

# CHEMICAL TERRORISM

## GENERAL GUIDANCE\*

### Pocket Guide

- **Diagnosis: Be alert to following**
  - Groups of individuals becoming ill around the same time
  - Any sudden increase in illness in previously healthy individuals
  - Any sudden increase in the following non-specific syndromes
    - Sudden unexplained weakness or paralysis
    - Dimmed or blurred vision
    - Hypersecretion syndromes (like drooling, tearing, and diarrhea)
    - Inhalation syndromes (eye, nose, throat, chest irritation; shortness of breath)
    - Burn-like skin syndromes (redness, blistering, itching, sloughing)
  - Unusual temporal or geographic clustering of illness (for example, patients who attended the same public event, live in the same part of town, etc.).
- **Understanding exposure**
  - Exposure may occur from vapor or liquid droplets and less likely contamination of food or water
  - Chemical effects are dependent on:
    - volatility and amount of a chemical
    - water solubility (higher water solubility leads to relatively more mucosal and less deep lung deposition and toxicity)
    - increased fat solubility and smaller molecular size increase skin absorption
- **Confirmation of cases**
  - Contact your local poison control center
  - Contact your local industrial hygienist or safety officer
  - Department of Justice (DOJ) Domestic Preparedness National Response Hotline (800-424-8802)
  - If you need further help in clinical diagnosis, call DOJ Chembio Help Line (800.368.6498)
  - Review US Army Chemical Casualty Care handbook (<http://ccc.apgea.army.mil/>)
- **Decontamination considerations**
  - Chemical warfare agents usually require removal of clothing and decontamination of the patient with soap and water
  - Treating contaminated patients in the emergency department before decontamination may contaminate the facility
- **Institutional reporting**
  - If reasonable suspicion of chemical attack, contact your hospital leadership (Chief of Staff, Hospital Director, etc)
  - Immediately discuss hospital emergency planning implications

- **Public Health Reporting**

- Contact your local public health office (city, county, or State)
- If needed, contact the FBI office (for location of the nearest office, see <http://www.fbi.gov/contact/fo/info.htm>)

\* **The information in this card is not meant to be complete but to be a quick guide; please consult other references and expert opinion, and check drug dosages especially for pregnancy and children**

SOME POTENTIAL CHEMICAL TERRORISM AGENTS AND SYNDROMES (including biologic toxins)

Agents	Symptom Onset	Symptoms	Signs	Clinical Diagnostic Tests	Decontamination	Exposure route and treatment (adult dosages)	Differential diagnostic considerations
Nerve agents	Vapor: seconds Liquid: minutes to hours	<b>Moderate exposure:</b> Diffuse muscle cramping, runny nose, difficulty breathing, eye pain, dimming of vision, sweating, <b>High exposure:</b> The above plus sudden loss of consciousness, flaccid paralysis, seizures	Pinpoint pupils (miosis) Hyper-salivation Diarrhea Seizures	Red Blood Cell or serum cholinesterase (whole blood) <b>Treat based on signs and symptoms</b> <b>Use lab tests only for later confirmation</b> Collect urine for later confirmation and dose estimation	Rapid disrobing  Water wash with soap and shampoo	<b>Inhalation &amp; dermal absorption</b> Atropine (2mg) iv or im (titrate to effect up to 6 to 15 mg) 2-PAMCI 600mg injection or 1.0 g infusion over 20-30 minutes Additional doses of atropine and 2-PAMCI depending on severity, Diazepan or lorazepam to prevent seizures if >4 mg atropine given Ventilation support	Pesticide poisoning from organophosphorous agents and carbamates cause virtually identical syndromes
Cyanide	Seconds to minutes	<b>Moderate exposure:</b> Dizziness, nausea, headache, eye irritation <b>High exposure:</b> Loss of consciousness	<b>Moderate exposure:</b> non-specific findings <b>High exposure:</b> convulsions, cessation of respiration	Cyanide (blood) or thiocyanate (blood or urine) levels in lab. <b>Treat based on signs and symptoms</b> <b>Use lab tests only for later confirmation</b>	Clothing removal	<b>Inhalation &amp; dermal absorption</b> Oxygen (face mask) Amyl nitrite Sodium nitrite (300mg iv) and sodium thiosulfate (12.5g iv)	Similar CNS illness results from: Carbon monoxide (from gas or diesel engine exhaust fumes in closed spaces) H <sub>2</sub> S (sewer, waste, industrial sources)
Blister Agents	2-48 hours	Burning, itching, or red skin Mucosal irritation (prominent tearing, and burning and redness of eyes) Shortness of breath Nausea and vomiting	Skin erythema Blistering Upper airway sloughing Pulmonary edema Diffuse metabolic failure	Often smell of garlic, horseradish, or mustard on body Oily droplets on skin from ambient sources No specific diagnostic tests	Clothing removal Large amounts of water	<b>Inhalation &amp; dermal absorption</b> Thermal burn type treatment Supportive care For Lewisite and Lewisite/Mustard mixtures: British Anti-Lewisite (BAL or Dimercaprol)	Diffuse skin exposure with irritants, such as caustics, sodium hydroxides, ammonia, etc., may cause similar syndromes. Sodium hydroxide (NaOH) from trucking accidents
Pulmonary agents ( phosgene etc)	1 – 24 (rarely up to 72 hours )	Shortness of breath Chest tightness Wheezing Mucosal and dermal irritation and redness	Pulmonary edema with some mucosal irritation	No tests available but source assessment may help identify exposure characteristics (majority of trucking incidents generating exposures to humans have labels on vehicle)	None usually needed	<b>Inhalation</b> Supportive care Specific treatment depends on agents	Inhalation exposures are the single most common form of industrial agent exposure (eg: HCl, Cl <sub>2</sub> , NH <sub>3</sub> ) Mucosal irritation, airways reactions, and deep lung effects depend on the specific agent
Ricin (castor bean toxin)	18 – 24 hours	<b>Ingestion:</b> Nausea, diarrhea, vomiting, fever, abdominal pain <b>Inhalation:</b> , chest tightness, coughing, weakness, nausea, fever	Clusters of acute lung or GI injury; circulatory collapse and shock	ELISA (from commercial laboratories) using respiratory secretions, serum, and direct tissue	Clothing removal Water rinse	<b>Inhalation &amp; Ingestion</b> Supportive care For ingestion: charcoal lavage	Tularemia, plague, and Q fever may cause similar syndromes, as may CW agents such as Staphylococcal enterotoxin B and phosgene
T-2 mycotoxins	2-4 hours	Dermal & mucosal irritation, blistering, and necrosis Blurred vision, eye irritation Nausea, vomiting, and diarrhea	Mucosal erythema and hemorrhage Red skin, blistering Tearing, salivation	ELISA from commercial laboratories Gas chromatography/Mass spectroscopy in specialized	Clothing removal Water rinse	<b>Inhalation &amp; dermal contact</b> Supportive care For ingestion: charcoal lavage	Pulmonary toxins (O <sub>3</sub> , NO <sub>x</sub> , phosgene, NH <sub>3</sub> ) may cause similar syndromes though with less mucosal irritation.

		Ataxia Coughing and dyspnea	Pulmonary edema Seizures and coma	laboratories		Possibly high dose steroids	
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