMBELS]

TREATMENT

ALL LEVELS

1. Don appropriate PPE.
2. Assure patient has moved from the toxic environment.
3. Remove the patient's clothing and double bag; wash skin with soap and water.
    a. Acetylcholinesterase inhibitor agents can be absorbed through the skin.
    b. Contaminated clothing can provide a source of continued exposure to the toxin.
4. Obtain an accurate exposure history:
    a. Time of exposure/ingestion
    b. Route of exposure
    c. Quantity of medication or toxin taken
    d. Alcohol or another intoxicant taken
5. Rapidly assess the patient's respiratory status, mental status, and pupillary status.
6. Obtain pertinent cardiovascular history or other prescribed medications for underlying disease.
7. Recognize that the heart rate may be normal, bradycardic, or tachycardic.
8. Reassess patient status continuously.
9. Notify hospital of patient exposure.

EMR-O; EMT-R.

10. Administer oxygen as appropriate for dyspnea or distress with a target of achieving greater than 93% saturation for most acutely ill patients.
11. Characterize clinical improvement based upon the drying of secretions and easing of respiratory effort.
12. Provide airway management.

EMT-O

13. Apply ECG cardiac monitor if available.

AEMT-R

14. Establish intravenous access.

PARA-O

15. Administer the antidote [atropine or atropine and pralidoxime chloride] immediately for confirmed or suspected exposure as available. (Dosage/Treatment Tables on the following pages.)

TREATMENT TABLES: Dosage of Medication/antidote for Acetylcholinesterase Inhibitor Agent Exposure listed by:

- Mild Exposure
- Mild to Moderate Exposure
- Severe Exposure
- Seizures secondary to Exposure

MILD Acetylcholinesterase Inhibitor Agent Exposure

PATIENT (Weight)	ATROPINE DOSE IM or via Auto-Injector
INFANT: 0-2 yo	O.05mg/kg IM or via auto-injector (e.g. 0.25 mg autoinjector(s)
CHILD: 3-7 yo (13-25 kg)	1mg IM or via auto-injector (e.g. one 1 mg or two 0.5 mg auto-injectors)
CHILD: 8-14 YO (26-50 kg)	2mg IM or via auto-injector (e.g. one 2 mg or two 1 mg auto-injectors
ADOLESCENT/ ADULT	2mg IM or via auto-injector
PREGNANT WOMAN	2mg IM or via auto-injector
GERIATRIC/ FRAIL	1mg IM or via auto-injector

MILD to MODERATE Acetylcholinesterase Inhibitor Agent Exposure

PATIENT (Weight)	ATROPINE Dose IM or via Auto-Injector	PRALIDOXIME CHLORIDE Dose IM or via 600mg Auto-Injector
INFANT: 0-2 yo	0.05mg/kg IM or via auto-injector (e.g. 0.25mg and/or 0.5mg auto-injector)	15mg/kg IM
CHILD: 3-7 yo (13-25 kg)	1 mg IM or via auto-injector (e.g. one 1mg auto-injector or two 0.5mg auto-injectors	15mg/kg IM OR One auto-injector (600 mg)
CHILD: 8-14 yo (26-50 kg)	2mg IM or via auto-injector (e.g. one 2mg auto-injector or two 1mg auto-injectors	15mg/kg IM OR One auto-injector (600 mg)
ADOLESCENT/ ADULT	2-4mg IM or via auto0injector	600mg IM OR One auto-injector (600 mg)
PREGNANT WOMAN	2-4mg IM or via auto0injector	600mg IM OR One auto-injector (600 mg)
GERIATRIC/ FRAIL	2mg IM or via auto-injector	10mg/kg IM OR One auto-injector (600 mg)

SEVERE Acetylcholinesterase Inhibitor Agent Exposure

PATIENT (Weight)	ATROPINE Dose IM or via Auto-Injector	PRALIDOXIME CHLORIDE Dose IM or via 600mg Auto-Injector
INFANT: 0-2 yo	0.1mg/kg IM OR via auto-injector (e.g. 0.25mg and/or 0.5mg auto-injector)	45mg/kg IM
CHILD: 3-7 yo (13-25 g)	0.1mg/kg IM OR 2mg via auto-injector (e.g. one 2mg auto-injector or four 0.5 mg auto-injectors)	45mg/kg IM OR One auto-injector (600 mg)
CHILD: 8-14 YO (26-50 kg)	4mg IM OR via auto-injector (e.g. two 2mg auto-injectors or four 1mg auto-injectors)	45mg/kg IM OR Two auto-injectors (1200 mg)
ADOLESCENT: 14 yo or older	6mg IM OR via auto-injector (e.g. three 2mg auto-injectors)	Three auto-injectors (1800 mg)
ADULT	6mg IM OR via auto-injector (e.g. three 2mg auto-injectors)	Three auto-injectors (1800 mg)
PREGNANT WOMAN	6mg IM OR via auto-injector (e.g. three 2mg auto-injectors)	Three auto-injectors (1800 mg)
GERIATRIC/ FRAIL	2-4mg IM OR via auto-injector (e.g. one to two 2mg auto-injectors)	25mg/kg IM or Two or three auto-injectors (1200mg-1800mg)

SEIZURES Secondary to Acetylcholinesterase Inhibitor Agent Exposure

PATIENT	DIAZEPAM	MIDAZOLAM
INFANT 0-2 yo	0.2-0.5mg/kg IM Repeat every 2-5 minutes	0.1mg/kg IM Repeat prn in 20 minutes.
	0.2-0.5mg/kg IV every 15-30 minutes. May repeat twice as needed.	May repeat dose once
	Total maximum dose: 5mg	Total maximum dose 0.4mg/kg
CHILD: 3-13 yo	0.2-0.5mg/kg IM Repeat every 2-5 minutes.	0.1mg/kg IM Not to exceed 10mg. Repeat prn in 10 minutes.
	0.2-0.5mg/kg IV every 15-30 minutes. May repeat dose twice if needed	May repeat dose once
	Total maximum dose: 5mg if less than 5 years	Total maximum dose: 0.4mg/kg not to exceed 20 mg
	Total maximum dose: 10mg if age 5 years or older 1 CANA® auto-injector	
ADOLESCENT: 14 yo or older	2-3 CANA® auto-injectors	0.2mg/kg IM Total maximum dose of 10mg. Repeat prn in 10 minutes.
	5-10mg IV every 15 minutes	May repeat dose once.
	Total maximum dose: 30mg	Total maximum dose: 20mg.
ADULT	2-3 CANA® auto-injectors	10mg IM
	5-10mg IV every 15 minutes	May repeat dose once
	Total maximum dose: 30 mg	Total maximum dose: 20mg
PREGNANT WOMAN	2-3 CANA® auto-injectors	10mg IM
	5-10mg IV every 15 minutes	May repeat dose once
	Total maximum dose: 30 mg	Total maximum dose: 20mg
GERIATRIC	2-3 CANA® auto-injectors	10mg IM
	5-10mg IV every 15 minutes	May repeat dose once
	Total maximum dose: 30mg	Total maximum dose: 20 mg

Tables adapted from: U.S. Department of Health and Human Services, ASPR, National Library of Medicine, *Chemical Hazards Emergency Medical Management: Nerve Agents-Prehospital Management,* www.chemm.nlm.nih.gov.