

## NERVE AGENT AUTOINJECTOR ADMINISTRATION

1. **INTRODUCTION:** Nerve agent auto-injectors are to be used when EMS personnel are exposed to nerve agents (Sarin, Soman, Tabun, VX) and have signs and symptoms of nerve agent exposure, or when ALS personnel treat victims in an MCI situation in the hot zone
2. **EQUIPMENT:**
  - 2.1 Mark I autoinjector antidote kit containing:
    - ▶ **Atropine** autoinjector (2 mg in 0.7 mL)
    - ▶ **Pralidoxime chloride** autoinjector - **2-PAM** (600 mg in 2 mL)
  - 2.2 Additional atropine (2 mg) autoinjectors
3. **PROCEDURE:** If you experience any or all of the nerve agent poisoning symptoms, you must IMMEDIATELY self-administer the nerve agent antidote (see "Nerve Agent Treatment" - [page 166](#) for signs and symptoms)



MARK I antidote kit

### 3.1 Injection Site Selection:

- ▶ The injection site for administration is normally in the **outer thigh muscle** (Figure 1). It is important that the injections be given into a large muscle area
- ▶ If the individual is thinly-built, then the injections should be administered into the **upper outer quadrant of the buttocks** (Figure 2)

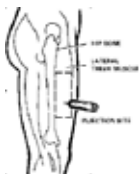


Figure 1 - Thigh injection site

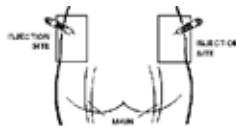


Figure 2 - Buttocks injection site

### 3.2 Arming The Autoinjector:

- ▶ Immediately put on your protective mask
- ▶ Remove the antidote kit
- ▶ 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
- ▶ With your dominant hand grasp the **atropine** autoinjector (the smaller of the two) with the thumb and first two fingers. DO NOT cover or hold the needle end with your hand, thumb, or fingers-you might accidentally inject your self. An accidental injection into the hand WILL NOT deliver an effective dose of the antidote, especially if the needle goes through the hand
- ▶ Pull the injector out of the clip with a smooth motion. **The autoinjector is now armed**

### 3.3 Administering the antidote to yourself:

- ▶ Hold the autoinjector with your thumb and two fingers (pencil writing position). Be careful not to inject yourself in the hand!
- ▶ Position the green (needle) end of the injector against the injection site (thigh or buttock). DO NOT inject into areas close to the hip, knee, or thigh bone
- ▶ Apply firm, even pressure (not jabbing motion) to the injector until it pushes the needle into your thigh (or buttocks). Using a jabbing motion may result in an improper injection or injury to the thigh or buttocks
- ▶ Hold the injector firmly in place for at least 10 seconds. Firm pressure automatically triggers the coiled spring mechanism. This plunges the needle through the clothing into the muscle and at the same time injects the antidote into the muscle tissue
- ▶ Carefully remove the autoinjector from your injection site

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- ▶ Next, pull the **2 PAM** injector (the larger of the two) out of the clip
- ▶ Inject yourself in the same manner as the steps above, holding the black (needle) end against your outer thigh (or buttocks)
- ▶ Massage the injection sites, if time permits
- ▶ After administering the first set of injections, wait 5 to 10 minutes
- ▶ After administering one set of injections, you should initiate decontamination procedures, as necessary, and put on any additional protective clothing
- ▶ Atropine only may be repeated every 10 - 15 minutes as needed. (Note: multiple doses of atropine may be needed.)

### 3.4 Administering the antidote to another in the Hot Zone:

- ▶ Squat, DO NOT kneel, when masking the casualty or administering the nerve agent antidotes to the casualty. Kneeling may force the chemical agent into or through your protective clothing
- ▶ Mask the casualty
- ▶ Position the casualty on his or her side (swimmer's position)
- ▶ Position yourself near the casualty's thigh
- ▶ The procedure for site selection and medication administration is the same as 3.1 – 3.3
- ▶ Atropine only should be repeated as needed- multiple doses may be needed

### 4. DOSAGE SCHEME FOR MARK I ADMINISTRATION - via autoinjector

Additional atropine may be needed until a positive response is achieved (decrease in bronchospasm and/or respiratory secretions)

ADULT	Signs & Symptoms	Onset	# of autoinjectors to use:
	<b>Vapor: small exposure</b> ✓ Pinpoint pupils ✓ Runny nose ✓ Mild SOB	Seconds	MARK I autoinjector antidote kit – <b>1 dose initially</b> (containing atropine and 2-PAM) May repeat x1 in 10 minutes
	<b>Liquid: small exposure</b> ✓ Sweating ✓ Twitching ✓ Vomiting ✓ Feeling weak	Minutes to Hours	MARK I autoinjector antidote kit – <b>1 dose initially</b> (containing atropine and 2-PAM) May repeat x1 in 10 minutes
	<b>Both: large exposure</b> ✓ Convulsions ✓ Apnea ✓ Copious secretions	Seconds to Hours	MARK I autoinjector antidote kit – <b>3 doses initially</b> (containing atropine and 2-PAM) May repeat x1 in 10 minutes

**NERVE AGENT AUTOINJECTOR ADMINISTRATION**

<b>PEDIATRIC</b>	<b>Age</b> (approx.)	<b>Weight</b> (approx.)	<b>Autoinjectors (#)</b> (each type)	<b>Atropine</b> dose range (mg/kg)	<b>2-PAM</b> dose range (mg/kg)
	3-7	13-25 kg	1	0.08-0.13	24-46
	8-14	26-50 kg	2	0.08-0.13	24-46
	>14	> 51 kg	3	0.11 or less	35 or less

**NOTE:** While not approved for pediatric use, autoinjectors should be used as initial treatment in children with severe, life-threatening nerve agent toxicity where IV treatment is not possible or available, or a more precise IM dosing would be logistically impossible.