



**TITLE: RESPONSE TO CHEMICAL AGENT PROCEDURE**

**Purpose:** These procedures as outlined are:

- To outline staff responsibilities required to effectively decontaminate the chemically contaminated patient and to prevent contamination of the hospital, hospital personnel, ED personnel and patients. This procedure will describe an appropriate method for the decontamination of walking casualties, stretcher patients, and hospital staff.
- To be initiated in the event of a mass casualty event (code able II) involving a chemical weapon of mass destruction.

**Supportive Data:**

**A. Personnel**  
Personnel must work under the assumption that chemical incident patients are contaminated until proven otherwise.

**B. Definition**  
**Decontamination:** Is the process of eliminating toxic substances from patients or other exposed individuals before entry into the institution.

**C. Key Components of Decontamination**  
Safety and security of decontamination site  
Area control of the decontamination site  
Stretcher patient decontamination  
Ambulatory patient decontamination  
Hospital staff decontamination

**D. Chemical Agents (see tables)**

**Level of Responsibility:** Decontamination Team, Emergency Department RNs as part of the triage team for chemically contaminated patients

**Equipment:**  
Chemical-resistant gloves  
Waterproof chemical-resistant suit with hood  
Supplied air respiratory of SCBA  
Plastic totes for hospital equipment  
Waterproof triage tags  
Sealable plastic bags, size small and large to accommodate belongings and clothing  
Paper bags  
Plastic pallets to prevent slippage (3)  
Water containment/collection system  
Patient gowns  
"Trash bag" kits  
Tents or prefabricated decontamination tents  
Modesty screens, portable screens  
Robes and tarps, barrier tapes  
Duct tape  
Chemical tape  
Scissors  
Traffic cones  
Labels  
Permanent markers  
Mild soap  
Sponges  
Long-handled brushes



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- Buckets
- Hoses with gentle flow, controlled nozzles
- Hot and cold water
- Shower with multiple heads
- Medical Equipment
  - Disposable laryngoscope with blades, Endotracheal Tubes of various sizes, cricothyroidectomy kit, suction equipment, bag-valve-masks, stethoscopes, blood pressure cuffs, gloves, gauze pads, brushes, tape
- Megaphones
- Laminated decontamination instruction in different languages
- Stretchers
- Plastic (nonporous) backboards
- Heat Source
- Blankets/heated if possible
- Communication devices/walkie talkies
- 1 bucket with 5% hypochloride solution

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**ESSENTIAL STEPS / KEY POINTS & PRECAUTIONS**

**I. SUSPECTED CHEMICAL EVENT**

**A. FACILITY'S INITIAL STEPS:**

1. Evaluate need for shutting down facility air handling system (as needed)
2. Implement control access plan
3. Activate Decontamination Team



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- a. Decontamination team should consist of 2 teams of 4 personnel each. Two teams are to be assembled, one team for ambulatory patients and one team for stretcher patients.
- b. Personnel for the Decontamination Teams will be recruited from the following positions: Director, Medical Nursing Services; Nurse Recruiter, Respiratory Therapy, PCA's, MD.

**B. PREPARATION OF DECONTAMINATION AREA**

1. The staging area (if necessary) is located in the physician parking lot on Clinch Avenue.
2. Obtain equipment from the Emergency Department Disaster closet located across from the ambulance entrance.
3. Chemical Decontamination will take place in physician parking lot on Clinch Avenue.
4. The decontamination area will be roped off, with "DO NOT ENTER - Chemical" signs posted.
5. Initiate plans for crowd control.

**II. DECONTAMINATION TEAM**

**A. AFTER DECONTAMINATION TEAM IS ACTIVATED, MEET IN THE EMERGENCY DEPARTMENT**

**B. SET UP DECONTAMINATION TENTS AND GATHER SUPPLIES**

RT personnel will set-up decontamination tents.

**C. PREPARE CHLORIDE SOLUTIONS**

1. To prepare 5% solutions, add 48 ounces of calcium hypochlorite to 5 gallons of water.
2. The bucket should be distinctly marked as 5% chloride solution.

**D. DON PPE (PERSONAL PROTECTIVE EQUIPMENT)**

1. Change into scrub suit if not already in scrubs.
2. Remove all jewelry.
3. Don pair of surgical gloves.
4. Don Chemical-resistant suit with hood, waterproof chemical-resistant boots, full face-shield, respirator.
5. Ensure trouser legs are outside of boots.
6. Seal all seams and connections with chemical tape (suit zipper, gloves interface with suite and boot interface with suit).
7. Second pair of gloves are worn over top of first pair of gloves and changed every 60 minutes or sooner if needed.

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8. Each team member will be checked by another member for suite integrity. PAPR set-up, and sealed seams prior to exiting dressing room.
- E. ALL PATIENTS WILL BE DIRECTED TO THE AMBULANCE ENTRANCE, (CLINCH AVENUE) FOR TRIAGE AND CHEMICAL DECONTAMINATION. SECURITY WILL OPEN GATE TO THE AREA.
1. Ambulatory Patients
- a. **Primary Triage (Minor or No apparent Injury or Illness)**
- 1) An initial triage should be accomplished by an ED RN, CPNP, MD, or PA dressed in PPE prior to decontamination.
  - 2) Do not separate child from parent if at all possible.  
Direct patient (child and/or parent) to decontamination area in decontamination tent providing as much privacy as possible.
  - 3) Identify patient, if possible.
    - a) Sign patient in. (Every effort should be made to ensure children are properly identified).
    - b) Tag children with name, parents name
  - 4) Begin decontamination
    - a) Have patient place valuables (wallets, jewelry, cell phones, keys, etc) in a clear, pre-labeled plastic re-sealable plastic bag.
    - b) Personnel possessions may become evidence; therefore, it is important to maintain chain of custody.
    - c) Instruct patient to proceed to dressing area to disrobe and to disrobe as quickly as possible. Parents may need to assist small children.
      - Place contaminated clothing in pre-labeled plastic bag. Label will include patient's name, date of birth, medical record number, date and time disrobed.
    - d) Remove patient's clothing.  
DO NOT REMOVE CONTAMINATED CLOTHING THAT REQUIRES BEING PULLED OVER THE PATIENT'S HEAD; clothing that must be removed by going over the head, must be cut off.
    - e) Decontaminate patient (child and/or parent)
      - Instruct patient to proceed to shower.
      - Have patient shower and shampoo with copious amounts of soap and water, starting at the head and moving to the feet.
        - The pediatric patient will require assistance and emotional support during decontamination.
        - After patient has completed decontamination shower, have patient dry with clean towel and put on gown provided.
        - Instruct patient to proceed to designated treatment area by triage category,
        - A heat source should be available for the pediatric patient to help prevent hypothermia

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**2. Non- ambulatory patients (Stretcher Patients)****a. Primary Triage (Moderate and Major Injury or Illness)**

## 1) Proceed with decontamination

- a) Four staff members are required per stretcher patient to complete decontamination procedure
- b) Identify patient (if possible)
- c) Emergency Treatment Initiated as needed
  - Administer antidote medications
- d) Remove all gross contamination from the patients clothing.
- e) Remove patient clothing.

**Cut clothing** - around bandages and splints (if any) with scissors dipped in 5% hypochlorite solution.

**Remove patient's shirt**

- Cut from the wrist area of sleeve, up to the armpits and then to neck area
- Roll chest sections to respective side with inner surface outward
- Tuck clothing between arm and chest
- Repeat procedure for other side of shirt.

**Remove patient's trousers**

- Cut from cuff along inseam to waist on left leg
- On right leg cut from the cuff to just below zipper and then go sideways into first cut.
- Allow trouser halves to drop to the stretcher with contamination away from patient.
- Tuck trouser halves to sides of body and roll outer sides under between legs

**Remove shoes**

- Cut laces
- Hold heels with one hand
- Pull shoes/boots downward over the heels with the other hand
- Pull towards you until removed.

**Remove undergarments** - including diaper following the same procedure as for clothes. If patient is wearing a brassiere, it is cut between the cups. Both shoulder straps are cut where they are attached to the cups and laid back off the shoulder.

## 2) Transfer patient to decontaminated stretcher.

- a) Four decontamination team members are required to move patient.
- b) Team members are required to wear gloves decontaminated with 5% hypochlorite solution.
- c) One member places his/her hand under the small of the patient's legs and thigh, a second member places his arms under the patient's back and buttocks, and the 3<sup>rd</sup> member places his arms under the patient's shoulder and supports the head and neck.



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- d) Carefully lift the patient. While the patient is elevated, the fourth decontamination team member removes the contaminated stretcher and replaces with a clean stretcher.
  - e) Lower patient on clean stretcher.
  - f) Roll the patient and stretcher to the decontamination station.
- 3) Decontaminated clothing is placed in a pre-labeled (patient's name, date of birth, medical record number, date and time) plastic bag and sealed.
  - 4) The dirty stretcher is rinsed with 5% hypochlorite solution and placed in the stretcher storage area.
  - 5) Wash patient including hair with copious amounts of soap and water.
    - a) Superficial (not body cavities, eyes or nervous tissue) wounds are flushed with water.
    - b) Deep and penetrating wounds will be covered and should not be irrigated.
    - c) Eyes: remove contact lenses. Irrigate eyes with copious amounts of 0.9% Normal Saline at room temperature for at least 15 minutes.
  - 6) **The pediatric patient will require assistance and emotional support during decontamination.**
  - 7) **Heat sources should be available for the pediatric patient to help prevent hypothermia.**
  - 8) **If patient is intubated equipment is washed off with hypochlorite solution before leaving decontamination area.**
  - 9) **After patient is decontaminated, dress patient in a clean dry gown, provide blanket and transfer to appropriate treatment area based on triage category.**

### **III. COLLECTION OF BELONGINGS**

- A. **DECONTAMINATION TEAM PERSONNEL SHOULD OVERSEE THE COLLECTION OF CLOTHING AND VALUABLES, ENSURING CHAIN OF EVIDENCE IS MAINTAINED**
- B. **DECONTAMINATION OF VALUABLES AND BELONGINGS**
  1. The designated decontamination leader will determine the need for decontamination of the clothing and valuables.
  2. In the event that law enforcement determines that the patient valuables and/or belongings are needed as evidence, it becomes the responsibility of the agency taking possession of the articles to implement appropriate steps to decontaminate the articles.
  3. In the event that law enforcement determines that the patient valuables and belongings are not needed as evidence, the property should be released to the patient upon discharge in accordance with hospital policy.
- C. **RELEASE OF PATIENT BELONGINGS AND VALUABLES TO LAW ENFORCEMENT AUTHORITIES SHOULD BE ACCORDING TO LOCAL LAW ENFORCEMENT AND HOSPITAL POLICY.**

### **IV. STAFF DECONTAMINATION**

- A. **AFTER ALL PATIENTS ARE DECONTAMINATED, THE TEAM MAY PREPARE TO LEAVE THE DECONTAMINATION AREA.**



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1. Team members must perform self-decontamination prior to leaving the decontamination area by showering with PPE on.
2. All undressing is to be done inside gray area.
3. Remove one chemical boot. Place foot on clean area.
4. Remove other chemical boot. Place boots in properly labeled receptacle.
5. Remove outer gloves (chemically resistant gloves).
6. Remove chemical suit without touching the outside of the suit.  
Turn suit inside out during removal. Deposit suit in properly labeled receptacle inside door.
7. Remove mask and respirator.
8. Remove inner gloves.
9. Remove clothing and undergarments in same manner as ambulatory patient.
10. Shower thoroughly with soap and water within the hospital.
11. All team members must undergo a post PPE evaluation.

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JCAHO Guide to Emergency Management Planning in Health Care 2002.  
Medical Management of Chemical Casualties Handbook, US Army Medical Research Institute of Chemical Defense, Third Edition, (2000).  
Sifton, David W. (ed). PDR Guide to Biological and Chemical Warfare Response (2002). Thomson/Physician's Desk Reference.  
Wheeler, Derek S. and Bradley, Poss, (2003) Mass Casualty Management in a Changing World, Pediatric Annals, 32:2 98-105, (2003).

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**V. CALCULATION BASIS**

**A. FOR CHILDREN < 36 KG**

<b>Pediatric Doses of Antidotes for Chemical Agent Exposure</b>			
<b>Medication</b>	<b>Route</b>	<b>Concentration</b>	<b>Calculation</b>
Atropine	IV/IM	All Doses	0.05 mg/kg min 0.1 mg, max 5 mg
Pralidoxime (2 PAM)	IV/IM	All Doses	25 mg/kg Max 1 gm IV, 2 gm IM
Benzodiazepines	IV/IM	All Doses	0.1 mg/kg
Sodium Nitrite (3%)	IV/IO	All Doses	Based on mean – 2SD Hb for age/size
Sodium Thiosulfate (25%)	IV/IO	All Doses	1.65 ml/kg
BAL	IM	All Doses	3 mg/kg
0.98% Amyl Nitrite Ampoules	Inhaled	All Doses	0.3 ml crushed & inhaled

**B. FOR ADULTS > 36 KG**

<b>Doses of Antidotes for Chemical Agent Exposure</b>			
<b>Medication</b>	<b>Route</b>	<b>Concentration</b>	<b>Calculation</b>
Atropine	IV/IM	All Doses	
Pralidoxime (2 PAM)	IV/IM	All Doses	1 to 2 GM @ 0.5 GM/min Mix in 250ML Normal Saline and infuse over 30 min.
Lorazepam	IV	All Doses	2 MG to 8 MG; repeat in 10 to 15 min if necessary
Midazolam	IV	All Doses	(A 2-6 mg slow IV) Slow push in 2 mg increments, titrate to seizure control (max dose is 6 mg)
Diazepan	IV	All Doses	5 to 10 MG IV, repeat every 5-10 min. as needed





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### VI. NERVE AGENTS

Agent	Onset	Features	Symptoms	Medical Care	Decon
<ul style="list-style-type: none"> <li>▪ Tabun</li> <li>▪ Sarin</li> <li>▪ Soman</li> <li>▪ Cyclosarin</li> <li>▪ VX</li> <li>▪ OP</li> </ul>	Seconds	Colorless, Odorless	SLUDGE (salivation, lacrimation, urination, defecation, GI pain, emesis) Pulmonary secretions, seizure, shock, miosis	Airway control, supportive care, administer antidotes, consider benzos even if not seizing	Large volume, Low pressure warm water

#### A. ANTIDOTE MEDICATIONS (MARK I KITS)

Antidote medications are stored in E.D. Medication cabinets.

##### 1. ANTIDOTE MEDICATIONS for 6-7 KG

ANTIDOTE	CONCENTRATION	DOSE (6.5 kg)
Atropine	0.1 MG/ML	3.0 ml
Atropine	0.4 MG/ML	0.8 ml
Atropine	1.0 MG/ML	0.3 ml
2-PAM IV	50 MG/ML	3.0 ml
2-PAM IM	300 MG/ML	0.5 ml
Lorazepam IV/IM	2 MG/ML	0.3 ml
Lorazepam IV/IM	4 MG/ML	0.2 ml
Midazolam IV/IM	1 MG/ML	0.7 ml
Midazolam IV/IM	5 MG/ML	0.1 ml
Diazepam IV	5 MG/ML	0.1 ml
Diazepam PR	5 MG/ML	0.1 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

##### 2. ANTIDOTE MEDICATIONS for 8-9 KG

ANTIDOTE	CONCENTRATION	DOSE (8.5 kg)
Atropine	0.1 MG/ML	4 ml
Atropine	0.4 MG/ML	1 ml
Atropine	1.0 MG/ML	0.4 ml
2-PAM IV	50 MG/ML	4 ml
2-PAM IM	300 MG/ML	0.7 ml


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ANTIDOTE	CONCENTRATION	DOSE (8.5 kg)
Lorazepam IV/IM	2 MG/ML	0.4 ml
Lorazepam IV/IM	4 MG/ML	0.2 ml
Midazolam IV/IM	1 MG/ML	0.9 ml
Midazolam IV/IM	5 MG/ML	0.2 ml
Diazepam IV	5 MG/ML	0.2 ml
Diazepam PR	5 MG/ML	0.2 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**3. ANTIDOTE MEDICATIONS for 10-11 KG**

ANTIDOTE	CONCENTRATION	DOSE (10.5 kg)
Atropine	0.1 MG/ML	5 ml
Atropine	0.4 MG/ML	1 ml
Atropine	1.0 MG/ML	0.5 ml
2-PAM IV	50 MG/ML	5 ml
2-PAM IM	300 MG/ML	1 ml
Lorazepam IV/IM	2 MG/ML	0.5 ml
Lorazepam IV/IM	4 MG/ML	0.3 ml
Midazolam IV/IM	1 MG/ML	1 ml
Midazolam IV/IM	5 MG/ML	0.2 ml
Diazepam IV	5 MG/ML	0.2 ml
Diazepam PR	5 MG/ML	0.2 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**4. ANTIDOTE MEDICATIONS for 13-14 KG**

ANTIDOTE	CONCENTRATION	DOSE (13.5 kg)
Atropine	0.1 MG/ML	7 ml
Atropine	0.4 MG/ML	2 ml
Atropine	1.0 MG/ML	0.7 ml
2-PAM IV	50 MG/ML	7 ml
2-PAM IM	300 MG/ML	1 ml


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ANTIDOTE	CONCENTRATION	DOSE (13.5 kg)
Lorazepam IV/IM	2 MG/ML	0.7 ml
Lorazepam IV/IM	4 MG/ML	0.3 ml
Midazolam IV/IM	1 MG/ML	1 ml
Midazolam IV/IM	5 MG/ML	0.3 ml
Diazepam IV	5 MG/ML	0.3 ml
Diazepam PR	5 MG/ML	0.3 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**5. ANTIDOTE MEDICATIONS for 15-18 KG**

ANTIDOTE	CONCENTRATION	DOSE (16.5 kg)
Atropine	0.1 MG/ML	8 ml
Atropine	0.4 MG/ML	2 ml
Atropine	1.0 MG/ML	0.8 ml
2-PAM IV	50 MG/ML	8.0 ml
2-PAM IM	300 MG/ML	1 ml
Lorazepam IV/IM	2 MG/ML	0.8 ml
Lorazepam IV/IM	4 MG/ML	0.4 ml
Midazolam IV/IM	1 MG/ML	2 ml
Midazolam IV/IM	5 MG/ML	0.3 ml
Diazepam IV	5 MG/ML	0.3 ml
Diazepam PR	5 MG/ML	0.3 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**6. ANTIDOTE MEDICATIONS for 19-22 KG**

ANTIDOTE	CONCENTRATION	DOSE (20.5 kg)
Atropine	0.1 MG/ML	10 ml
Atropine	0.4 MG/ML	3 ml
Atropine	1.0 MG/ML	1 ml
2-PAM IV	50 MG/ML	10 ml
2-PAM IM	300 MG/ML	2 ml



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ANTIDOTE	CONCENTRATION	DOSE (20.5 kg)
Lorazepam IV/IM	2 MG/ML	1 ml
Lorazepam IV/IM	4 MG/ML	0.5 ml
Midazolam IV/IM	1 MG/ML	2 ml
Midazolam IV/IM	5 MG/ML	0.4 ml
Diazepam IV	5 MG/ML	0.4 ml
Diazepam PR	5 MG/ML	0.4 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**7. ANTIDOTE MEDICATIONS for 23-29 KG**

ANTIDOTE	CONCENTRATION	DOSE (26 kg)
Atropine	0.1 MG/ML	13 ml
Atropine	0.4 MG/ML	3 ml
Atropine	1.0 MG/ML	1.30 ml
2-PAM IV	50 MG/ML	13.0 ml
2-PAM IM	300 MG/ML	2.0 ml
Lorazepam IV/IM	2 MG/ML	1.0 ml
Lorazepam IV/IM	4 MG/ML	0.7 ml
Midazolam IV/IM	1 MG/ML	3.0 ml
Midazolam IV/IM	5 MG/ML	0.5 ml
Diazepam IV	5 MG/ML	0.5 ml
Diazepam PR	5 MG/ML	0.5 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**8. ANTIDOTE MEDICATIONS for 30-36 KG**

ANTIDOTE	CONCENTRATION	DOSE (26 kg)
Atropine	0.1 MG/ML	17.0 ml
Atropine	0.4 MG/ML	4.0 ml
Atropine	1.0 MG/ML	2.0 ml
2-PAM IV	50 MG/ML	17.0 ml
2-PAM IM	300 MG/ML	3.0 ml



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ANTIDOTE	CONCENTRATION	DOSE (26 kg)
Lorazepam IV/IM	2 MG/ML	2.0 ml
Lorazepam IV/IM	4 MG/ML	0.8 ml
Midazolam IV/IM	1 MG/ML	3 ml
Midazolam IV/IM	5 MG/ML	0.7 ml
Diazepam IV	5 MG/ML	0.7 ml
Diazepam PR	5 MG/ML	0.7 ml

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**9. Antidote Medications for Adults >36**

ANTIDOTE	CONCENTRATION	DOSE (6.5 kg)
Atropine	0.1 MG/ML	10 ML
Atropine	0.4 MG/ML	2.5 ML
Atropine	1.0 MG/ML	1 ML
2-PAM IV	50 MG/ML	20 ML (1GM) 40 ML (2 GM)
2-PAM IM	300 MG/ML	3.4 ML (1 GM) 6.7 ML (2 GM)
Lorazepam IV/IM	2 MG/ML	1 ML (2 MG) 2 ML (4 MG) 3 ML (6 MG) 4 ML (8 MG)
Lorazepam IV/IM	4 MG/ML	0.5 ML (2 MG) 1 ML (4 MG) 1.5 ML (6 MG) 2 ML (8 MG)
Midazolam IV/IM	1 MG/ML	2 ML (2MG) 6 ML (6 MG) 3 ML (3MG) 4 ML (4 MG) 5 ML (5 MG)
Midazolam IV/IM	5 MG/ML	0.4 ML (2 MG) 0.6 ML (3 MG) 0.8 ML (4 MG) 1 ML (5 MG) 1.2 ML (6 MG)
Diazepam IV	5 MG/ML	5 MG (1 ML) 10MG (2 ML)



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ANTIDOTE	CONCENTRATION	DOSE (6.5 kg)
Diazepam PR	5 MG/ML	5 MG (1 ML) 10 MG (2 ML)

**Special Consideration:** All IV doses can also be given IO

**Atropine:** Give every 2-5 minutes until respiratory symptoms subside; pupils may not change; give simultaneously with 2-PAM.

**2 PAM:** Dilute 1 vial with 3ml saline; inject IM every 30-60 minutes until symptoms subside; MAX 1 gm IV, 2 gm IM

**Benzos:** Give every 30 minutes for seizure activity or other severe symptoms.

**VII. VESICATING (BLISTERING) AGENTS**

Agent	Onset	Features	Symptoms	Medical Care	Decon
<ul style="list-style-type: none"> <li>▪ Nitrogen</li> <li>▪ Mustards (HD, HN-1,2,3)</li> <li>▪ Lewisite (L)</li> <li>▪ Phosgene</li> <li>▪ Oxime (CX)</li> </ul>	Seconds	HD, HN-smells like garlic; L-smells like geraniums	Skin irritation, airway congestion, Bone marrow suppression	Decon., Airway control, 100% oxygen supportive care, wound management	Large volume, Low pressure warm water

**A. ANTIDOTE MEDICATIONS FOR 6-7 KG**

ANTIDOTE	CONCENTRATION	DOSE (6.5 kg)
BAL	100 MG/ML	0.2 ML IM

**B. ANTIDOTE MEDICATIONS FOR 8-9 KG**

ANTIDOTE	CONCENTRATION	DOSE (8.5 kg)
BAL	100 MG/ML	0.3 ML IM

**C. ANTIDOTE MEDICATIONS FOR 10-11 KG**

ANTIDOTE	CONCENTRATION	DOSE (10.5 kg)
BAL	100 MG/ML	0.3 ML IM

**D. ANTIDOTE MEDICATIONS FOR 12-14 KG**

ANTIDOTE	CONCENTRATION	DOSE (13.5 kg)
BAL	100 MG/ML	0.4 ML IM

**E. ANTIDOTE MEDICATIONS FOR 15-18 KG**

ANTIDOTE	CONCENTRATION	DOSE (16.5 kg)
BAL	100 MG/ML	0.5 ML IM

**F. ANTIDOTE MEDICATIONS FOR 19-22 KG**

ANTIDOTE	CONCENTRATION	DOSE (20.5 kg)
BAL	100 MG/ML	0.6 ML IM



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**G. ANTIDOTE MEDICATIONS FOR 23-29 KG**

ANTIDOTE	CONCENTRATION	DOSE (26 kg)
BAL	100 MG/ML	0.8 ML IM

**H. ANTIDOTE MEDICATIONS FOR 30-36 KG**

ANTIDOTE	CONCENTRATION	DOSE (26 kg)
BAL	100 MG/ML	1.0 ML IM

**I. ANTIDOTE MEDICATIONS .>36 KG**

ANTIDOTE	CONCENTRATION	DOSE (26 kg)
BAL	100 MG/ML	2.0 ML IM

**VIII. CHOKING AGENTS**

**A. FOR CHILDREN > 36 KG**

Agent	Onset	Features	Symptoms	Medical Care	Decon
<ul style="list-style-type: none"> <li>▪ Chlorine (CL)</li> <li>▪ Phosgene (CG)</li> <li>▪ Diphosgene (DP)</li> </ul>	Seconds	CL-smells like bleach, yellow color CG-smells like hay, colorless	Eye irritation, respiratory distress; Pulmonary Edema	Airway control, 100% oxygen supportive care	Open fresh air ventilation, Large volume, Low pressure warm water

**ANTIDOTE MEDICATIONS: NONE**

**B. FOR ADULTS > 36 KG**

Agent	Onset	Features	Symptoms	Medical Care	Decon
<ul style="list-style-type: none"> <li>▪ Chlorine (CL)</li> <li>▪ Phosgene (CG)</li> <li>▪ Diphosgene (DP)</li> </ul>	Seconds	CL-smells like bleach, yellow color CG-smells like hay, colorless	Eye irritation, respiratory distress; Pulmonary Edema	Airway control, 100% oxygen supportive care	Open fresh air ventilation, Large volume, Low pressure warm water

**ANTIDOTE MEDICATIONS: NONE**



**TITLE: RESPONSE TO CHEMICAL AGENT PROCEDURE**

**IX. BLOOD AGENTS**

Agent	Onset	Features	Symptoms	Medical Care	Decon
<ul style="list-style-type: none"> <li>▪ Hydrogen Cyanide:</li> <li>▪ Cyanogen Chloride</li> <li>▪ Arsenic Trihydride</li> </ul>	Seconds	Odorless, Colorless	Respiratory distress, Respiratory and Cardiac Arrest, Seizures	Airway control, 100% oxygen supportive care, administer antidotes: Lilly Cyanide Kit	Open fresh air ventilation, Large volume, Low pressure warm water

**A. ANTIDOTE MEDICATIONS 6-7 KG:**

ANTIDOTE	DOSE
Nitrate 3%	2.0 ML IV/IO
Thiosulfate 25%	11 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**B. ANTIDOTE MEDICATIONS 8-9 KG:**

ANTIDOTE	DOSE
Nitrate 3%	2.0 ML IV/IO
Thiosulfate 25%	14.0 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**C. ANTIDOTE MEDICATIONS 10-11 KG:**

ANTIDOTE	DOSE
Nitrate 3%	3.0 ML IV/IO
Thiosulfate 25%	17 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**D. ANTIDOTE MEDICATIONS 12-14 KG:**

ANTIDOTE	DOSE
Nitrate 3%	4 ML IV/IO
Thiosulfate 25%	22 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**E. ANTIDOTE MEDICATIONS 15-18 KG:**

ANTIDOTE	DOSE
Nitrate 3%	5 ML IV/IO
Thiosulfate 25%	27 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**F. ANTIDOTE MEDICATIONS 19-22 KG:**

ANTIDOTE	DOSE
Nitrate 3%	6.0 ML IV/IO
Thiosulfate 25%	34 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled





**TITLE: RESPONSE TO CHEMICAL AGENT PROCEDURE**

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**G. ANTIDOTE MEDICATIONS 23-29 KG:**

ANTIDOTE	DOSE
Nitrate3%	7.0 ML IV/IO
Thiosulfate 25%	43 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**H. ANTIDOTE MEDICATIONS 30-36 KG:**

ANTIDOTE	DOSE
Nitrate3%	9 ML IV/IO
Thiosulfate 25%	55 ML IV/IO
Amyl Nitrite 98%	0.3 ML inhaled

**I. ANTIDOTE MEDICATIONS >36 KG:**

ANTIDOTE	DOSE
Nitrate3%	10 ML IV
Thiosulfate 25%	(12.5 GRAM) 50 ML IV
Amyl Nitrite 98%	0.3 ML inhaled