NERVE AGENT/PESTICIDE EXPOSURE
STATEWIDE ALS PROTOCOL

Decontaminate patients – Contact Medical Command to order release of CHEMPACK if indicated.

CAUTION: Personnel must be in appropriate PPE before treating patients who have not been decontaminated. If possible, treat patients with severe exposure during decontamination.

Initial Patient Contact - See protocol #201
Manage Airway/ Ventilate, if needed
Administer Oxygen, if needed

ADULT

Patient

PEDIATRIC

Symptom Severity

MILD SYMPTOMS
Complete Decontamination, as indicated
Reassess for signs of worsening symptoms

MODERATE SYMPTOMS
Administer 1 NAAA(s) 4,5,6,7
Repeat every 5 minutes if no improvement in SOB/wheezing
Monitor ECG and Pulse Oximetry
Initiate IV NSS KVO 3

SEVERE SYMPTOMS
Administer 3 NAAA(s) 4,5,6,7,8
Initiate IV/ IO NSS KVO 3
Monitor ECG and Pulse Oximetry 3

Administer Anticonvulsant
(IM if not seizing, IV/IO if seizing)
- 1 CANA auto-injector IM
OR
- Adult Anticonvulsant
(see box next page)

Contact Medical Command

Effective 11/01/08
## Nerve Agent Antidote Table

<table>
<thead>
<tr>
<th></th>
<th>Adult &amp; Older Children</th>
<th>Pediatric 40-90 lbs</th>
<th>Pediatric 15-40 lbs</th>
<th>Pediatric (Infant)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 90 lbs (&gt;41 kg)</td>
<td>(18-41 kg)</td>
<td>(7-18 kg)</td>
<td>&lt; 15 lbs (&lt; 7kg)</td>
</tr>
<tr>
<td></td>
<td>≥ 10 y/o</td>
<td>4-10 y/o</td>
<td>6 m/o-4 y/o</td>
<td>&lt; 6 m/o</td>
</tr>
</tbody>
</table>

### Moderate symptoms
- Blurred vision
- Excessive tearing or runny nose
- Drooling
- Mild shortness of breath/ wheezing
- Vomiting
- Diarrhea, Stomach Cramps
- Muscle twitching or sweating at site of exposure

|                  | 1 NAAA IM [atropine 2mg + pralidoxime 600 mg IM] | 1 Atropen (Red) [atropine 1 mg IM] | 1 Atropen (Blue) [atropine 0.5 mg IM] | 1 Atropen (Yellow) [atropine 0.25 mg IM] |

### Severe symptoms
- Altered Mental Status
- Severe shortness of breath/ wheezing
- General Weakness/ Severe muscle twitching
- Incontinence (urine or feces)
- Seizures
- Unconsciousness

|                  | 3 NAAA(s) IM [atropine 6 mg + pralidoxime 1800 mg IM] | 2 NAAA(s) IM [atropine 3 mg IM] | (if > 2 y/o) | 1 NAAA(s) IM [atropine 0.75 mg IM] |
|                  | OR Anticonvulsant 1CANA autoinjector [diazepam 10 mg IM] | OR 3 Atropen (Red) [atropine 3 mg IM] | (see box below) | AND Anticonvulsant (see box below) |
|                  | OR Anticonvulsant (see box below)                      | OR 3 Atropen (Blue) [atropine 1.5 mg IM] | (see box below) | AND Anticonvulsant (see box below) |

### Adult Anticonvulsant Options:
(Choose one)
- Titrated until seizure stops
  - Lorazepam 1-2 mg IV/IO mg/kg, max 2 mg/dose)
  - may repeat every 5 minutes until maximum of 4 mg
  - **OR**
  - Diazepam 5-10 mg IV/IO(0.01 mg/kg)
  - may repeat every 5 minutes until maximum of 0.3 mg/kg
  - **OR**
  - Midazolam 1-5 mg IV/IO (0.05 mg/kg)
  - may repeat every 5 minutes until maximum of 0.1 mg/kg

### Pediatric Anticonvulsant Options:
(Choose one)
- Titrated until seizure stops
  - Lorazepam 0.1 mg/kg IV/IO/ IM (max 2 mg/dose)
  - may repeat every 5 minutes until maximum of 4 mg
  - **OR**
  - Diazepam 0.3 mg/kg IV/IO/ IM
  - Max 10 mg/dose IV/IO (0.5 mg/kg PR12)
  - may repeat every 5 minutes until maximum of 0.6 mg/kg
  - **OR**
  - Midazolam 0.1 mg/ kg IV/IO
  - Max 5 mg/dose IV/IO (0.15 mg/kg IM12)
  - may repeat every 5 minutes until maximum of 0.2 mg/kg IV
NERVE AGENT/PESTICIDE EXPOSURE
STATEWIDE ALS PROTOCOL

CRITERIA:
A. Patients experiencing symptoms after suspected exposure to:
   Nerve Agents (Tabun, Sarin, Soman, VX)
   OR
   Organophosphate (Malathion, Parathion) / carbamate (Sevin) pesticides.

1. Mild symptoms include:
   a. Pinpoint pupils
   b. Runny nose
   c. Suspected exposure to nerve agent, but no symptoms

2. Moderate symptoms include:
   a. Blurred vision
   b. Excessive tearing or runny nose
   c. Drooling
   d. Mild shortness of breath/ wheezing
   e. Vomiting
   f. Diarrhea, Stomach Cramps
   g. Muscle twitching or sweating at site of exposure

3. Severe symptoms include:
   a. Altered Mental Status
   b. Severe shortness of breath/ wheezing
   c. General Weakness/ Severe muscle twitching
   d. Incontinence (urine or feces)
   e. Seizures
   f. Unconsciousness

EXCLUSION CRITERIA:
A. Patients with suspected exposure, but without symptoms, should be decontaminated as appropriate, but do not require further medical treatment.

B. If patients are seizing and do not have pinpoint pupils, excessive nasal/oral secretions, or muscle fasciculation (rippling tremors under skin), EMS providers should consider exposure to cyanide (See Cyanide Protocol).

SYSTEM REQUIREMENTS:
A. Nerve agent antidote auto-injectors (NAAAs) and pralidoxime chloride (2-PAMCl) may be carried by ALS services if the medication is permitted by the regional drug list. The agency must report the amount carried to the regional EMS council, and the regional EMS council should coordinate the stocks of antidote with the regional counterterrorism task forces.

B. Until the patient has been properly decontaminated, all EMS providers who treat patients of suspected exposure to nerve agents should use Level B PPE. Level B PPE should only be used by providers with appropriate training.

C. EMTs, who have completed Department approved BLS NAAA training, may administer NAAAs under the supervision of an on-scene paramedic after the paramedic has assessed the patient and determined the number of NAAAs to be administered.

D. BLS ambulance services may carry NAAAs for personal protection of EMS providers. In this situation, these medications must be prescribed by the agency medical director who is
NOTES:

1. The Strategic National Stockpile CHEMPACKs are located at predetermined locations throughout the Commonwealth. The CHEMPACKs include autoinjectors and antidotes for nerve agent exposure. In the event of a mass casualty incident involving a suspected nerve agent, CHEMPACK(s) shall be released to an incident scene when a medical command physician orders the release of these antidotes through a county Emergency Management Agency.

2. Due to severe bronchoconstriction and secretions, ventilation may be difficult, therefore atropine should be administered before attempts to intubate patient.

3. In mass casualty incidents, oxygen, intravenous access, pulsoximetry monitoring, and ECG monitoring should be prioritized to patients with severe symptoms if resources are limited.

4. NAAA (Nerve Agent Antidote Autoinjectors) are available in several brands. MARK 1 kits include 2 mg atropine and 600 mg pralidoxime in separate autoinjectors in a single kit. DuoDote autoinjectors contain 2.1 mg atropine and 600 mg pralidoxime in a single autoinjector. Atropens contain atropine in various doses depending upon the color-coded autoinjector.

5. Do not administer pralidoxime (2-PAMCl) to patients with exposure to carbamate pesticide (Sevin).

6. If NAAAs are not available, alternatively administer:
   a. Atropine IM or IV/IO and pralidoxime IM only, if available. Always administer atropine dose before pralidoxime dose. See Nerve Agent Antidote Table for doses.
   b. Mark I kits and DuoDotes are not recommended for children under 2 years old, but appropriate Atropen or atropine doses may be given (see Nerve Agent Antidote Table).

7. Use of the NAAAs:
   a. The NAAA contains either a single autoinjector or a kit with two autoinjectors. These are administered IM by pressing the end of the device onto the thigh or buttocks.
      1) Remove the NAAA from its storage location.
      2) With your non-dominant hand, hold the autoinjectors by the plastic clip so that the larger autoinjector is on top and both are positioned in front of you at eye level.
      3) With the other hand check the injection site (lateral thigh muscle) for buttons or objects in the pockets which may interfere with the injections.
      4) Grasp the auto injector with the thumb and first two fingers. Do not place your thumb/finger/palm over the end of the autoinjector. Atropine doses should all be administered prior to the administration of 2-PAM if using MARK 1 kits.
      5) Pull the injector out of the clip with a smooth motion.
      6) Hold the auto injector like a pen or pencil, between the thumb and first two fingers.
      7) Position the green tip of the auto injector against the injection site.
      8) Apply firm, even pressure (not a jabbing motion) to the injector until it pushes the needle into the lateral thigh muscle.
      9) Hold the injector firmly in place for at least 10 seconds.
      10) Carefully remove the auto injector.
      11) Place the used auto injector into a sharps container.
      12) Administer additional autoinjectors using the procedures outlined in steps 4 through 11.
      13) Annotate the number of auto injectors administered on your patient care report or (in a mass casualty incident) on the triage tag.

Performance Parameters:

A. Every case of suspected nerve agent or pesticide exposure with any symptoms should receive QI review for appropriate use of antidotes.