Annex 1: Bioterrorism Plan

Updated: May 2023

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I. Purpose:

The Health Department provides routine monitoring of the community for infectious disease clusters through both the Environmental Health and Public Health Divisions. *(See HEPReP Section 3, Surveillance*)

A Biological Terrorism (BT) Incident may come to light through a number of different avenues based on the acuity of the attack, the aggressiveness of the agent, the method of transmission of the agent, and the scope of the attack or exposure.

II. Definitions:

A. Biological Agents: For the purposes of this Plan, agents are divided according to the transmissibility, diagnostic characteristics and treatment of each agent. The CDC classification for each agent is listed immediately following the name.

B. Bioterrorism Event: The intentional use or threatened use of microorganisms or biologically produced toxins to produce disease in humans, animals or plants.

C. CBRNE: Chemical, Biological, Radiological, Nuclear and Explosive incidents or agents.

D. Chemical Warfare Agent:

A chemical that is produced and deployed with the intent to cause death. Such agents may include highly toxic substances such as neurotoxins or chemicals caustic to the lungs.

E. (CDC) Classification of BT Agents:

The following classification system for the potential bioterrorism agents is used by the CDC:

Category A: These agents can be easily disseminated or transmitted from person to person, result in high mortality rates, may cause a high degree of public panic and social disruption, and require special action for public health preparedness

Category B: These agents are moderately easy to disseminate, result in moderate morbidity rates and low mortality rates, and require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance

Category C: These agents include the emerging pathogens. They are readily available, are easily produced and disseminated, and have a significant potential for high morbidity and mortality rates and major health impact.

F: Classification of Event

Covert or overt, remote, Level I or Level IIA Incident: This type of presentation is exemplified by the 2001 Anthrax incident on the east coast of the United States. As in that instance, information about the occurrence is received through the national media. Local response consists of identifying the avenues by which Tuolumne County residents might be affected by the outbreak, and mitigating the risk by addressing those possible routes of exposure.

Covert or Overt, Local, Level II B Incident**:** In the event of a Bioterrorist incident occurring in proximity to, or within the boundaries of Tuolumne County, the convening of the Emergency Operations Center would be indicated in order to formulate a plan and organize an appropriate public response.

G. Hazardous Material Exposure:

Accidental or intentional exposure to materials considered dangerous to people and the environment. Both short-term and long-term contamination of an area is possible depending upon the situation.

H. Accidental: Exposure may be associated with transportation accidents or occur in a fixed production or storage facility or in clandestine drug labs.

I. Intentional: Exposure may be associated with a terrorist event, such as a deliberate spillage or release of hazardous materials onto the ground, in buildings or into the air or water supply.

K. Mass Incident: An incident involving 500 patients, as defined by Federal Bioterrorism Planning, CDC and HRSA funding guidance documents. However, all local healthcare systems and resources vary, such that the definition of a "mass" incident will vary depending upon the local region.

L. Mass Prophylaxis: In accordance with the above definition, mass prophylaxis is defined as an intervention to provide preventative health care to a population that exceeds the normal capacity of the local public health and private health care system. This might consist of Mass Vaccination, Mass Medication Distribution, or Mass Triage for the consequences of radiation exposure. According to the CDC "General Guidelines for a Mass Vaccination Clinic" and the characteristics of Tuolumne County, a rate of processing of 100 to 200 patients per hour is targeted.

III. Presentation:

The presentation of a true Bioterrorism incident may take any combination of the following forms:

A. A *covert, unannounced* incident:

In this setting, the appearance of an unusual outbreak of illness may be confused with a naturally occurring, unintentional infectious disease outbreak. Signs that would help distinguish whether a particular cluster of illness results from the intentional use of biological agents include:

1. The appearance of an unusual or eradicated infectious agent (e.g. smallpox)
2. Infection arising in a population that would normally not be at risk for a particular illness (e.g. aggressive pneumonia in non-immunocompromised populations)
3. Statistically unexplained increased incidence of a specific and unusual medical illness (e.g. increased presentation of hemorrhagic bronchitis)
4. Common source identification in an infectious outbreak (e.g. illness in Post Office workers in a particular district)
5. Occurrence of an unusually aggressive form of illness (e.g. hemorrhagic gastroenteritis with prostration)
6. The occurrence of an infectious disease which is unusually resistant to the usual treatment (e.g. persistent sepsis despite antibiotic therapy)

B. An *overt, announced* incident:

A terrorist incident is intended to incite fear, panic and confusion in the public. In order to accomplish this objective, incidents may be publicly announced and responsibility for the outbreak claimed by certain groups. In such circumstances, several conditions may exist:

1. The claim may be false. There may be either no actual exposure of the public to a biological agent (e.g. powder in an envelope claimed to contain anthrax), or the agent of exposure may be something other than the more threatening bioterrorist agent (e.g. monkeypox infection masquerading as smallpox infection).
2. The claim is true, but it is unclear which members of the public have been exposed. The greatest risk to the public would arise from the exposure of unidentified individuals to a transmissible infectious agent, because of the risk that the agent would be transmitted unwittingly throughout the community. Fortunately, most of the aggressive biological agents are not infectious until victims have become symptomatic of the infection, thereby identifying individuals with the potential of serving as a source of transmission.
3. The claim is true, and individuals at risk are clearly identified.

III. Activation of a Bioterrorism Emergency Operations Center (EOC)

The determination of a need, or lack thereof, for activation of an EOC is determined in consultation with the County Office of Emergency Services (OES) Coordinator and the Tuolumne County Chief Administrative Officer (CAO). In the event of an EOC activation,

procedures would follow the protocols established in the County Emergency Services Plan.
The ensuing Health Department investigation would follow, with the mobilization of appropriate Health Department resources and formation of a Health Department, Department Operations Center (DOC) Incident Command (IC) as outlined in Section 2 of the HEPReP.

A. Activation of the Public Health Response
Activation will follow the California Department of Public Health (CDPH), Center for Disease Control (CDC), Department of Homeland Security (DHS) or United States Department of Health and Human Services alert of a Urgency Level III or IV Bioterrorism attack. In this event, depending on the degree to which a direct threat to Tuolumne County exists, the Emergency Operations Team is convened to address the threat.

B. Activation of the Public Health Response
Response would follow an obvious regional Bioterrorism (BT), Chemical Weapons, or Radiological disaster, which would immediately result in the activation of a County EOC and a Health Department DOC in accordance with this Plan.

IV. Classification of a Bioterrorism Incident

The distinction between a natural infectious disease outbreak and an intentional exposure to an infectious, toxic or explosive agent is determined by the initial investigation conducted by law enforcement and public health resources - federal, state and local.

A. Source Investigation
Possible sources of exposure to a BT agent are investigated by a team consisting of local Law Enforcement, a Registered Environmental Health Specialist (with training in the triage of infectious agents and dissemination devices for bioterrorist agents), and possibly a representative of the Public Health Division.

B. Risk Assessment
If a particular device is involved in the suspected event, an assessment of the risk of a given incident is completed by the investigators in consultation with the Health Officer.

1. The reporting party may be asked to double-bag the suspected device, prior to the arrival of the investigators, in two clear plastic bags for inspection by the investigators. If no plastic bags are available, the reporting party will use any two plastic containers to isolate the device.
2. The situation will be classified by the investigators as either high risk, significant risk, or minimal risk:
   a. High Risk: These devices are referred to the Hazardous Materials Team for management. They should be analyzed using the highest precautions available, and analysis should be undertaken for criminal investigation purposes. Tuolumne County Health Officer, MHOAC and FBI notification should be immediate.
   b. Significant Risk: This classification is for devices that are not at all likely to represent an intentional biological dissemination device.

Particular attention is given to the features of the report that are consistent with the announced nature of the threat. For instance, if a particular threat is directed against school personnel, this should raise suspicion of any school related incident. When incidents are classified as significant risk, reviewing the content of the threat does not reveal any evidence of a psychotic thought disorder on the part of the reporting individual, but there should be some evidence of circumstances or historical factors that discredits the perception or the capabilities of the reporting party. This feature distinguishes "significant risk" from "high risk" threats, the latter which presents no reason to question the danger posed by the threat. The added safety of undertaking a formal investigation of the device in a "significant risk" threat by activating the Hazardous Materials Team is not deemed by the investigators to justify such an undertaking. An example of a "significant risk" threat or device might be a package shaped like a CD, mailed from a foreign country to where the individual who files the report has recently traveled, but which has no return address and incorrectly names the resident at the home where the package was received. The report of the investigators should document this information.

i. The device is collected by the investigators
ii. The reporting party receives written documentation that the suspicious item was collected by Law Enforcement in addition to notice that the device will be destroyed and not returned to the reporting party.
iii. The device is destroyed in such a way to assure the destruction of any organism or biologically active toxin contained within the item, such as by incineration, under protocols established by the Environmental Health Division in accordance with rules that regulate the destruction of Hazardous Materials

c. Minimal Risk: Misguided concern, irrational fear or frank delusional thinking may lead individuals to report suspected Bioterrorist devices. The investigation should document those features of the report that discredit the suspicion.

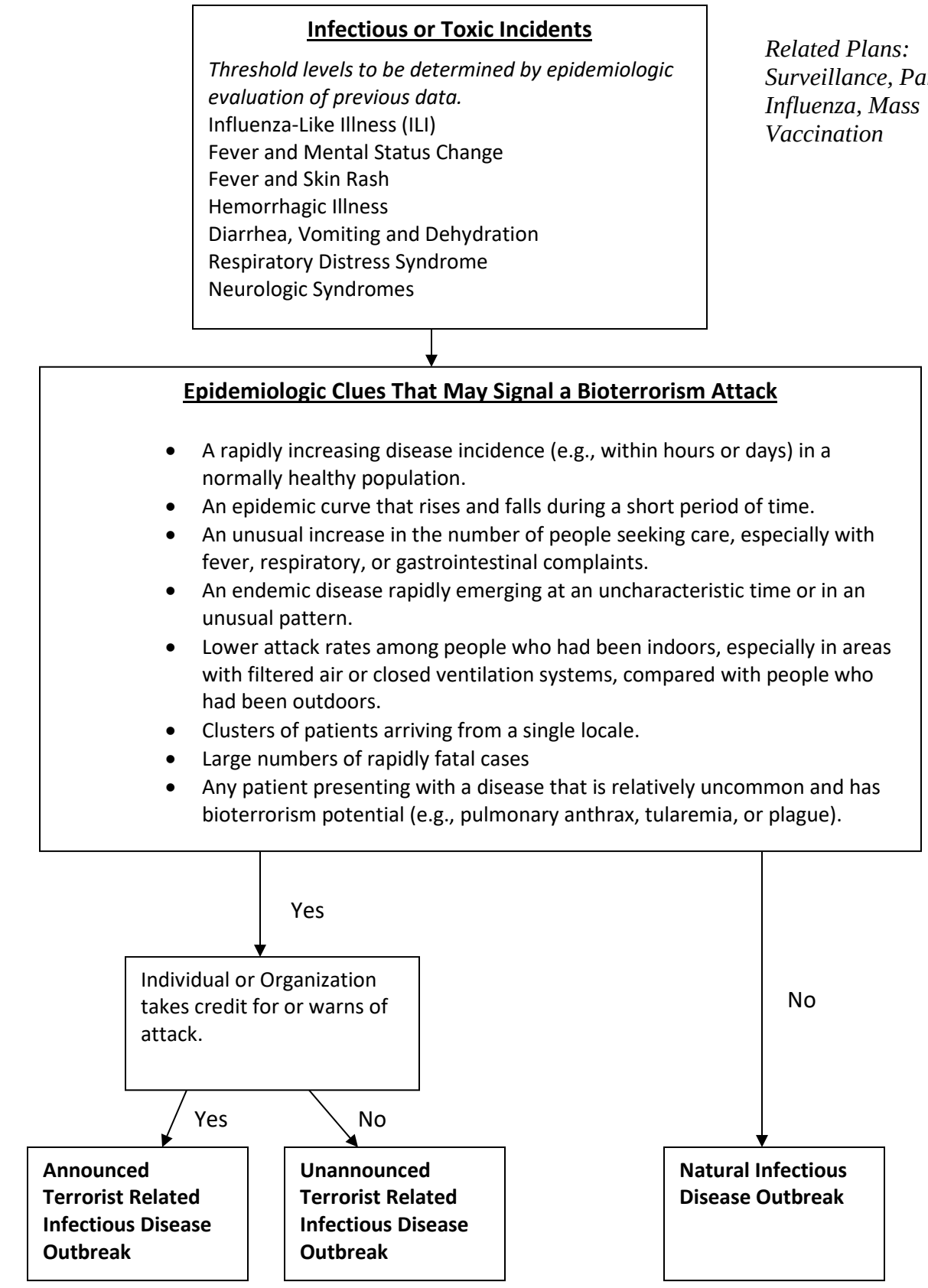
i. The device is collected by the investigators
ii. Destruction and/analysis of the item is not necessary.

C. Event Classification

Once an emergent risk to public health is confirmed, the initial response to a health emergency will depend on the nature of the incident and the local outpatient and inpatient response capacity. Local public health surge capacity is a function of available local resources in the Emergency Medical System, the public and private health care workforce, inpatient and outpatient medical facility capacity, the Office of Emergency Services, the level of public emergency response awareness, available private resources and public health system capacity. Because there are limits to these resources in every jurisdiction, a tiered response plan is important and most practical. The following represents levels of response activation based upon the Scale, Presentation and Urgency Level. The chart on the following page (Chart 1.

Incident Assessment and Classification) describes the algorithm used for distinguishing between a natural infectious outbreak and a bioterrorism incident. These protocols represent different levels of response determined by different thresholds of risk posed to the population by different incident classifications. These are meant to be guidelines and are subject to interpretation and modification in order to meet the needs of any given incident.

Chart 1. Incident Assessment and Classification



1. Covert or Overt, Remote, Level I or Level II A Incident**:** This type of presentation is exemplified by the 2001 Anthrax incident on the east coast of the United States. As in that instance, information about the occurrence is received through the national media. Local response consists of identifying the avenues by which Tuolumne County residents might be affected by the outbreak, and mitigating the risk by addressing those possible routes of exposure.

2. Covert or Overt, Local, Level II B Incident: In the event of a Bioterrorist incident occurring in proximity to, or within the boundaries of Tuolumne County, the convening of the Emergency Operations Center would be indicated in order to formulate a plan and organize an appropriate public response.

    a. The immediate response would be determined by the scope of the outbreak, determined by the number of casualties, the aggressiveness of the infection, and the number of potentially exposed individuals. The decision whether to fully mobilize a BT Response is determined by whether the Health Officer declares a Public Health Emergency.

    b. The therapeutic response to a local non-transmissible agent exposure would include removal of the source of exposure; identification, decontamination and treatment of individuals infected with the offending organism or affected by the toxin; and prophylactic antibiotic therapy for, and/or vaccination of, individuals at risk of infection due to exposure.

        I. In the event of a very limited outbreak, identification of the population at risk of exposure would be determined by the epidemiologic investigation undertaken by the Health Department under the guidance of the Health Officer, and in consultation with state epidemiologists, CDC representatives and infectious disease consultants.

        II. In the event of a widely disseminated attack, the initial step of the BT response will be to establish an Incident Command on site. The designation of a "hot zone" and "warm zone" will ensue, as determined by the characteristics of the attack. The primary goal of first responders will be to establish a perimeter to prevent the spread of contamination to persons outside this perimeter and to prevent the exposure of unprotected responding personnel to the offending BT agent. (See Attachment 1, Agents)

            a) In such circumstances, deployment of the most accessible Haz-Mat Response Team will be requested.

            b) Field Mass Decontamination Protocol will be initiated by the responding Fire Services if indicated.

                i) Local hospitals will receive notice of the incident and prepare for the arrival of potentially contaminated patients that may require Decontamination at the hospital facility, if the situation suggests this possibility.

                ii) Maintenance of patient logs to identify victims for subsequent follow-up will be the responsibility of the

First Responder teams, as achievable based on the demands of the incident.

c) To distinguish between a chemical and biological release:
   i) A biological release rarely causes immediate symptoms (except for mycotoxins)
   ii) Chemical agents often cause pin point or dilated pupils, runny nose, clammy perspiration, nausea or vomiting, seizures, loss of bladder control, loss of consciousness or death
   iii) Chemical exposures are likely to affect a large number of people simultaneously

d. Field Decontamination is addressed via self-supported free standing Decontamination shelters stored at three sites throughout the county. Protocols are established by the Fire Services. Waste water management and clean-up is under the supervision of the Environmental Health Director. (See Appendix 2: Decontamination set up)

e. Following completion of decontamination procedures in a mass incident, gowned patients will be transported by Tuolumne County Public Transport buses to a central site for medical clearance and subsequent release to home.

f. Public Information and Media Releases: Timely and accurate public statements will be relayed to the media through the PIO. The Health Officer, IC and PIO will ensure that all releases to the media and public are coordinated among all participating hospitals and agencies. Hospital PIOs will function as the point of contact for dissemination of information to local hospitals. The focus of these communications will be to provide clear instructions to the public regarding areas restricted to travel, if travel restrictions are deemed necessary. The public will receive information about the nature of the local exposure and mitigating measures to be taken. To what extent it is possible, answers to public questions will be addressed by the PIO in consultation with the Health Officer to allay misguided fears. (See HEPReP Risk Communications Annex)

g. Hospital Decontamination**:** In the instances where self-referred patients arrive at the hospital from a known nuclear, biological, or chemical terrorism event location, it may be necessary for the hospital to activate procedures for external decontamination and triage. Procedures for an external triage area outside the hospital, as well as internal isolation and lock-down of areas knowingly contaminated, will be instituted. The Sonora Regional Medical Center Bioterrorism Readiness Plan and HEICS Plan will guide these procedures. A contracted Hazardous Materials Response Team will respond to a request for support if available. Requests for a contracted Haz Mat

Team response are made by the OES, but may originate from a local hospital in need of assistance to manage contaminated patients arriving for emergency services. Private arrangements between a hospital and a Haz Mat Response team are beyond the authority of this response plan. Hospital protocols for the use of decontamination facilities at the local hospital will be utilized. During decontamination procedures water from the decontamination runoff will be contained and appropriate PPE deployed during the procedure.

h. Treatment and Staging Facilities: Arrangements have been made for the utilization of the Alternate Sites described in this plan as staging grounds for Medical Triage Sites. Alternate Treatment Sites, Mass Prophylaxis Sites and/or Points of Dispensing, or "PODs," (See Annex 6: Mass Dispensing) in incidents of sufficient scale. Activation of these sites will be authorized by the IC and arranged by the OES Coordinator. Staffing of these facilities is coordinated through the Emergency Operations Team with the assistance of the Planning Section Chief. These can be used as receiving sites for victims following completion of decontamination in order to complete medical clearance and treatment interventions where necessary.
   i. The need for deployment of the **Disaster Healthcare Volunteers of California** will hinge upon the demands of a particular incident. This decision will be made by the Planning Section Chief in consultation with the Health Officer.
   ii. Treatment facilities may be located on site for agents with immediate toxicity, or to limit the transport of potentially contaminated patients with significant injuries. It is preferable to allow patients to remain longer in a contaminated location than to risk spreading contamination beyond the established "hot zone" perimeter by transporting patients prematurely.
   iii. Treatment facilities or "Alternate Treatment Sites" may be located at an Alternate Site location in the event that supplies are needed that require a separate site for storage, or if patient volume calls for such arrangements.
   iv. Established SEMS/NIMS protocols will organize the First Responder actions as for any other disaster scene.

i. Response Protocols: Following initial investigation of the offending infectious agent involved in an incident, prophylaxis or treatment protocols will be designed in consultation with Infectious Disease consultants from local, state, and/or CDC levels and approved by the Health Officer. These protocols will be provided to the local health care providers at field, hospital and private office triage sites in addition to Alternate Sites for implementation. The Disaster Healthcare Volunteers of California will utilize and help to disseminate this protocol throughout the community. Avenues of communication outlined in the HEPReP, Section 4, Communications and Annex 7, Risk Communications**,** provide details of distribution of information.

Measures to protect workers in a contaminated environment will reflect current practice in infection control, by preparing all workers for the possibility of exposure to the most highly infectious agent until the agent has been definitively identified. Therefore, "Standard precautions" will include preparation for the possibility of an airborne agent. For PPE requirements, see Table 1.

3. Covert or Overt Level III or Level IV Incident**:** The primary difference in confronting the risks of a transmissible infectious disease outbreak as compared to a non-transmissible agent, is the need to consider a mass vaccination campaign, and the implementation of isolation and quarantine in order to successfully mitigate a potential epidemic.

4. PPE requirements for entering a potentially contaminated environment follow the same guidelines as those for other BT incidents, following the principal of "Standard Precautions."

Table 1 – Precautions, PPE summary

Precaution Name/Level	Personal Protective Equipment (PPE)
Standard Precautions	Based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin and mucous membranes may contain transmissible infectious agents. 1. Hand hygiene 2. Gloves, gown, mask. eye protection or face shield depending upon the anticipated exposure.
Airborne Respiratory	Intended to prevent transmission of infectious agents that remain infectious over long distances when suspended in the air. 1. Airborne isolation room (monitored negative pressure) 2. Mask or respirator depending on microorganism 3. Non immune care givers should not be assigned with vaccine preventable airborne diseases
Contact	Intended to prevent transmission of infectious agents, including microorganisms which are spread by direct or indirect contact with the patient or the patient's environment. 1. Single patient room if possible 2. Gloves and gown involving contact with patient or potentially contaminated areas
Droplet	Intended to prevent transmission of pathogens spread through close respiratory or mucous membrane. Because these pathogens do not remain infectious over long distances in a healthcare facility, special air handling and ventilation are not required. 1. Single patient room 2. Mask (respirator not necessary) 3. Patient to wear mask if out of their room

Source: CDC.gov 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Precaution Name/Level	Personal Protective Equipment (PPE)
Level A	The greatest level of skin, respiratory and eye protections is required. Vapor and Gas protection. 1. Positive pressure SCBA *(self- contained breathing apparatus)* 2. Fully encapsulated, vapor tight chemical protective suit *Use these suits when work situations involve potential exposure to toxic, micro-particulate pathogens (less than 2 microns in diameter), toxins or chemicals, including chemical warfare agents. This level of PPE requires training at least to the Haz-Mat Technician level.*
Level B	The highest level of respiratory protection, but a lesser level of skin protections. Liquid Splash Protection. Permits certain areas of exposed skin on the wearer. Use these suits only when the chemicals on agents to which workers are exposed are in low concentration, and are know NOT to produce vapors or be associated with airborne microparticulates that are toxic through skin contact. 1. Positive pressure SCBA 2. Hooded chemical resistive clothing *Tuolumne County stores twenty Level B suits for use by the Haz-Mat Team that contracts with the county. All Tuolumne County first responder units have SCBA equipment.*
Level C	When atmospheric contaminants, liquid splashes or direct contact won't adversely affect or be absorbed through exposed skin. This level requires a lower level of respiratory protection and minimal skin protection. *1.* Full or half-mask APR *(air-purifying respirator)* 2. Hooded chemical resistive clothing
Level D	When the atmosphere contains no known hazard; work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous levels of any chemicals. 1. No respiratory protection 2. Minimal splash and vapor protections 3. May actually absorb vapors, gases and liquids. *Note: Work uniforms and firefighter turnouts are Level D protection.*
N-100 Respirators	These are distributed among the first responder units, the hospitals, the Health Department and ambulance personnel to meet CDC guidelines for the highest degree of protection from airborne pathogens.

Source: Haz Mat Operations for Healthcare, State of California-OES/CSTI

V. Public Health and Response agency roles and contact information

Table 2 – *Plan-specific generalized roles, see Incident Command and Job Action Sheets (LINK)*

Role	Responsibility	Contact
Health Officer	Consults and collaborates with County OES, Law and Fire Services on response actions Completes notifications as the primary Medical Health Operational Area Coordinator (MHOAC) Supervises Environmental Health/Public Health investigations If mass vaccination/prophylaxis indicated, initiates and leads the Public Health DOC and Mass Vaccination Plan	20111 Cedar Rd. N. Sonora, CA 95370 209 533-7401 After Hours Duty Officer 209 533-8055
Director of Public Health and/or Supervising Public Health Nurse	Supervises Public Health mass vaccination/prophylaxis nursing processes and plans Coordinates investigations as directed by the DOC/EOC incident action plan	209 533-7401
EMS Medical Director	Performs MHOAC duties as needed Directs pre-hospital medical response	209 533-8055
Emergency Medical Services Coordinator	Performs MHOAC duties as assigned Coordinates pre-hospital medical assets to ensure multiple patients are transported, tracked and that patient data (numbers/locations) and information is communicated and available to incident leaders.	209 533-7401
Public Health staff	Participates in investigation and mass dispensing activities. Complete assignments as directed in the Incident Command roles and responsibilities (Job Action Sheets).	209 533-7401
Fire Services	Requests and coordinates with contracted HazMat team First responders maintain patient logs Sets up and participate in decontamination and rescue operations.	County Fire 209 533-5548
Law Enforcement	Requests contracted HazMat team Assesses threat, investigates and coordinates with other law enforcement agencies, including Homeland Security and the FBI Provides security of access and egress of incident location and treatment sites as needed. Provides security and assists with transportation of biologic agents and treatment agents from the strategic national stockpile	TCSO Dispatch 209 533-5815 CHP Commander 209 984-3944 Sonora Police Chief 209 532-8141 Calaveras Haz Mat Dispatch 209 533-5815
Healthcare Agencies	Accept potentially contaminated patients and ensures decontamination prior patients treated Participates in triage and placement of multiple casualties Provides indicated treatment/s	Sonora Regional Medical Center 209 536-5000
Office of Emergency Services	Coordinates County wide response through an Emergency Operations Center Collaborates, communicates, and coordinates with county departments and other governmental agencies	209 533-5511

ATTACHMENT 1: Reference section – Agents RETURN

A. Transmissible Infectious Agents: These are bacterial or viral diseases which can be passed from one human victim to another in the general population. As such, isolation and/or quarantine may be required as a tool to gain control of an outbreak.

1. ***Smallpox*** (CDC Category A)
   a. Signs and Symptoms: Fever, general malaise, headache, backache begin 7 to 17 days after exposure, followed in 2 to 3 days by the characteristic rash. The rash starts on the face and forearms as small red bumps which quickly become small blisters, and spreads to the trunk.
   b. Transmission: By fluid from the skin lesions or by droplet infection from respiratory secretions. While infecting large numbers of people simultaneously would be difficult, the highly infectious nature of the illness would create a public health emergency.
   c. Diagnosis: While smallpox presents much like a severe varicella infection, erythema multiforme or a generalized herpes infection, the severity and facial/forearm distribution of the vessicular rash should raise clinical suspicion of smallpox. Education of Tuolumne County providers has been facilitated through the distribution of posters and literature to assist with the differential diagnosis. Confirmatory lab testing by culture and electron microscopy is available, although may not distinguish between monkeypox or vaccinia.
   d. Treatment and Prevention: Modern anti-viral medications may have a role in treatment, but since eradication of the wild virus was achieved in 1980, no opportunity for research has been pursued. Prevention by vaccination has been extremely effective, even up to 72 hours after exposure to the virus.
   e. Mortality: 3% to 30% in various populations, although without research regarding the effectiveness of new treatments, this is speculative.
   Additional material located in Public Health Small Pox Vaccination Plan
2. ***Plague*** (CDC Category A)
   a. Signs and Symptoms: "Pneumonic plague," the most infectious form of the illness which was responsible for epidemics in the Middle Ages, begins after an incubation period of 1 to 6 days, with high fever, chills, malaise, followed by cough, shortness of breath and respiratory failure. Sputum often is colored with blood, and vomiting or diarrhea frequently occurs. "Bubonic plague" presents with large swollen lymph nodes and fever, and can progress to the pneumonic form or cause sepsis as well. This form is endemic to Tuolumne County and is passed on by the bite of fleas that have previously been exposed to rodents infected with plague.
   b. Transmission: By respiratory secretions and droplets in the aerosol created by coughing when the pneumonic form of the disease is present. Fluid from skin lesions can transmit the bubonic form to another person through open wounds.
   c. Diagnosis: Diagnosis of pneumonia and sepsis is most common. The diagnosis of plague is confirmed by culture and Gram or Wayson stain of aspirates or sputum specimens to identify the "safety-pin" appearance of the organism.

d. Treatment and Prevention: A licensed killed vaccine is available, but appears to provide no protection against aerosol exposure. The early administration of antibiotics is necessary to prevent progression of this disease to death. Seven days of prophylactic antibiotics, Doxycycline 100 mg twice daily, is effective in preventing disease in most exposed individuals.

e. Mortality: Consistently fatal in patients with Pneumonic plague who do not receive antibiotic therapy within the first 24 hours of the illness.

3) ***Viral Hemorrhagic Fevers*** (CDC Category A)

a. Signs and Symptoms: Four different viral families account for the illnesses grouped as the Viral Hemorrhagic Fevers. These agents have caused periodic outbreaks around the world, and include the Ebola virus in Africa, Dengue fever, Yellow fever, Lassa, Rift Valley fever and the Hanta virus in many locations. While there has been no known intentional use of these agents in bioterrorism, their availability raises the potential for their use by terrorists. Each of these agents typically causes symptoms that result from damage to small blood vessels, with leakage of fluids from blood vessels and subsequent disorders caused by loss of the ability of the blood to clot (DIC) and respiratory failure (ARDS). Multiple organ involvement is typical, with neurological, gastrointestinal and respiratory symptoms. A history of travel is usually present in the common presentation of these conditions.

b. Transmission: Except for dengue and the hantaviruses, these viruses are present in the blood in significant quantities, leading these conditions to pose a considerable danger to health care givers. In the wild, several of these agents are passed on by viruses that are shed in the excreta of rodents and swallowed or inhaled by the subject. Fit-tested HEPA filter masks should be worn to protect from airborne virus.

c. Diagnosis: The clinical appearance of fever, prostration, proteinuria and hemorrhagic diathesis with thrombocytopenia should raise suspicion of this diagnosis. RIA serology to detect viral antigens is available to confirm the diagnosis. A travel history is valuable to differentiate a wild-type exposure.

d. Treatment and Prevention: Antiviral medications (ribavirin) have been used with some success in these conditions. Meticulous care to avoid exposure to blood from patients is needed to prevent nosocomial spread of most of these disorders. Spread by contact with respiratory aerosol, body fluids, or excretions is possible. Decontamination is accomplished with hypochlorite or phenolic disinfectants Attachment 2.

e. Mortality: Widely variable, from less than 1% to as high as 90% for Ebola victims.

4. ***Brucellosis*** (CDC Category B)

a. Signs and Symptoms: Illness presents with fever, headache, generalized musculoskeletal pain, sweats and malaise. Vague neurological symptoms including depressions and cognitive dysfunction can occur.

b. Transmission: Historically, transmission of Brucella melitensis and Brucella suis occurred through the ingestion of unpasteurized milk. Brucella suis was weaponized by the United States in 1954 with infection resulting from the inhalation of as few as10 bacteria, but this arsenal was destroyed in 1969. A

variable incubation period of 5 to 60 days has been described. Transmission from person-to-person has been documented from transplantation and sexual contact, although this is very unusual.

c. Diagnosis: Naturally occurring outbreaks may be suspected based on exposure to implicated foodstuffs. Brucella organisms may be isolated from blood cultures, but require 6 weeks of incubation if brucella is suspected. A serum agglutination test is available.

d. Treatment and Prevention: Environmental decontamination can be accomplished with use of a 0.5% hypochlorite solution (See Appendix E). While an animal vaccine is available, none is available for humans. In fact, inadvertent exposure to the live animal vaccine can cause illness in humans and warrants antibiotic prophylaxis. Exposure to weaponized bacteria warrants prophylaxis with Doxycycline 200 mg/d PO + Rifampin 600 mg/d PO for three to six weeks.

e. Mortality: Fatalities are uncommon, but morbidity and difficulty in making a diagnosis because of the constitutional nature of the symptoms pose problems for managing the Public Health impact.

5. *Tularemia* (CDC Category A)

a. Signs and Symptoms : Infection with *Francisella tularensis* may take any number of forms depending upon the route of transmission. If the agent is introduced into open wounds, infection is manifested by ulceroglandular tularemia with open ulcer(s), fever, chills and painful regional lymphadenopathy. If the agent is introduced by inhalation of organisms, typhoidal or pneumonic tularemia is the result, with atypical fulminant pneumonia appearing like ARDS. This latter form occurs in 30% to 80% of typhoidal tularemia and up to 30% of ulceroglandular cases. Presentation may well be with a non-specific febrile illness, although 50% present with pneumonia. Ingestion of the agent results in ulcerative enteritis. Incubation time may range from one day to three weeks.

b. Transmission: The Type A biogroup is endemic to North America, typically transmitted by ticks and deerflies or by direct contact with infected rabbits, muskrats or squirrels. The organism was weaponized by the United States in the 1950's. Either in the form of a fine, dried powder or in a solution, Tularemia could be spread through direct contact with skin, by inhalation or by ingestion.

c. Diagnosis: Identifying a cluster of victims is helpful in raising suspicion of Tularemia, at which point laboratory testing for the illness should be considered. Diagnosis may be made by culture or by a four-fold rise in ELISA titers.

d. Treatment and Prevention: For acutely infected individuals, Gentamicin, Ciprofloxacin, or Streptomycin has been used. Tetracycline and Chloramphenicaol has also been used, however, they are associated with significant relapse rates.

e. Mortality : Case fatality is 1% to 3% in treated cases, but 35% in untreated cases.

6. ***Cholera*** (CDC Category B)
   a. Signs and Symptoms: Infection with the organism, *Vibrio cholera*, causes the classical severe watery diarrhea in a minority of victims. The diarrhea results from the effects of the cholera enterotoxin. With an incubation period of one to five days, cholera is endemic to the tropics worldwide. Periodic pandemics occur wherever hygiene and water sources are suboptimal.
   b. Transmission: Terrorists would likely introduce the Vibrio organism into drinking water supplies or food. The infection is transmitted from person to person via the fecal-oral route, explaining the tendency for outbreaks to occur in refugee communities where drinking water or toilet facilities are tenuous.
   c. Diagnosis: The diarrhea is notable for large volumes of "rice-water" like stools, typically lacking red or white cells on microscopy. The organism may be identified in stool specimens and can grow on a variety of media.
   d. Treatment and Prevention: If fluids are adequately replaced, deaths from cholera can be avoided. Antibiotics shorten the duration of the illness and thereby decrease fluid loss. Tetracycline, 500 mg every 6 hours for 6 days, or Doxycycline, 300 mg once or 100 mg twice daily for 3 days, are reasonable choices. A licensed, killed vaccine is available, but is only modestly effective, providing protection in 50% of people for up to 6 months.
   e. Mortality: As above, fatalities should be preventable with fluid replacement. However, with a large number of casualties and the breakdown in medical care associated with war, a large number of deaths is possible.

7. ***Miscellaneous***
   a. Signs and Symptoms: Virtually any wild-type communicable disease can be spread intentionally, leading to symptoms specific to the underlying agent. Herpes, HIV, new influenza strains, Hepatitis and other viruses can cause considerable fear due to difficulties with therapy and implications to families, rendering them capable of use as agents of terror. *Cryptosporidium parvum* may be used to contaminate water supplies leading to gastroenteritis in susceptible hosts, but would be most severe in those with immunocompromise.
   b. Transmission: Intentional transmission of these readily available agents in our communities have occurred in the past in the setting of health care facilities with mentally disturbed caregivers, criminal mental health patients and negligent patients intending to infect unsuspecting contacts. How such behavior might be used in the setting of BT is a subject of speculation, but needs to be considered when unusual outbreaks become statistically evident.
   c. Diagnosis: The diagnosis of intentional spread of communicable diseases that otherwise occur naturally would require recognition of unusual patterns of spread (see Section Two.III, Incident and Outbreak Classification).
   d. Treatment and Prevention: Management would hinge upon the mode of spread of infection. This would require specific epidemiologic investigation.

e. Mortality: The intent of any terrorist action is to instill fear and threaten disaster. Spreading disease that causes chronic illness instead of acute, life threatening illness may be less effective in accomplishing those goals, but still needs to be considered in the context of intentional spread of these agents.

B. Non-transmissible Infectious Agents: Due to the lack of human-to-human transmission with these agents, or difficult human-to-human transmission, isolation and quarantine are less effective control measures for these infections.

1. *Anthrax* (CDC Category A)

a. Signs and Symptoms: The incubation period for inhalational Anthrax is one to six days. Fever, malaise, coughing, and chest discomfort are followed rapidly by severe respiratory distress with dyspnea, stridor, and cyanosis. Shock and death occur within 24 to 36 hours of onset of severe symptoms unless aggressive antibiotic therapy is initiated. In cutaneous anthrax, a papule develops at the site of entry, developing into a black eschar and regional swelling.

b. Transmission: Following 9/11, the effective transmissibility of weaponized anthrax spores was appreciated. Recognizing the risks to all people who have come into contact with the infective source is important to limiting spread of the incident. Because the illness is not spread from person to person, the strict isolation of individuals under treatment is not necessary. However, consideration of the contamination of an exposed individual's household and/or clothing calls for careful decontamination of these possible ongoing sources of infection. Following invasive procedures or autopsy, instruments and surfaces should be disinfected with a sporicidal agent such as iodine or 0.5% sodium hypochlorite.

c. Diagnosis: The severity and aggressiveness of the pulmonary syndrome is suggestive of anthrax. A finding of a widened mediastinum on chest X-ray, due to hemorrhagic mediastinitis, may be helpful, although ARDS of any cause may be difficult to differentiate. The occurrence of a cluster of victims is important to identifying a common source of infection, requiring epidemiologic investigation. Identification of *Bacillus anthracis* in blood culture or by Gram stain is diagnostic, but not often achievable until day 2 or 3 of infection. A PCR test is available through the CDC for identification of the organism.

d. Treatment and Prevention: Because resistant forms of Anthrax have been readily produced in the lab, symptomatic victims exposed to intentional releases of anthrax should be treated initially with IV Ciprofloxacin, 400 mg every 8 to 12 hours, for adults. A licensed vaccine is available for those at risk of exposure, with vaccination at 0, 2, and 4 weeks, followed by booster doses at 6, 12, and 18 months. Oral ciprofloxacin, 500 mg twice daily, or Doxycycline, 100 mg twice daily, may be useful in known or imminent exposure. All exposed victims should undergo treatment for 4 weeks, and adjustments made under medical supervision.

e. Mortality: While a nearly 100% fatality rate from inhalational disease was expected from intentional releases of Anthrax spores, the 2001 attack in the

United States was associated with a 45% fatality rate from inhalational disease, and zero deaths from cutaneous infections. All of these cases received treatment, although intervention occurred at different stages in the illness, depending on the time of diagnosis.

2. ***Glanders or Melioidosis*** (CDC Category B)
   a. Signs and Symptoms: Following an incubation period of 10 to 14 days**,** onset of high fever, chills, sweats, myalgias and headache typically occur, associated in a majority of cases with miliary abcesses of the lungs, internal organs, and skin. A wide spectrum of illness, from mild chronic infection to acute septicemia can occur.
   b. Transmission: While cases in horses have been prevalent, transmission to humans from animals have not been documented. This agent was used in World War I against animals and was the subject of experiments in World War II. Transmission to man has been accomplished by inhalation and contamination of open wounds.
   c. Diagnosis: Skin lesions can be mistaken for smallpox, although the organism responsible for these conditions, Burkholderia mallei and B. pseudomallei, can be identified by Gram stain of the gram negative bipolar bacterium from wound exudate. Complement Fixation tests are quite specific to the organism if the titer exceeds 1:20, or for a four-fold increase in titer.
   d. Treatment and Prevention: Treatment with various antibiotics is effective, but the specific treatment is adjusted according to the severity of the infection. While no vaccine is available, post-exposure prophylaxis can be tried utilizing trimethoprim + sulfamethoxazole.
   f. Mortality: A widely variable response to infection has been described, with occasional chronic infections resulting in few symptoms, and an aggressive form resulting from inhalational exposure with prostration and death within 24 to 48 hours.

3. ***Q Fever*** (CDC Category B)
   a. Signs and Symptoms: Caused by a rickettsial organism, *Coxiella burnetii*, Q fever is difficult to distinguish from non-specific viral illnesses. Symptoms of fever, malaise, muscle aches pneumonia develop after an incubation period of 10 to 40 days. Approximately 50% of patients will develop pneumonia. The illness is generally self limited, lasting 2 days to 2 weeks. The occasional complication of endocarditis is seen.
   b. Transmission: In the wild form, the illness is transmitted from inhalation of the organism from the soil following contamination with the blood or parturition products of sheep or goats. In some tropical communities up to 12% of the population is titer-positive for *Coxiella*. Because the organism can remain viable for perhaps six months in spore-like forms, and because it is highly infectious, it has been considered well suited to bioterrorism, although fatality rates are fortunately low.
   c. Diagnosis: A serologic diagnosis with complement fixation, IFA or ELISA testing is necessary to distinguish Q fever illness from other atypical pneumonias such as those caused by *Mycoplasma pneumonia, Legionella pneumophila, Chlamydia psittaci,* and *Chlamydia pneumoniae*. The

complement fixation test is relatively insensitive. Many patients will develop signs of hepatitis.

d. Treatment and Prevention: While most cases will resolve without treatment, therapy with Tetracycline, 500 mg every 6 hours, or Doxycycline, 100 mg every 12 hours for 5 to 7 days, will reduce complications and shorten duration of illness. The same regimen is effective for prophylaxis 8 to 12 days after exposure, but can lead to prolonged illness if begun one to seven days after exposure. Treatment of endocarditis is more difficult. An inactivated whole cell vaccine is under investigation in the United States, but is available in Australia.

e. Mortality: Approximately 2% of patients will die of complications from the infection.

4. *Rickettsiae* (CDC Category B)

a. Signs and Symptoms: The term "rickettsiae" conventionally embraces microorganisms in the class Proteobacteria, comprising species belonging to the genera *Rickettsia*, *Orientia*, *Ehrlichia*, *Anaplasma*, *Neorickettsia*, *Coxiella*, and *Bartonella*. Typical symptoms include headache, chills, fever, prostration, confusion, photophobia, vomiting, and rash (generally starting on trunk).

b. Transmission: These agents are usually not transmissible directly from person to person except by blood transfusion or organ transplantation. Transmission generally occurs via an infected arthropod vector or through exposure to an infected animal reservoir host.

c. Diagnosis: A diagnosis of rickettsial disease is based on two or more of the following: compatible clinical symptoms and epidemiologic history, the development of specific convalescent-phase antibodies reactive with a given pathogen or antigenic group, a positive polymerase chain reaction test result, immunohistologic detection of a microorganism, or isolation of a rickettsial agent.

d. Treatment and Prevention: Prevention of natural transmission is accomplished through the use of repellants and clothing. No vaccines are available. Tetracyclines or cholamphenicol antibiotics for seven days are often the treatments of choice.

e. Mortality: Death occurs in two to six percent of cases.

5. *Venezuelan Equine Encephalitis, Eastern Equine Encephalitis, Western Equine Encephalitis* (CDC Category B)

a. Signs and Symptoms: The equine encephalitides have similar affects on victims, and would therefore be difficult to distinguish until serological studies could be performed. In any outbreak, widespread illness in horses, donkeys and mules would likely occur, with an approximately 50% fatality rate in this equine population. With an incubation period of 1 to 6 days, onset of a febrile illness with malaise, severe headache, nausea, vomiting, cough, sore throat and diarrhea ensues. Full recovery usually follows in one to two weeks, although a bioterrorist attack would likely result in much more severe illness.

b. Transmission: VEE was weaponized by the United States in the 1950's, but stores were destroyed in the early 1970's. The disease would be transmitted as an aerosol in a terrorist incident, but persistence of an outbreak would result from transmission from human hosts to other humans via the mosquito vector, or from equine reservoirs to humans by mosquito.
c. Diagnosis: A striking leukopenia or lymphopenia may occur. The virus can be isolated by throat swab. Serology consists of a rise in IgG antibody titer, or the presence of IgM in a single serum sample.
d. Treatment and Prevention: Two investigational vaccines are currently under study for use in humans. A vaccine is available for equines and has been successfully used in an outbreak in Texas in 1970-71. Interferon has also been used in post-exposure settings with considerable success.
e. Mortality: Less than 1% of humans have died during outbreaks, although these numbers are likely to be quite different in the setting of an intentional exposure to the virus. Nearly 100% of humans exposed will experience some degree of a non-specific viral illness, and 1% to 4% of people, especially children and the elderly, will develop significant CNS disease.

C. Biologically Derived Toxins

1. *Botulinum toxin* (CDC Category A)

a. Signs and Symptoms: Botulinum neurotoxins are formed in the anaerobic environment of canned foods by the organism, *Clostridium botulinum*. However, the living organism itself can survive in the GI tract of infants, causing the same clinical presentation as the ingestion of the toxin in adults. Symptoms typically start with ptosis, diplopia, blurred vision and dysarthric speech. Subsequent generalized weakness and then paralysis develops with ultimate respiratory arrest accounting for death. Botulinum toxin is the most potent toxin found in nature, requiring only 0.001 microgram per kilogram to kill 50% of the animals studied.
b. Mechanism of Delivery: The toxin can be absorbed by inhalation or ingestion, with onset of symptoms as early as 12 to 36 hours, up to several days later, depending on the dose delivered. The toxin is denatured easily in the environment, lasting only 1 to 3 hours in sunlight. Heat (80º Centigrade for 30 minutes) or chlorine (.99.7% inactivation by 3 mg/L FAC in 20 minutes) also destroy the toxin.
c. Diagnosis: The diagnosis of a botulinum toxin biowarfare attack should be suspected if multiple casualties are encountered, all with an acute descending flaccid paralysis. Laboratory confirmation can be accomplished with a mouse neutralization bioassay, an ELISA or ECL for antigen in environmental samples, or PCR for bacterial DNA in environmental samples, or characteristic patterns in nerve conduction studies or electromyography.
d. Treatment and Prevention: Early administration of a trivalent licensed equine antitoxin or heptavalent antitoxin may prevent or decrease progression to respiratory failure. Ventilation may be necessary in some cases. A vaccine is available as an investigational intervention for those at high risk of exposure.

e. Mortality: While virtually 100% of those non-immunized individuals with inhalational or ingestion exposures will die without respiratory support, the toxin is not dermally active and soap and water decontamination is adequate.

2. *Ricin* (CDC Category B)

a. Signs and Symptoms: Ricin is a protein toxin derived from castor beans that poisons the ability of cells to synthesize proteins. As an aerosol, ricin toxin causes fever, chest tightness, shortness of breath, nausea and joint pains in 4 to 8 hours after exposure. A syndrome of ARDS would be expected to develop from inhalational exposures, with death due to respiratory failure in perhaps 72 hours. Ingestion causes nausea, GI hemorrhage, and renal or hepatic necrosis. The toxin is denatured by heat (80º Centigrade for 10 minutes) and chlorine (>99.4% inactivation by 100 mg/L FAC in 20 minutes). Toxicity is considerably less than Botulinum toxin.

b. Mechanism of Delivery: Aerosolized liquid or lyophilized toxin could be introduced for inhalational exposure, food could be contaminated for ingestion, or toxin could be introduced into tissue by projectiles.

c. Diagnosis: Diagnosis would most likely be made by the presenting clinical setting, occurring acutely in a large number of geographically clustered cases, although other chemical warfare agents and pulmonary pathogens such as plague, Q Fever, anthrax and tularemia might present in a similar fashion. In contrast to SEB, Ricin would be expected to cause pulmonary edema in 1 to 3 days, as compared to within 12 hours of exposure for SEB.

d. Treatment and Prevention: Management depends on the route of exposure, utilizing pulmonary support and intubation for inhalation, gastric lavage and cathartics for GI exposures. Charcoal is of little benefit due to the size of the ricin molecule and resultant inability of charcoal to absorb the toxin. A fitted HEPA filter mask is protective. Vaccine development is currently underway.

e. Mortality: No data is available to speculate accurately about likely mortality in a terrorist attack using ricin.

3. *Staphlococcal Enterotoxin B (SEB)* (CDC Category B)

a. Signs and Symptoms: This is one of several toxins produced by *Staphylococcus aureus*. The toxin is responsible for Staphlococcal food poisoning, but causes a different syndrome when delivered by the inhaled route. SEB attack would cause cases to present in large numbers over a very short period of time, probably within a single 24-hour period. After a latent period of 3 to 12 hours, onset of fever, chills, headache and myalgias is followed in severe cases by pulmonary edema and respiratory failure. For GI exposures, nausea, vomiting and diarrhea are prominent, although any exposure may be a combination of these presentations. Fever may last up to five days and run as high as 106 degrees F.

b. Mechanism of Delivery: Inhalation, ingestion or combination exposures can occur.

c. Diagnosis: Laboratory confirmation of SEB intoxication includes SEB antigen detection (ELISA, ECL) on environmental and clinical samples, and PCR

testing for Staphylococcal genes. Acute and convalescent antibody titers to SEB can also be useful. Confusion with infectious causes of ARDS in severe cases may be difficult, however tularemia, plague, Hantavirus pulmonary syndrome, Chlamydia pneumonia, and chemical warfare agents generally are associated with significant changes in chest radiographs and tend to progress after the initial 24 hours, whereas SEB intoxication tends to stabilize after the first 24 hours.

d. Treatment and Prevention: Therapy is limited to antipyretics and supportive care. The benefit of steroid therapy is unknown. Several vaccine candidates are in development, but in animal models they appear to be effective only if administered within 4 to 8 hours of exposure.
e. Mortality: No definitive data is available in humans, although fatalities are not likely except in the most severe exposures.

4. ***Mycotoxicosis*** (Unclassified)

a. Signs and Symptoms: These fungus-derived toxins are best represented by "T-2", a toxin that may have been released as "yellow rain" in Laos, Kampuchea and Afghanistan in the 70's and 80's. These toxins cause burning skin pain, redness, blistering, with sloughing of necrotic skin after hours or days. Death can occur from any route of absorption, occurring in minutes, hours, or days, with vomiting, bloody diarrhea, and shock as the terminal event.
b. Mechanism of Delivery: Aerial spraying has been hypothesized.
c. Diagnosis: Recognition of the oily, pigmented liquid, associated with dead animals of multiple species is suggestive. Rapid onset of symptoms over minutes or hours suggests chemical or toxin attack. Mustard toxicity is typically delayed several hours, and SEB or ricin toxicity can cause fever, cough and dyspnea, but do not cause burning of the skin. Serum and urine tests can detect the toxin and metabolites as late as 28 days after exposure.
d. Treatment and Prevention: The toxin is very stable in heat and is not inactivated with hypochlorite solution. Instead, the addition of 0.1M NaOH to a 1% hypochlorite solution with one hour contact time is required for inactivation. Physical protection of the skin, mucous membranes, and airway are the only proven methods of protection during an attack. Soap and water washing, even one hour after exposure to T-2, effectively prevents severe dermal toxicity.
e. Mortality: While fatality rates are subject to speculation, 6,300 deaths following the spraying of "yellow rain" in Laos have been reported.

ATTACHMENT 2: Return

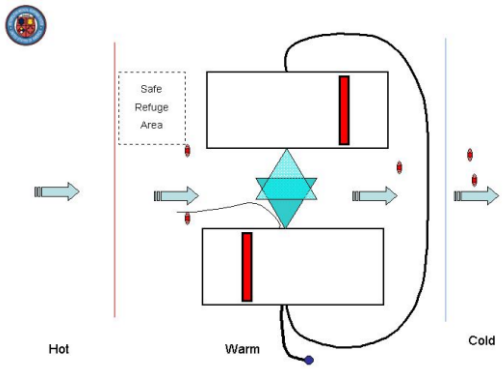
MASS DECONTAMINATION SETUP

Decontamination Area

- ☐ Upwind, uphill, upstream from hot zone
- ☐ Consider weather conditions, topography
- ☐ Check for secondary devices in the immediate area
- ☐ Communicate and move victims to refuge area
- ☐ Read statement to victims: "***Ladies and Gentlemen: You may have been exposed to a potentially hazardous substance. We are doing everything possible to help you, but we need your help. As a precaution, we are asking you to calmly follow the directions of the firefighters."***

Engine Placement

- ☐ Engines approx. 12 to 16 feet apart, facing opposite directions (pump panels on outside aspect with windows closed).
- ☐ Water supply to 1st engine
- ☐ 1st engine to supply second engine
- ☐ Attach fog nozzles to inside 2 ½" discharge



Treatment Areas

Pump Operations

- ☐ Pump adequate pressure so both streams and pattern meet in the center. Use pressures less than 50 psi to avoid injuring victims
- ☐ Put in volume if apparatus has 2 stage pump
- ☐ Adjust flow at nozzle and set wide fog pattern until flow meets in the center

Decontamination process

- ☐ Utilize triage tag for victims
- ☐ Have exposed victims remove clothing; use a clear bag for removed clothing; keep valuables in separate bag
- ☐ Have exposed victims walk through streams for a 1 to 3 minute wash
- ☐ Provide modesty wear (blankets or towels) for cover
- ☐ Evaluate if decontamination is adequate
- ☐ Relocate victim to safe refuge or medical treatment area

Additional arriving engines

- ☐ Set up additional decontamination showers for separate genders or multiple mass decontamination corridors
    - ☐ Set up privacy screens

(From CDF "BNICE WMD Field Operations Guide