

WMD CHEMICAL AGENTS REFERENCE CHART

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Key BLS Points			ALS
NERVE AGENTS:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS & TREATMENT
<p>Tabun (Ga)</p> <p>Sarin (GB)</p> <p>Soman (GD)</p> <p>GF, VX</p>	<p>N Organo-phosphate compounds.</p> <p>N Colorless liquids/vapors</p> <p>N May be aerosolized</p> <p>N Decomposes w/water-addition of a catalyst (bleach) accelerates the decomposition.</p>	<p>Inhalation</p> <p>Eyes</p> <p>Skin</p> <p>Ingestion</p>	<p>Salivation (seizures)</p> <p>Lacrimation</p> <p>Urination</p> <p>Defecation/Diarrhea</p> <p>Gastrointestinal distress</p> <p>Emesis</p> <p>Miosis (pinpoint pupils; everything looks dark)</p> <p>N TX: See Bioterrorism: Nerve Agent Protocol.</p>
BLOOD AGENTS:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS, & TREATMENT
<p>Hydrogen Cyanide (CA)</p>	<p>N Gas liquid at less than 26 degrees C.</p> <p>N Bitter almond odor</p>	<p>Inhalation</p>	<p>N Non-specific: anxiety hyperventilation, respiratory distress.</p> <p>N Cherry-red skin, though classic, is seldom seen.</p>
<p>Cyanogen Chloride</p>	<p>N Colorless, compressed liquefied gas, with pungent odor.</p>	<p>Eyes</p> <p>Skin – maybe absorbed</p>	<p>N Lactic acidosis and increased concentration of venous oxygen.</p> <p>N TX: See Bioterrorism: Cyanide Poisoning</p>
BLISTER AGENTS:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS, & TREATMENT
<p>Mustard (H, HN)</p>	<p>N Colorless</p> <p>N Almost odorless (mustard, garlic, olfactory fatigue)</p> <p>N Liquid low volatility</p> <p>N Soluble in solvents</p> <p>N Insignificant in water</p> <p>N Bleach, chloramines</p> <p>N Decompose mustard</p>	<p>Inhalation</p> <p>Eyes</p> <p>Skin</p>	<p>N Eyes tearing, aching and loss of sight.</p> <p>N Skin irritation, redness, blisters.</p> <p>N GI – N/V/D</p> <p>N Lungs – coughing, hoarseness, pulmonary edema</p> <p>N TX: Flush skin w/ very diluted bleach, then wash with soap/water. <i>Lewisite is persistent in the environment, prevent secondary contamination.</i> Mustard: NO antidote; Lewisite: British Anti-Lewisite (BAL).</p>
<p>Lewisite (L)</p>	<p>N Colorless liquid</p> <p>N Germanium smell</p> <p>N Higher volatility than mustard agent</p> <p>N Rapidly hydrolyses & decomposes in the presence of alkali</p>		<p>N Immediate burning pain</p> <p>N Profuse nasal secretion, violent sneezing.</p> <p>N Cough and frothing mucous.</p> <p>N Lung edema.</p>
CHOKING AGENTS:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS, & TREATMENT
<p>Chlorine</p>	<p>N Greenish-yellow gas</p> <p>N Stored-transported as compressed gas</p> <p>N Pungent odor</p> <p>N Soluble in water</p>	<p>Inhalation</p> <p>Eyes</p>	<p>N Skin burns, prickling sensation</p> <p>N Eye vesicles, irritation/burning, tearing</p> <p>N Cough, wheezing, delayed onset of non-cardiogenic pulmonary edema, death</p> <p>N TX: Flush area w/ plenty of water, ventilate prn.</p>



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CHOKING AGENTS, cont:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS, & TREATMENT
Phosgene & Diphosgene	<ul style="list-style-type: none"> N Colorless gas, impurities may cause yellow or green color N Moldy hay odor N Hydrolyzes in the body – short ½ life. 	<ul style="list-style-type: none"> Inhalation Eyes Skin – maybe absorbed 	<ul style="list-style-type: none"> N <u>Initially:</u> Lungs, along with chest pains/tightness. <u>After 24 hrs:</u> Olfactory fatigue, Pulmonary edema, Eye muscle, spasm & pain, tearing and foul taste in mouth. N TX: Flush areas with copious amounts of water.
RIOT AGENTS:	PHYSICAL PROPERTIES	EXPOSURE ROUTE	SIGNS, SYMPTOMS & TREATMENT
CS (Tear Gas)	<ul style="list-style-type: none"> N White solids at room temperature. N Aerosolized – decomposes w/water 	Inhalation	<ul style="list-style-type: none"> N Intense eye pain and tearing N Irritated skin and mucous membranes. N TX: Wash with water.
CN (Mace)	<ul style="list-style-type: none"> N White solids at room temperature. 	Eyes	
CR (Tear Gas)	<ul style="list-style-type: none"> N Aerosolized – does not decompose as easily as CS. 		
VIRAL AGENTS:	INCUBATION, ILLNESS DURATION & FATALITY RATE	TRANSMISSION & DETECTION DX	SIGNS, SYMPTOMS & TREATMENT
Equine Encephalitis	<ul style="list-style-type: none"> N 2-10 days incubation N Duration 1-2 weeks N Some strains 3-5% fatality rate 	<ul style="list-style-type: none"> N Mosquito N Serology, low white blood cell, low lymphocyte count 	<ul style="list-style-type: none"> N S & SX: Fever, chills, headache, general weakness, muscle pains, sensitivity to light, N/V/D. N TX: Supportive measures, there is NO vaccine available for humans.
Small Pox	<ul style="list-style-type: none"> N 7-19 days incubation N Duration 4 weeks N 30% fatalities 	<ul style="list-style-type: none"> N Aerosolized respiratory droplets (breathing, coughing, sneezing) N Clinical diagnosis, electron microscope, PCR, IHC. 	<ul style="list-style-type: none"> N Early: Fever/chills, sweating, headache, general weakness, joint & muscle pains. N Late: pustular lesions that start on the face, extremities and move to the trunk. N TX: Supportive measures, there is a vaccine available.
Viral Hemorrhagic Fevers (Eboa)	<ul style="list-style-type: none"> N 2-21 days incubation N Duration days to weeks N 60 to 90% fatalities 	<ul style="list-style-type: none"> N Aerosolized respiratory droplets, (breathing, coughing, sneezing) N Serology, IHC, PCR, low platelets, white cells, red cells in blood 	<ul style="list-style-type: none"> N Early: Fever/chills, sweating, headache, general weakness, joint & muscle pains. N Late: Rapid progression to rash, massive bleeding, shock, death. N TX: Supportive measures, there is NO vaccine available.
TOXINS:	INCUBATION, ILLNESS DURATION & FATALITY RATE	TRANSMISSION & DETECTION DX	SIGNS, SYMPTOMS & TREATMENT
Botulism	<ul style="list-style-type: none"> N 12-72 hrs. incubation N Ventilator support prn for months N Untreated: greater than 90% 	<ul style="list-style-type: none"> N Contaminated food or water N Clinical diagnosis, culture of blood, stool, and toxin assays. 	<ul style="list-style-type: none"> N Early: Eyelid weakness, progressive descending muscle and respiratory weakness. N Late: Fluid in lungs and respiratory failure. N TX: Anti-toxin and ventilator support



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TOXINS, cont:	INCUBATION, ILLNESS DURATION & FATALITY RATE	TRANSMISSION & DETECTION DX	SIGNS, SYMPTOMS & TREATMENT
Ricin	<ul style="list-style-type: none"> N 1-10 days (Average is 3-5 days) incubation. N Duration 2-3 days N 80-100% fatalities 	<ul style="list-style-type: none"> N Aerosolized respiratory droplets, (breathing coughing, sneezing), oral ingestion, and injection. N Specific serological tests 	<ul style="list-style-type: none"> N Early: Fever/chills, cough, general weakness, breathing difficulty. N Late: Fluid in lungs and respiratory failure N TX: Supportive measures.
Staphylococcal Enterotoxin B (SEB)	<ul style="list-style-type: none"> N 3-12 hr. incubation N Duration days to weeks N 20-40% fatalities 	<ul style="list-style-type: none"> N Ingestion of contaminated water and food. N Clinical diagnosis, serological and urine toxin levels. 	<ul style="list-style-type: none"> N S & SX: Fever/chills, headache, muscle pains, diarrhea, and cough. N TX: Supportive measures, aggressive rehydration.
T-2 Myotoxins	<ul style="list-style-type: none"> N Minutes to hours incubation N Duration hours to days N 80-100% fatalities if significantly exposed. 	<ul style="list-style-type: none"> N Aerosolized respiratory droplets (breathing, coughing, sneezing), oral ingestion and injection. N Blood, tissue, environ. samples, mass spectrometry. 	<ul style="list-style-type: none"> N S & SX: Skin burning & pain, redness, blistering nasal itching, nosebleeds, sneezing, breathing difficulty, wheezing, eye pain, tearing, redness, and blurred vision. N TX: Limited, Antitoxin.
BACTERIAL AGENTS:	INCUBATION, ILLNESS DURATION & FATALITY RATE	TRANSMISSION & DETECTION DX	SIGNS, SYMPTOMS & TREATMENT
Anthrax	<ul style="list-style-type: none"> N 1-6 days & up to 45 days incubation N Duration: <u>Inhalation</u> exposure 3-5 days. N Fatality Rate: <u>Inhalation</u> 75-100%; <u>Cutaneous</u> (treated) less than 5%, (untreated) 25%; <u>Gastrointestinal</u> 50%. 	<ul style="list-style-type: none"> N Aerosolized respiratory droplets (breathing, coughing, sneezing). N Gram stain & culture of blood, acute & convalescent blood levels of antibodies, PCR, CXR, wide mediastinum, rare pneumonia. 	<ul style="list-style-type: none"> N Early: Fever/chills, malaise, mild chest discomfort, fatigue, cough, then short recovery phase. N Late: Severe respiratory distress, shock/death 24-36 hrs. later, meningitis 50%. N TX: Cipro 400 mg. IV BID or Doxycycline 200 mg. IV, then 100 mg IV BID; or Penicillin 4 mil units IV q 4.
Brucellosis	<ul style="list-style-type: none"> N 5-60 days incubation N Duration: <u>Undulant form:</u> less than 1 year; <u>Chronic form:</u> greater than 1 year. N Rare fatalities, less than 5%. 	<ul style="list-style-type: none"> N Ingesting infected dairy products, and through open sores on patient's skin. N Blood cultures, liver or bone marrow biopsy/culture, certain serology tests. 	<ul style="list-style-type: none"> N Early: Fever/chills, sweating, headache, general weakness, joint & muscle pains lasting weeks. N Late: Depression, change in mental alertness. N TX: Doxycycline 200 mg/day PO, plus Rifampin 600-900 mg/day PO, X 6 weeks.
Cholera	<ul style="list-style-type: none"> N 4hrs – 5 days incubation N Duration days to weeks N If vigorously rehydrated, fatalities are less than 1%. 	<ul style="list-style-type: none"> N Drinking of contaminated water supplies, eating contaminated meat, fruits, or vegetables. N Based on history, darkfield, phase contrast microscopy. 	<ul style="list-style-type: none"> N Early: Vomiting, HA, and intestinal cramping with little or no fever. N Late: Large amount of painless, watery diarrhea. N TX: Vigorous rehydration, sugar and electrolyte replacement, rest.



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BACTERIAL AGENTS, cont:	INCUBATION, ILLNESS DURATION & FATALITY RATE	TRANSMISSION & DETECTION DX	SIGNS, SYMPTOMS & TREATMENT
Pneumonic Plague	<p>N 2-3 day incubation</p> <p>N Duration of 1-6 days</p> <p>N Approximately 14% or 1 out of 7 cases are fatal.</p>	<p>N Aerosolized respiratory droplets (breathing, coughing, or sneezing)</p>	<p>N Early: Fever/chills, HA, coughing up blood, overwhelming bacteria infection.</p> <p>N Late: Respiratory failure, shock, and massive bleeding.</p> <p>N TX: Cipro 400 mg IV BID; Doxycycline 200 mg IV, then 100 mg IV BID; change to oral after improvement.</p>
Tularemia	<p>N 1-10 days (Avg. is 3-5 days) incubation</p> <p>N Duration of greater than 2 weeks</p> <p>N Less than 2% fatalities if treated</p>	<p>N Aerosolized respiratory droplets (breathing, coughing, or sneezing)</p> <p>N Serology, culture of blood, sputum, skin lesions, PCR, IHC, CXR: large mediastinal lymph nodes, pleural effusions, & pneumonia.</p>	<p>N S & SX: Fever/chills, HA, generalized weakness, loss of appetite, non-productive cough, pneumonia in 30% of pts.</p> <p>N TX: Gentamycin 3-5 mg/kg/day IV X 14 days; or Cipro 400 mg IV BID until improved; then 750 mg orally X 14 days.</p>
Q Fever	<p>N 2-3 weeks incubation</p> <p>N Duration: <u>Acute:</u> 2 days to 2 wks; <u>Chronic:</u> greater than 2 weeks</p> <p>N Fatality: <u>Acute:</u> less than 5% with TS; <u>Chronic:</u> 65% fatality.</p>	<p>N Aerosolized respiratory droplets (breathing, coughing, or sneezing)</p> <p>N Low platelet count, IHC, serology tests for antigen.</p>	<p>N S & SX: Fever/chills, HA, cough, sharp stabbing pain, weight loss, muscle aches.</p> <p>N TX: Tetracycline 500 mg PO TID x 7 days, or Doxycycline 100 mg PO BID X 7 days.</p>

