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HOMELAND SECURITY

1. **Purpose:** Due to recent terrorist attacks, and continued threats of terrorist activity within the United States, the Homeland Security Office has established a Homeland Security Advisory System (HSAS) to advise State, County, and local agencies of terrorist threat levels.
2. **Responsibility:** The responsibility for notification for threat awareness will be The duty of the Federal Government, and the State of MN. These primary agencies will notify local Police Departments with any new threat levels and actions that may need to be taken. From a local level, the Police Department will be responsible to disseminate any essential information to the specific agency involved.
3. **Standard Operational Procedure:** The following information is provided by The Homeland Security Office in regards to the Advisory System.

A. Background: The Homeland Security advisory system (HSAS) will provide a comprehensive and effective means to disseminate information regarding the risk of terrorist attacks to Federal, State, and local authorities and to the American people.

B. Threat Conditions: There are 5 graduated threat conditions established by the HSAS and are designed to provide a consistent frame of reference for information concerning terrorist threats. A higher threat condition means that there is a greater risk of terrorist attack, with risk including both probability and gravity. Heightened threat conditions can be declared for the entire nation, or for a limited geographic area or sector. Threat levels are:

Low Condition (Green)

Low risk of terrorist attacks. The following Protective Measures may be applied: (1) refining and exercising preplanned protective measures (2) ensuring personnel receive training on HSAS, departmental, or agency-specific protective measures; and (3) regularly assessing facilities for vulnerabilities and taking measures to reduce such vulnerabilities.

Guarded Condition (Blue)

General risk of terrorist attack. In addition to the previously outlined Protective measures the following may be applied: (1) checking communications with designated emergency response or command control (2) Reviewing and updating emergency response procedures; and (3) providing the public with necessary information.

Elevated Condition (Yellow)

Significant risk of terrorist attacks. In addition to the previously outlined protective measures the following may be applied: (1) increasing surveillance of critical locations; (2) coordinating emergency plans with nearby jurisdictions; (3) assessing further refinement of protective measures within the context of the released threat information; and (4) implementing, as appropriate, contingency and emergency response plans.

High Condition (Orange)

High risk of terrorist attacks. In addition to the previously outlined protective measures the following may be applied: (1) coordinating necessary security efforts with armed forces or law enforcement officials. (2) taking additional precaution at public events; (3) preparing to work at an alternate site or with a dispersed workforce; and retention access to essential personnel only.

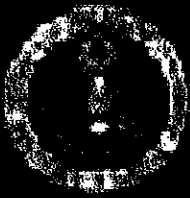
Severe Condition (Red)

Severe risk of terrorist attacks. In addition to the previously outlined protective measures the following may be applied: (1) assigning emergency response personnel and pre-positioning specially trained persons, monitoring, redirecting or constraining transportation systems; (2) closing public and government facilities; and (3) increasing or redirecting personnel to address critical emergency needs.

C. Threat Level Adjustments: Decision-making has to be centralized in one individual. The Attorney General assigns threat conditions after consultation with the Homeland Security Director. If time allows, cabinet members, government officials at the State and local levels, the private sector, and the Homeland Security Council will have input in these decisions when appropriate.

D. Factors for assignment: A variety of factors may be used to assess the threat. Among these:

. Is the threat credible? Is the threat corroborated? Is the threat specific and/ or imminent? How grave is the threat?



HOMELAND SECURITY ADVISORY SYSTEM

SEVERE

HIGH

**HIGH RISK OF
TERRORIST ATTACKS**

ELEVATED

**SIGNIFICANT RISK OF
TERRORIST ATTACKS**

GUARDED

LOW

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5 – 1 Biological warfare and terrorism

The use of biological weapons and efforts to make them more useful as a means of waging war have been recorded numerous times in history, most recently in our country. Most recently we have seen Anthrax being used as a terror mechanism against our nation, but in the past, smallpox, and other biological Weapons have been used against populations of the world. We must be prepared in the event that our city, county, state or nation is again attacked by means of biological weapons.

The potential impact of biological weapons is well illustrated by a World Health Organization publication from 1970 (Health aspects of chemical and biological weapons, WHO, 1970). It was estimated that fifty kilograms of aerosolized B. Anthracis spores, for example, dispensed by a line source 2 kilometers upwind of a population center of 500,000 unprotected people in ideal meteorological conditions, would travel greater than 20 kilometers downwind, and kill/ incapacitate up to 125,000 people in the path of the biological cloud. This scenario only addresses the obvious of casualties, but we must not only plan for that aspect, but of the terror and chaos that may ensue after such an attack.

5 – 1 – 1 Definitions

Airborne precautions – Include (Standard Precautions) plus place the patient in a private room that Has negative air pressure, at least six air changes/hour, and appropriate filtration of air before It is discharged from the room. Use of respiratory protection when entering the room. Limit Movement and transport of the patient. Use a mask on the patient if they need to be moved.

Antitoxin – An antibody formed in response to and capable of neutralizing a biological poison.

BW – Abbreviations for Biological Weapon

CNS – Abbreviation for Central Nervous System

Contact Precautions – Include (Standard Precautions) plus place the patient in a private room or with Someone with the same infection if possible. Use of gloves when entering the room. Change Gloves after contact with infective material. Use of gown when entering the room if contact With patient is anticipated or if the patient has diarrhea, a colostomy or wound drainage not Covered by a dressing. Limit the movement or transport of the patient from the room. Ensure That patient-care items, bedside equipment, and frequently touched surfaces receive daily Cleaning. Dedicate use of noncritical patient-care equipment to a single patient, or cohort Of patients with the same pathogen. If not feasible, adequate disinfection between Patients is necessary.

Cutaneous – relating to the skin

Droplet Precautions – Include (Standard Precautions) plus place the patient in a private room or with Someone with the same infection. If not feasible, maintain at least 3 feet between patients. Use of a mask when working within 3 feet of the patient. Limit movement and transport of The patient. Use of a mask on the patient if they need to be moved.

Inoculation – Introduction into the body of the causative organism of a disease

Standard Precautions – Include, handwashing after patient contact, use of gloves when touching blood, Body fluids, secretions, excretions and contaminated fluids. Use of mask , eye protection, and Gown during procedures likely to generate splashes or sprays of blood, body fluids, secretions, Or excretions. Handle contaminated patient-care equipment and linen in a manner that prevents The transfer of microorganisms to people or equipment. Practice care when handling sharps and Use a mouthpiece or other ventilation device as an alternative to mouth-to-mouth resuscitation When practical. Place the patient in a private room when feasible if they may contaminate the Environment.

5 – 1 – 2 Bacterial Agents

Bacteria can cause diseases in human beings and animals by means of two mechanisms which differ in principle: in one case by invading the tissues, in the other by producing poisons. We are going to list Bacterial agents that could be used as BW threat agents.

A. Anthrax –

Signs and Symptoms: Incubation period of 1 to 6 days. Fever, malaise, fatigue, cough and mild chest discomfort is followed by severe respiratory distress. Shock and death occurs within 24 – 36 hours after onset of severe symptoms.

Treatment: Medicine as prescribed by a medical doctor

Isolation and Decontamination: Standard precautions for healthcare workers. After an invasive procedure or autopsy is performed, the instruments and area used should be thoroughly disinfected with a sporicidal agent (chlorine)

Clinical Features: Anthrax presents as three distinct clinical syndromes in man: cutaneous, inhalational, and gastrointestinal disease.

The cutaneous form occurs most frequently on the hands and forearms of persons working with infected livestock. It begins with a papule followed by formation of a blister-like fluid filled vesicle. The vesicle typically dries and forms a coal-black scab, hence the term anthrax (greek for coal).

Endemic inhalational anthrax, known as woolsorters disease, is a rare infection contracted by inhalation of the spores. It occurs mainly among workers handling infected hides, wool, and furs.

The Intestinal form, which is also very rare in man, is contracted by the ingestion of insufficiently cooked meat from infected animals.

B. Brucellosis

Signs and Symptoms: Incubation period from 5 to 60 days; average of 1 – 2 months. Highly variable. Acute and subacute brucellosis are non-specific. Irregular fever, headache, profound weakness and fatigue, chills, sweating, arthralgias, myalgias. Depression and mental status changes. Fatalities are uncommon.

Treatment: Medication as prescribed by a medical doctor

Isolation and Decontamination: Standard precautions for healthcare workers. Person-to-person transmission via tissue transplantation and sexual contact have been reported by are insignificant. Environmental decontamination can be accomplished with a 0.5% hypochlorite solution.

C. Cholera

Signs and Symptoms: Incubation period 4 hours to 5 days; average 2 – 3 days. Asymptomatic to severe with sudden onset. Vomiting, headache, intestinal cramping with little or no fever

followed rapidly by painless, voluminous diarrhea. Fluid losses may exceed 5 to 10 liters per day. Without treatment, death may result from severe dehydration, hypovolemia and shock.

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Treatment: Medication and other treatment as prescribed by medical doctor.

Isolation and decontamination: Personal contact rarely causes infection; however, enteric precautions and careful hand-washing should be employed. Bactericidal solutions (hypochlorite) would provide adequate decontamination.

History and significance: This agent has purportedly been investigated in the past as a biological weapon. Cholera does not easily spread from person-to-person. Therefore, to be an effective biological weapon, major drinking water supplies would need to be heavily contaminated.

Prevention: Since the major biological threat from this organism appears to be sabotage of food and water supplies, it would seem justified to state that optimal prophylaxis in these circumstances would not be of a medical nature but would be proper safeguarding of these supplies to prevent sabotage.

D. Plague

Signs and symptoms: Pneumonic plague incubates 2 to 3 days. High Fever, chills, headache, hemoptysis, and toxemia, progressing rapidly to dyspnea, stridor, and cyanosis. Death from respiratory failure, circulatory collapse, and a bleeding diathesis. Bubonic plague incubates 2 to 10 days. Malaise, high fever, and tender lymph nodes; may progress spontaneously to the septicemic form, with spread to the CNS, lungs, etc.

Treatment: As prescribed by a medical doctor.

Isolation and decontamination: Standard precautions for healthcare workers exposed to bubonic plague. Droplet precautions for healthcare workers exposed to pneumonic plague. Heat, disinfectants (2-5% hypochlorite) and exposure to sunlight renders bacteria harmless.

History and significance: The United States worked with *Y. Pestis* as a potential biowarfare agent in the 1950's and 1960's before the old offensive biowarfare program was terminated, and other countries are suspected of weaponizing this organism. This bacterium could be delivered theoretically as an aerosol.

E. Tularemia

Signs and symptoms: Ulceroglandular tularemia presents with a local ulcer and regional lymphadenopathy, fever, chills, headache and malaise. Typhoidal tularemia presents with fever, headache, malaise, substernal discomfort, prostration, weight loss and a non-productive cough.

Treatment: Antibiotics as prescribed by a medical doctor

Isolation and Decontamination: Standard precautions for healthcare workers. Organisms are relatively easy to render harmless by mild heat (55 degrees Celsius for 10 minutes) and standard disinfectants.

History and significance: *Francisella tularensis* was weaponized by the United States in the 50's and 60's during the US offensive biowarfare program, and other countries are suspected to have weaponized this agent. The organism could potentially be stabilized for weaponization by an adversary and theoretically produced in either a wet or dried form.

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5 – 1 – 3 Viral Agents

Viruses are the simplest type of microorganism and consist of a nucleocapsid protein coat containing genetic material. The cultivation of viruses is costly, demanding, and time-consuming. A virus normally brings about changes in the host cell such that the cell dies. Several viruses could be used as BW agents.

A. Small Pox

Signs and symptoms: Clinical manifestations begin acutely with malaise, fever, rigors, vomiting, headache, and backache. 2 – 3 days later lesions appear which quickly progress from macules to papules, and eventually to pustular vesicles. They are more abundant on the extremities and face, and develop synchronously.

Treatment: Vaccination

Isolation and decontamination: droplet and airborne precautions for a minimum of 16 – 17 days following exposure for all contacts. Patients should be considered infectious until all scabs separate.

History and significance: Smallpox are suspected to be able to be spread as a BW weapon.

B. Venezuelan equine encephalitis

Signs and symptoms: sudden onset of illness with generalized malaise, spiking fevers, rigors, severe headache, photophobia, and myalgias. Nausea, vomiting, cough, sore throat, and diarrhea may follow. Full recovery takes 1 – 2 weeks.

Treatment: supportive only

Isolation and decontamination: Standard precautions for healthcare workers. Human cases are infectious for mosquitoes for at least 72 hours. The virus can be destroyed by heat (80 degrees centigrade for 30 minutes) and standard disinfectants.

History and significance: VEE was weaponized by the United States in the 50's and 60's before the US offensive biowarfare program was terminated, and other countries have been or are suspected to have weaponized this agent.

C. Viral Hemorrhagic fevers

Signs and symptoms: VHF's are febrile illnesses which can be complicated by easy bleeding, petechiae, hypotension and even shock, flushing of the face and chest, and edema. Constitutional symptoms such as malaise, myalgias, headache, vomiting, and diarrhea may occur in any of the hemorrhagic fevers.

Treatment: Intensive supportive care may be required. Treatment by a medical doctor.

Isolation and Decontamination: Contact precautions for healthcare workers. Decontamination is accomplished with hypochlorite or phenolic disinfectants. Isolation measures and barrier nursing procedures are indicated.

History and significance: Ebola virus disease was first recognized in the western equatorial province of Sudan. It is unclear how easily these filoviruses can be spread

from human to human, but spread definitely occurs by direct contact with infected blood, secretions, organs, or semen. Viruses are infectious by aerosol or fomites.

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5 – 1 – 4 Biological Toxins

Toxins are defined as any toxic substance of natural origin produced by an animal, plant, Or microbe.

A. Botulinum

Signs and symptoms: Ptosis, generalized weakness, dizziness, dry mouth and throat, blurred vision and diplopia, dysarthria, dysphonia, and dysphagia followed by symmetrical descending flaccid paralysis and development of respiratory failure. Symptoms begin as early as 24-36 hours but may take several days after inhalation of toxin.

Treatment: As prescribed by a medical doctor

Isolation and decontamination: Standard precautions for healthcare workers. Toxin is not dermally active and secondary aerosols are not a hazard from patients. Hypochlorite (0.5% for 10 – 15 minutes) and / or soap and water

History and significance: Botulinum toxins have caused numerous cases of botulism when ingested in improperly prepared or canned foods. It is feasible to deliver botulinum toxins as a biological weapon, and other countries have weaponized or are suspected to have weaponized one or more of this group of toxins.

5 – 1 – 5 Detection

Adequate and accurate intelligence is required in order to develop an effective defense Against biological warfare. Once an agent has been dispersed, detection of the biological Aerosol prior to its arrival over the target, in time for personnel to don protective Equipment, is the best way to minimize or prevent casualties.

The principal difficulty in detecting biological agent aerosols stems from differentiating The artificially generated BW cloud from the background of organic matter normally Present in the atmosphere. Therefore, the available detection methods must be used in Conjunction with medical protection (vaccines and other chemoprophylactic measures), Intelligence, and physical protection to provide layered primary defenses against a Biological attack.

5 – 1 – 6 Personal Protection

The first line of defense for fire, police, and ems personnel is their personal protective Equipment. When selecting garments for employment in a hazardous environment, it is Not only important to select the right suit, but it is also important for the wearer to know The limitation and condition of the suit they are wearing. These limitations may include:

- A. No fabric is impermeable forever.
- B. Suits should be strong enough so they do not tear easily
- C. Use an appropriate fitting suit
- D. When donning the suit, all potential problem areas (wrists, ankles, mask) should be properly secured with duct tape or chemical resistant tape.

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Under the provisions of 29 CFR Par 1910.120, Appendix B, Part A, dated March 6th, 1989; there are four levels of protective clothing. These levels are Defined as Levels A, B, C, D; with Level A being the highest level of protection And level D providing the least amount of protection.

- 1. Level A:** protection consists of a fully encapsulated, gas and vapor-proof, chemical resistant suit and self-contained breathing apparatus (SCBA). This level of protection should be worn when the highest level of skin, respiratory, eye and mucous membrane protection is needed. The following list includes Level A equipment: (1) reusable or disposable fully encapsulated chemical resistant suit (tested and certified against CB threats) (2) Testing equipment for fully encapsulated suits (3) Spare bottles for SCBA and appropriate service / repair kits. (4) chemical resistant gloves, including thermal as appropriate to the hazard. (5) Personal cooling system, vest or full suit with support equipment (6) Hardhat (7) inner chemical/biological resistant garment (8) inner gloves (9) chemical resistant tape (10) chemical resistant boots, steel or fiberglass toe and shank (11) outer booties (12) two way local communications (13) personnel accountability system
- 2. Level B:** protection consists of splash resistant chemical suit, encapsulated or non-encapsulated, and an SCBA. This level of protection should be used when the highest level of respiratory protection is required, but a lesser level of skin and eye protection is sufficient. The following list includes Level B equipment: (1) splash resistant chemical clothing, encapsulated or non-encapsulated (2) splash resistant hood (3) spare bottles for SCBA and appropriate repair kit (4) chemical resistant gloves, including thermal, as appropriate to hazard (5) personal cooling system, vest or full suit with support equipment (6) inner chemical / biological resistant garment (7) hardhat (8) chemical resistant tape (9) chemical resistant boots, steel or fiberglass toe and shank (10) outer booties (11) two way local communications (12) Personal accountability system
- 3. Level C:** protection consists of a splash resistant chemical suit, with the same level of skin protection as Level B, and air purifying respirator. This level of protection should be used when the concentration(s) and type(s) of airborne substance(s) are known and criteria for using air purifying respirators are met. The following list includes Level C equipment: (1) splash resistant chemical clothing. (2) splash resistant hood (3) air permeable or semi permeable chemical resistant clothing (4) full face air purifying respirators with appropriate cartridges (5) chemical resistant gloves, including thermal, as appropriate to the hazard (6) Personal cooling system, vest or full suit with support equipment (7) hard hat (8) Inner chemical /biological resistant garment (9) Inner gloves (10) chemical resistant tape (11) chemical resistant boots, steel or fiberglass toe and shank (12) outer booties

(13) two way local communications (14) personnel accountability system (15) extrication gear

4. **Level D:** protection consists primarily of standard work uniform. This level of protection should be used when no respiratory protection and minimal skin protection is required. Also the atmosphere contains no known hazard and work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous levels of any chemicals. The equipment for this level should include: (1) coveralls (2) safety boots or shoes (3) safety glasses (4) hardhat (5) gloves (6) emergency escape breathing apparatus (7) face shield.

5 – 1 – 7 Decontamination

Contamination is the introduction of microorganisms into tissues or sterile materials. Decontamination is disinfection or sterilization of infected articles to make them suitable for use. Disinfection is the selective elimination of certain undesirable microorganisms in order to prevent their transmission. Sterilization is the complete killing of all organisms. BW agents can be decontaminated by mechanical, chemical and physical methods.

Decontamination methods have always played an important role in the control of infectious diseases. However, we are often unable to use the most efficient means of rendering infectious diseases harmless (e.g., toxic chemical sterilization) in order to not hurt people or damage materials which are to be freed from contamination.

Mechanical decontamination involves measures to remove but not necessarily neutralize an agent. An example is the filtering of drinking water to remove certain agents (e.g., *Vibrio cholera* or *Clostridium botulinum*) that may have been used to purposefully contaminate a water supply.

Chemical decontamination renders BW agents harmless by the use of disinfectants which are usually in the form of a liquid, gas or aerosol. One has to remember that some disinfectants are harmful to humans, animals, the environment, and/or materials.

Dermal exposure with a suspected BW agent should be immediately treated by soap and water decontamination. Careful washing with soap and water removes a very large amount of the agent from the skin surface. It is important to use a brush to ensure mechanical loosening from the skin surface structures, and then rinse with copious amounts of water. This method is often sufficient to avert contact infection. The contaminated areas should be washed with a 0.5% sodium hypochlorite solution, if available, with a contact time of 10 to 15 minutes.

Ampules of calcium hypochlorite (HTH) are also currently fielded in the Chemical agent decon set for mixing hypochlorite solutions. The 0.5% solution can be made by adding one 6-ounce container of calcium hypochlorite to five gallons of water. The 5% solution can be made by adding eight 6 – ounce ampules of calcium hypochlorite to five gallons of water. These solutions evaporate quickly at high temperatures so if they are made in advance they should be stored in closed containers. Also the chlorine solutions should be placed in distinctly marked containers because it is very difficult to tell the difference between the 5% chlorine solution and the 0.5% solution.

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To mix a 0.5% sodium hypochlorite solution, take one part Clorox and nine parts water (1:9) since standard stock Clorox is a 5.25% sodium hypochlorite solution. The solution is then applied with a cloth or swab. The solution should be made fresh daily with the pH in the alkaline range.

Chlorine solution must NOT be used in patients with (1) open abdominal wounds, as it may lead to the formation of adhesions, or (2) brain and spinal cord injuries. However, this solution may be instilled into non-cavity wounds and then removed by suction to an appropriate disposal container. Within about 5 minutes, this contaminated solution will be neutralized and nonhazardous. Subsequent irrigation with saline or other surgical solutions should be performed. Prevent the chlorine solution from being sprayed into the eyes, as corneal opacities may result.

For decontamination of fabric clothing or equipment, a 5% hypochlorite solution should be used. For decontamination of equipment, a contact time of 30 minutes prior to normal cleaning is required. This is corrosive to most metals and injurious to most fabrics, so rinse thoroughly and oil metal surfaces after completion.

BW agents can be rendered harmless through such physical means as heat and radiation. To render agents completely harmless, sterilize with dry heat for 2 hours at 160 degrees centigrade. If autoclaving with steam at 121 degrees centigrade and 1 atmosphere of overpressure (15 pounds per square inch), the time may be reduced to 20 minutes, depending on volume. Solar ultraviolet radiation (UV radiation) has a certain disinfectant effect, often in combination with drying. This is effective in certain environmental conditions but hard to standardize for practical usage for decontamination purposes.

Rooms in fixed spaces are best decontaminated with gases or liquids in aerosol form (e.g., formaldehyde). This is usually combined with surface disinfectants to ensure complete decontamination. Environmental decontamination of terrain is costly and difficult and should be avoided, if possible. If contaminated terrain, streets, or roads must be passed, spray with a dust-binding spray to minimize reaerosolization. Otherwise, rely on the natural processes which, especially outdoors, leads to the decontamination of agent by means of drying and solar UV radiation.

Appendix H: Important Characteristics

Disease	Transmit: Man to Man	Infective Dose (Aerosol)	Incubation Period	Duration of illness	Lethality	Persistence of Organism	Vaccine Efficacy
Inhalation anthrax	No	8,000-50,000 spores	1-6 days	3-5 days (usually fatal if untreated)	High	Very stable - spores remain viable for > 40 years in soil	2 dose efficacy against 200-500 LD ₅₀ in monkeys
Brucellosis	No	10-100 organisms	5-60 days (usually 1-2 months)	Weeks to months	<5% untreated	Very stable	No vaccine
Cholera	Rare	10-500 organisms	4 hours - 5 days (usually 2-3 days)	≥ 1 week	Low with treatment, high without	Unstable in aerosols & fresh water; stable in salt water	No data on aerosol
Glanders	Low	Assumed low	10-14 days via aerosol	Death in 7-10 days in septicemic form	> 50%	Very stable	No vaccine
Pneumonic plague	High	100-500 organisms	2-3 days	1-6 days (usually fatal)	High unless treated within 12-24 hours	For up to 1 year in soil; 270 days in live tissue	3 doses not protective against 118 LD ₅₀ in monkeys
Tularemia	No	10-50 organisms	2-10 days (average 3-5)	≥ 2 weeks	Moderate if untreated	For months in moist soil or other media	80% protection against 1-10 LD ₅₀
Q Fever	Rare	1-10 organisms	10-40 days	2-14 days	Very low	For months on wood and sand	94% protection against 3,500 LD ₅₀ in guinea pigs
Smallpox	High	Assumed low (10-100 organisms)	7-17 days (average 12)	4 weeks	High to moderate	Very stable	Vaccine protects against large doses in primates
Venezuelan Equine Encephalitis	Low	10-100 organisms	2-6 days	Days to weeks	Low	Relatively unstable	TC 83 protects against 30-500 LD ₅₀ in hamsters
Viral Hemorrhagic Fevers	Moderate	1-10 organisms	4-21 days	Death between 7-16 days	High for Zaire strain, moderate with Sudan	Relatively unstable	No vaccine
Botulism	No	0.001 µg/kg is LD ₅₀ for type A	1-5 days	Death in 24-72 hours; lasts months if untreated	High without respiratory support	For weeks in nonmoving water and food	3 dose efficacy 100% against 25-250 LD ₅₀ in primates
Staph Enterotoxin B	No	0.03 µg/kg is LD ₅₀ by ingestion	1-4 hours after inhalation	1-4 hours	High	Resistant to boiling	No vaccine
Ricin	No	3-5 µg/kg is LD ₅₀ in mice	18-24 hours	Days - death within 10-12 days for ingestion	High	Stable	No vaccine
T-2 Mycotoxins	No	Moderate	2-4 hours	Days to months	Moderate	For years at room temperature	No vaccine

Appendix I: BW Agents: Vaccine, Therapeutics, and Prophylaxis

DISEASE	VACCINE	CHEMOTHERAPY (Rx)	CHEMOPROPHYLAXIS (Px)	COMMENTS
Anthrax	Bioport® (Anthrax Vaccine Adsorbed) 0.5 mL SC @ 0, 12, 18 mo then annual boosters	Ciprofloxacin 400 mg IV q 8-12 h	Ciprofloxacin 500 mg PO bid x 7 d or erythromycin 400 mg PO bid x 7 d if unvaccinated, begin initial doses of vaccine	Potential alternative for erythromycin, and chloramphenicol
		<p>Oral rehydration therapy during period of high fluid loss</p> <p>Tetracycline 500 mg q 6 h x 3 d</p> <p>Doxycycline 300 mg once, or 100 mg q 12 h x 3 d</p> <p>Ciprofloxacin 500 mg q 12 h x 3 d</p> <p>Norfloxacin 400 mg q 12 h x 3 d</p>	<p>Doxycycline 200 mg IV, then 100 mg IV q 8-12 h</p> <p>Penicillin: 2 million units IV q 2 h</p> <p>Doxycycline 100 mg PO bid x 4 wk plus vaccination</p>	PCN for sensitive organisms only
Cholera	Wyeth-Ayerst Vaccine 2 doses 0.5 mL IM or SC @ 0, 7-30 days, then boosters Q 6 months	<p>Oral rehydration therapy during period of high fluid loss</p> <p>Tetracycline 500 mg q 6 h x 3 d</p> <p>Doxycycline 300 mg once, or 100 mg q 12 h x 3 d</p> <p>Ciprofloxacin 500 mg q 12 h x 3 d</p> <p>Norfloxacin 400 mg q 12 h x 3 d</p>	<p>Tetracycline 500 mg PO bid x 7 d</p> <p>Doxycycline 100 mg PO bid x 7 d</p> <p>Ciprofloxacin 500 mg PO bid x 7 d</p>	<p>Vaccine not recommended for use in endemic areas (50% efficacy, short term)</p> <p>Alternates for Rx: erythromycin, trimethoprim and sulfamethoxazole, and furazolidone</p> <p>Quinolones for tetradoxy resistant strains</p>
Q Fever	IND 610 - inactivated whole cell vaccine given as single 0.5 ml s.c. injection	<p>Tetracycline 500 mg PO q 6 h x 5-7 d</p> <p>Doxycycline 100 mg PO q 12 h x 5-7 d</p>	<p>Tetracycline start 8-12 d post-exposure x 5 d</p> <p>Doxycycline start 8-12 d post-exposure x 5 d</p>	<p>Currently testing vaccine to determine the necessity of skin testing prior to use.</p>
Glanders	No vaccine available	<p>Sulfadiazine 100 mg/kg in divided doses x 3 weeks may be effective</p> <p>TMP-SMX may be effective</p>	<p>Post-exposure prophylaxis may be tried with TMP-SMX</p>	No large therapeutic human trials have been conducted owing to the rarity of naturally occurring disease.
Plague	Greer inactivated vaccine (FDA licensed): 1.0 mL IM; 0.2 mL IM 1-3 mo later; 0.2 mL 5-6 mo after dose 2; 0.2 mL boosters @ 6, 12, 18 mo after dose 3. Interval q 1-2 years	<p>Streptomycin 30 mg/kg/d IM in 2 divided doses x 10 d (or gentamicin)</p>	<p>Doxycycline 100 mg PO bid x 7 d or duration of exposure</p> <p>Ciprofloxacin 500 mg PO bid x 7 d</p>	<p>Plague vaccine not protective against aerosol challenge in animal studies</p>
		<p>Doxycycline 200 mg IV then 100 mg IV bid x 10-14 d</p> <p>Chloramphenicol 1 gm IV qid x 10-14 d</p>	<p>Doxycycline 100 mg PO bid x 7 d</p> <p>Tetracycline 500 mg PO qid x 7 d</p>	<p>Alternate Rx: trimethoprim-sulfamethoxazole</p> <p>Chloramphenicol for plague meningitis</p>

Clinical Microbiology of Critical Biological Agents - 7/1

Disease	Signs & symptoms	Physical Exam	Clinical tests	Key differential diagnosis	Incubation period	Duration of illness	Case Fatality	US Entomology
Inhalational Anthrax	Fever, malaise, cough, mild chest pain, possible short recovery phase then onset of dyspnea, diaphoresis, stridor, cyanosis, shock. Death 24-36 hours after onset of severe symptoms. Hemorrhagic meningitis in up to 50%.	Non-specific physical findings.	Serology, gram stain, culture, polymerase chain reaction (PCR); CXR - widened mediastinum. Rarely pneumonia.	Hemorrhagic meningitis syndrome (HPS); Dissecting aortic aneurysm (no fever)	1-6day (up to 43 day)	3-6day	~100% if untreated	NC
Pneumonic plague	High fever, chills, headache, hemoptysis, and toxemia, rapid progression to dyspnea, stridor, and cyanosis. Death from respiratory failure, shock, and bleeding.	Rales, hemoptysis, purpura	Gram stain, culture, serum immunoassay for capsular antigen, PCR, immunohistochemical stains (IHC)	HPS, TB, community acquired pneumonia (CAP), meningococcal meningitis	2-3day	1-3day	Usually fatal unless treated in 12-24 hour	2-3 cases/yr. mainly in SW US
Tularemia	Typhoidal - aerosol, gastrointestinal, & intradermal challenge. Fever, headache, malaise, chest discomfort, anorexia, non-productive cough. Pneumonia in 30-80%. Oculoglandular from inoculation of conjunctiva with periorbital edema.	No adenopathy with typhoidal illness	Serology, culture, PCR, IHC; CXR - pneumonia, mediastinal lymphadenopathy, or pleural effusion.	Atypical CAP, Q fever, Brucellosis	1-10day [average 3-5day]	> 2 wks	10-35% untreated	150 cases/yr.; transmitted by ticks/deer flies or contact with infected animals
Smallpox	Fever, back pain, vomiting, malaise, headache, rigors. Papules 2-3 days later, progressing to pustular vesicles. Abundant on face and extremities initially.	Papules, pustules, or scabs of similar stage, many on face/extremities, palms/soles	Guarnieri bodies on Giemsa or modified silver stain, virions on electron microscopy, PCR, viral isolation, IHC	Vaccinia, vaccinia, monkeypox, cowpox, disseminated herpes zoster	7-17day [average 12day]	4 wks	up to 30%; higher in flat-type or hemorrhagic disease	None
Botulism	Prosis, blurred vision, diplopia, generalized weakness, dizziness, dysarthria, dysphonia, dysphagia, followed by symmetrical descending flaccid paralysis and respiratory failure.	No fever, patient alert, postural hypotension, pupils unreactive, normal sensation, variable muscle weakness	Serology, toxin assays/anaerobic cultures of blood/stool; electromyography studies	Guillain Barre, myasthenis gravis, tick paralysis, Mg++ intoxication, organophosphate poisoning, polio	1 - 5day	Death 24-72 hour or respiratory support for months	High mortality without respiratory support	30 cases/yr.; food intoxication, wound infections, or honey ingestion (infants)
Emerging viruses (Mabung, Ebola)	Fever, severe headache, malaise, myalgia, maculopapular rash day 5; progression to pharyngitis, hematemesis, melena, uncontrolled bleeding; shock/death days 6-9	petechia, ecchymoses, conjunctivitis, uncontrolled bleeding	Serology, PCR, IHC, electron microscopy (EM); elevated liver enzymes, thrombocytopenia	meningococcal meningitis, malaria, typhus, leptospirosis, borreliosis, thrombotic thrombocytopenic purpura (TTP), rickettsiosis, hemolytic uremic syndrome (HUS), arenaviruses	2-19day [average 4-10day]	days to weeks		
Arenaviruses (Lassa, Junin, Sabia, Machupo, Guanarito)	Fever, malaise, myalgia, headache, N/V, pharyngitis, cough, retrosternal pain, bleeding, tremors of tongue and hands (Junin), shock, aseptic meningitis, coma, hearing loss in some	conjunctivitis, petechia, ecchymoses, flushing over head and upper torso	Serology, viral isolation, PCR, IHC; leukopenia, thrombocytopenia, proteinuria	leptospirosis, meningococcal meningitis, malaria, typhus, borreliosis, rickettsiosis, TTP, HUS, arenaviruses	5-21day [average 7-10day]	7-15day	15-30%	none

PERHAM AREA EMS

POLICY NAME: LARGE SCALE DECONTAMINATION RESPONSE PLAN

DATE APPROVED:	BY: Jim Rieber	SUPERCEDES POLICY NAME (POLICY):
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POLICY: PLAN FOR BIOLOGICAL CHEMICAL EXPOSURE

PURPOSE: To outline Perham Area EMS response to large scale decontamination exposure

PROCEDURE: In the event Perham Area EMS is required to respond to a large scale decontamination exposure or biological threat exposure the following guideline will be followed.

1. **Activate the emergency response plan**
 - a. **Contact the EMS Director or designee**
 - b. **Contact Perham police Chief or designee**
 - c. **Contact Perham Fire Chief or designee**
 - d. **Perham Memorial Hospital Charge Nurse**
 - e. **Request the Infection Control Designee from Perham Memorial Hospital report to the Emergency Operations Center**
 - f. **Contact Ottertail County Emergency Operations Dispatch**

The following information will be provide as available

 - i. **Type of incident**
 - ii. **Nature of exposure**
 - iii. **Extent of area exposed**
 - iv. **Estimated population exposed**
2. **Activate the Emergency Operation Center**
 - a. **Page and request all staff to respond to EMS base for briefing**
 - b. **Contact the State Duty Officer**
 - c. **Contact bus companies for transportation assistance**
3. **The following positions will be assigned by the EMS Director or his designee**
 - a. **Medical Screening**
 - b. **Medical Triage**
 - c. **Transportation Officer**
 - d. **Housing control**
 - e. **Emergency response crew**

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4. **The positions for the decontamination area, other than medical staff will be requested from EOC**
 - a. **See attachment # 1**

Based on the information available we operate under one or all of the following plans.

Biological exposure with cross contamination possible.

1. **Establish Decontamination area in bays one and two of Fire Department bays based on map in attachment one. See detail on attachment # 2**
2. **A patient registration station will set up in the patient entry area.**
3. **Paramedic will set up medical screening in patient entry location, medical patients have priority.**
4. **Set up medical treatment in medical treatment area after showers. Physician, nurse, paramedic and EMT's will assist.**
5. **Two ambulances will be staffed and wait by the medical loading area for transport of patients requiring transport to Perham Memorial Hospital.**
6. **One ambulance will be stationed in front of the Emergency Service Building and be responsible for emergency response. (this will be considered a contaminated vehicle, no decontaminated patients to be transported.**
7. **All patients transported from Emergency Service building to Perham Memorial Hospital will be transported in clean ambulances.**
8. **All patients without medical needs will be directed into the old fire bays for transport to housing areas.**
9. **All transports to housing areas will be provided by busses.**
 - **The Heart of the Lakes and Prairie Wind Middle Schools will be utilized for housing**

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Biological exposure with quarantine required.

- 1. Establish Decontamination area in bays one and two of Fire Department bays based on map in attachment one. See detail on attachment # 2**
- 2. A patient registration station will set up in the patient entry area.**
- 3. Paramedic will set up medical screening in patient entry location, medical patients have priority.**
- 4. Set up medical treatment in medical treatment area after showers. Physician, nurse, paramedic and EMT's will assist.**
- 5. Two ambulances will be staffed and wait by the medical loading area for transport of patients requiring transport to Perham Memorial Hospital.**
- 6. One ambulance will be stationed in front of the Emergency Service Building and be responsible for emergency response. (this will be considered a contaminated vehicle, no decontaminated patients to be transported.**
- 7. All patients transported from Emergency Service building to Perham Memorial Hospital will be transported in clean ambulances.**
- 8. Patients considered to be infectious will be directed out the Medical Load doors and transported to a housing area for quarantine patients.
DO NOT INTERMINGLE THESE PATIENTS OR VEHICLES**
 - In this situation the Perham Area Community Center is considered the prime choice for quarantined patients**
 - The Heart of the Lakes and Prairie Wind Middle Schools will be utilized for housing**
- 9. All patients without medical needs will be directed into the old fire bays for transport to housing areas.**
- 10. All transports to housing areas will be provided by buses.**

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All Exhaust fans will be operating and floor exhaust to each section
 All staff will be in full personal protective equipment including respiratory protection

All potentially contaminated patients will enter through the Patient Intake and all persons will exit through the Medical Load or Patient Housing areas.

DO NOT ALLOW CROSS CONTAMINATION

1. Patient registration EOC Staff 1, Medical Staff 1, Fire Staff 1
 - a. Name
 - b. Responsible party
 - c. Address
 - d. DOB
 - e. Medical condition
2. Clothing removal Fire Staff 1
 - a. All persons must remove clothing and place clothing in plastic bags provided
 - b. Bags to be placed in waste disposal container
 - c. Valuable to be labeled tagged and placed in Police Evidence area for holding.
3. Move into shower area
 - a. Shower one clean rinse Fire Staff 3
 - b. Shower two wash antibacterial soap
 - c. Shower three clean rinse
 - d. Hose and nozzles on fine spray
4. Medical triage area Medical Staff 2
 - a. Provide sheets or blankets for patient covering
 - b. Perform medical assessment
 - c. Direct to treatment area if indicated
 - d. Direct to patient housing area if no medical attention needed
5. Medical Treatment Area EOC 1, Medical Staff 3
 - a. Provide medical treatment as required
 - b. Provide transport to Perham Memorial Hospital or as directed by transportation officer
 - c. Direct persons to housing if no medical treatment needed
6. Housing holding area EOC 1, Security 2, Fire Staff 1
 - a. Direct persons to holding area, (keep heat turned up for patient protection)
 - b. Busses will be loaded from the rear of the Perham Fire Department training room
 - c. Load busses and direct to appropriate housing shelter as directed by transportation officer
 - d. Record names and ID # of patients and location where transported.
 - e. If patient required medical attention direct them to medical treatment area

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AGENTS AND THEIR DECONTAMINANTSAgentsDecontaminants

AC (Hydrogen Cyanide or HCN)	None (Aeration in Closed areas)
Adamsite (See DM)	
Adenovirus Type 2	Sodium Hypochlorite Solution 1 %/ Paraformaldehyde Vapor
Alpha Bungarotoxin	Soap and Water
Anatoxin A (Very Fast Death Factor)	Hot Soapy Water
Arsine (SA)	None (Aeration in Closed areas)
Bacillus Anthracis (Anthrax)	Sodium Hypochlorite Solution 1%
Batrachotoxin (Comes From Colombian Frog)	Soapy Water & Organic Solvents
Botulinum Neurotoxin	Sodium Hypochlorite Solution 1 %
Brass Powder	Soap and Water
Brucella Suis	Sodium Hypochlorite Solution 1 %
BZ (3-Quinuclidinyl Benzilate)	Alcoholic Caustic / Skin-Soap and Water
CHT	Vinegar and Citric Acid
CK - Cyanogen Chloride	None (Aeration in Closed areas)
CR	Propylene Glycol
CS	Methanol and Water
CX – Phosgene Oxime	DS2 / Skin- Large amounts of water
Chikungunya (CHIK)	Sodium Hypochlorite Solution 1 %
Chloropicrin (PS)	Sodium Sulfide (Neutral or Basic pH)
Cigo Toxin	Isopropyl Alcohol
Clostridium Perfringens Toxins	Soap and Water
Coral Poisons (See Palytoxin)	
Coxiella Burnetii (Q Fever)	Micro Chem Solutions 5 %
Cyanogen Chloride (See CK)	
DA (Diphenylchloroarsine)	None, Use caustic soda or

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	chlorine in closed areas
DC (Similar to DM)	None, use DS2 in enclosed areas
DC (Methylphosphonic Dichloride)	Soda Ash
DF (Methylphosphonic Difluoride)	Soda Ash
DICDI	Hydrochloric Acid Solutions
DM (Adamsite)	None / Use Bleaching Powders
DMPT	Soap and Water
DP (See Diphosgene)	
Dibenz-(b,f)-1,4-oxazepine (See CR)	
Diisopropylcarbodiimide	Hydrochloric Acid Solution
Diphosgene	None / Use aeration in closed spaces
ED	None
Eastern Equine Encephalitis	Sodium Hypochlorite
Ethylidichloroarsine (See ED)	
Fentnyla	Water acidified with acetic acid
Fungu Poison (See Tetrodoxin)	
GA (Tabun)	Bleach and Caustic Soda
GB (Sarin)	Alcoholic Caustic / Bleach and DS2
GD (Soman)	DS2
GF	DS2
H, HS, HD	HTH Solution / STB Slurry / Bleach
HCN (See AC)	
HF	Soda Ash
HL	STB Slurry / HTH Solution / Bleach
HN	STB Slurry / HTH Solution / Bleach
HT	STB Slurry / HTH Solution / Bleach
Hantaan Virus	Sodium Hypochlorite Solution 1%
Hydrogen Cyanide (See AC)	

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Isopropylamine or Isopropyl (See OPA)	
Japanese Encephalitis (JE)	Sodium Hypochlorite Solution 1% Hydrogen Peroxide 3% Iodine 1%
Lassa Virus	DS2 / Alcoholic Caustic Sodium Hypochlorite
Lewisite (See L)	
MD	HTH / STB / Bleach
MPOD (See DF or DC)	
Machupo Virus	Sodium Hypochlorite Solution 1%
Methyldichloroarsine (See MD)	
Microsystin	Soap and Water
Mustard – Lewisite (See HL)	
Mustard – T (See HT)	
Mycotoxins (See T2 Toxin)	
NE (Powdered Sulfur Mixture)	
Nitrogen Mustard (See HN)	
OPA	Soap and Water
PD	HTH / STB / Bleach / Caustic Soda
Palytoxin	Large amounts of water
Phosgene (CG)	None (Aeration in large areas)
Phosgene Oxime (See CX)	
QL (Binary component for VX)	Soda Ash
Rift Valley Fever Virus	Sodium Hypochlorite Solution 1%
RICIN	Sodium Hypochlorite 0.1% Solution
SA (See Arsine)	
Sarin (See GB)	
Saritoxin	Soap and Water
Scorpion (See Venom)	
Soman (See GD)	

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Sulfur Mustard	STB Slurry / HTH / Bleach
T	STB Slurry / HTH / Bleach
TGD	DS2
THD	Bleach / HTH Solution
Tabun (See GA)	
Tick Borne Encephalitis (TBE)	Sodium Hyporchlorite 1% Solution
Tetrodotoxin (Puffer Fish)	STB / DS2 / Soap and Water
T2 Toxin	STB or DS2 / 30 Minutes at 75 Degrees
VX	STB Slurry / DS2 / Hot Soapy Water
Vaccinia Virus	Sodium Hyporchlorite Solution 1%
Venezuelan Equine Encephalitis (VEE)	Sodium Hyporchlorite Solution 1%
Venom and Toxins (Snakes, Scorpions, Etc.)	Soap and Water
Western Equine Encephalitis	Sodium Hyporchlorite Solution 1%
Yellow Fever Virus	Sodium Hyporchlorite Solution 1% Hydrogen Peroxide 3% Iodine 1%
Yersinia Pestis (Plague)	Sodium Hyporchlorite Solution 1%

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