NERVE AGENT EXPOSURE

PURPOSE:
To establish standards for the requirements for EMT-Ps in treating patients with nerve agent exposures.

AUTHORITY:
Health & Safety Code, Division 2.5.
California Code of Regulations, Title 22, Division 9.
California Code of Regulations, Title 19, Division 2, Articles 1-8, Sections 2400 et seq., Standardized Emergency Management System (SEMS) Regulations.

DEFINITIONS:
CHEMPACK: is a new voluntary component of the federal Strategic National Stockpile Program (SNS) operated by the Centers for Disease Control and Prevention (CDC) for the benefit of the U.S. civilian population. The CHEMPACK program’s mission is to provide state and local governments a sustainable nerve agent antidote cache that increases their capability to respond quickly to a nerve agent event such as a terrorist attack.

Nerve Agents: extremely toxic organophosphate-type chemicals, including GA (tabun), GB (sarin), GD (soman), GF (cyclosarin), and VX, which attack the nervous system and interfere with chemicals that control nerves, muscles, and glands. They are odorless and invisible and can be inhaled, absorbed through the skin, or swallowed.

Nerve agent antidotes: counteract the effects of nerve gases by 1) decreasing symptoms and 2) regenerating an enzyme that is wiped out by nerve gases. Nerve agent antidotes are among the five (5) actions taken after exposure to nerve gas, as follows:
  1. Terminate the exposure (stop breathing and move quickly to good air; decontaminate victims and emergency medical staff within minutes of exposure; don personal protective equipment; ventilate pre-hospital and hospital treatment areas).
  2. Support ventilation.
  3. Provide atropine therapy.
  4. Provide oxime therapy.
  5. Provide antiseizure therapy.

POLICY:
1) In the event of a nerve agent release, CHEMPACKs will be deployed from strategically located positions within the county. CHEMPACKs can only be deployed by order of the Public Health Officer (or designate), or the Emergency Medical Services Medical Director.

2) Once deployed, the entire Nerve Agent Treatment Protocol may be utilized under standing orders that apply to all EMT-Ps operating at the incident.

3) All EMS personnel will ensure personal safety by assuring adequate decontamination of victims and using appropriate personal protective (PPE). Medical procedures within the Exclusion Zone (Hot Zone/contaminated area) will only be performed by personnel who have specific
training to allow them to function in that area. Under no circumstances should responding personnel at any level of expertise use Personal Protective Equipment or assist in patient decontamination without completing the required training.

4) The auto-injectors included in CHEMPACK Nerve Agent Antidote Kits will be used only by those EMT-Ps that have been trained in their use and have them available. EMT-Ps may administer atropine IM/IV in situations where CHEMPACK Nerve Agents Antidote Kits are not available.

5) SELF ADMINISTRATION

a. EMT-Ps that have been trained and equipped may utilize the nerve gas protocol to self administer CHEMPACK auto-injectors when exposed to nerve agent.

PROTOCOL

1. Scene safety is number one priority. Do not enter the Hot Zone unless specifically trained and equipped in Level A HAZMAT.

2. Once CHEMPACK is deployed the protocol may be performed entirely on standing order by all EMT-Ps operating at the incident.

3. Nerve agent medications should never be given prophylactically.

4. Decontamination should precede any treatment by EMS personnel. Remove all contaminated clothing, blot off any remaining agent, flush with copious quantities of water, and cover the victim to prevent any additional off-gassing.

5. Use the algorithms on the following pages for patients with these respective symptoms. Typically mild exposures do not require any treatment beyond decontamination.

6. For purposes of this protocol, patients ≥ ten (10) years of age shall be treated as adults.

<table>
<thead>
<tr>
<th>LEVELS OF EXPOSURE</th>
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<tbody>
<tr>
<td><strong>MILD</strong></td>
</tr>
<tr>
<td>Rhinorrhea</td>
</tr>
<tr>
<td>Chest tightness</td>
</tr>
<tr>
<td>Dyspnea</td>
</tr>
<tr>
<td>Bronchospasm</td>
</tr>
<tr>
<td>GI symptoms</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>SEVERE</strong></td>
</tr>
<tr>
<td>Jerking</td>
</tr>
<tr>
<td>Twitching</td>
</tr>
<tr>
<td>Staggering</td>
</tr>
<tr>
<td>Headache</td>
</tr>
<tr>
<td>Drowsiness</td>
</tr>
<tr>
<td>Coma</td>
</tr>
<tr>
<td>Seizures</td>
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<tr>
<td>Apnea</td>
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</tbody>
</table>
This protocol is intended for patients ten (10) years old or older. Do not use Mark I autoinjectors in patients weighing less than 30 kgs.

Contamination Reduction Zone
Mild to severe exposures
ABCs & O₂

- **Mild Exposure**
  - **Atropine:**
    - Administer one (1) atropine autoinjector IM
    - or
    - 2 mg atropine IV/IM
    - May repeat every 3-5 mins until symptoms improve

- **Severe Exposure**
  - **Advanced airway adjuncts as needed**
  - **2-PAM**
    - If symptoms don't improve in 5 mins, administer one (1) 2-PAM autoinjector (600 mg) IM. One time only.
  - **Atropine:**
    - Administer three (3) atropine autoinjectors IM
    - or
    - 6 mg atropine IV/IM
    - May repeat: 1 atropine autoinjector or
    - 2 mg every 3-5 mins until symptoms improve

- **Moderate Exposure**
  - **Atropine:**
    - Administer two (2) atropine autoinjectors IM
    - or
    - 4 mg atropine IV/IM
    - May repeat: 2 mg every 3-5 mins until symptoms improve

  - **2-PAM**
    - Administer one (1) 2-PAM autoinjector (600 mg) IM.
    - May repeat x 1 in 5-10 mins if symptoms don't improve

  - **IV NS TKO**
    - or
    - titrate to SBP ≥ 90-100

  - **EKG monitoring if possible**

  - **If Seizures Continue:**
    - **Diazepam**
      - Administer 5 mg slow IVP
      - May repeat every 5 mins if needed
This protocol is intended for patients less than ten (10) years old.

Do not use Mark I autoinjectors in patients weighing less than 30 kgs.

IF PATIENT EXPOSED
Strip off clothing
Blot off agent
Flush with large amounts of water
Cover the affected area

Exclusion (Hot) Zone
If properly equipped and trained in Level A Hazmat, treat severe exposures with IM medications only

Contamination Reduction (Warm) Zone
Mild to severe exposures
ABCs & O₂
Advanced airway adjuncts as needed

Mild Exposure
Atropine:
Administer 0.02 mg/kg IV or IM (minimum dose of 0.1 mg).
0.5 mg Atropen may be used for patients 0-2 yo
1.0 mg Atropen may be used for patients 2-10 yo
May repeat every 3-5 mins until symptoms improve

Moderate Exposure
Atropine:
Administer 0.02 mg/kg IV or IM (minimum dose of 0.1 mg).
0.5 mg Atropen may be used for patients 0-2 yo
1.0 mg Atropen may be used for patients 2-10 yo
May repeat every 3-5 mins until symptoms improve

Severe Exposure
Atropine:
Administer 0.02 mg/kg IV or IM (minimum dose of 0.1 mg).
0.5 mg Atropen may be used for patients 0-2 yo
1.0 mg Atropen may be used for patients 2-10 yo
May repeat every 3-5 mins until symptoms improve

2-PAM
0-2 yo: 15 mg/kg IV x 1; or 25 mg/kg IM x1
2-10 yo: 15 mg/kg IV x 1 (max of 2 g/dose); or 25 mg/kg IM.

If Seizures Continue:
Diazepam
0-5 yo: 0.2 - 0.5 mg/kg IV (5 mg max)
q 2-5 mins
> 5 yo: 1 mg IV q 2-5 mins
(max 10 mg)

EKG monitoring if possible

IV NS
EKG monitoring if possible

IV NS