Valley Care

Olive View-UCLA Medical Center & Health Centers

Bioterrorism and Infectious Disaster Readiness Plan

This document is not intended to replace the Disaster Plan in the event of a multi-casualty incident, but rather to supplement the disaster plan with information specific to incidents related to biological weapons or large-scale influx of potentially infectious patients.

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BIOTERRORISM PLAN SYNOPSIS

Reporting Requirements and Contact Information

If a bioterrorism (BT) event is suspected at OVMC, notification should immediately include the Administrative Nursing Office (ANO – X 3170), who will notify Infection Control (Inf Con) and the medical & hospital administration offices. Inf Con will promptly notify the local and state health departments if appropriate. The ANO will be responsible for notifying the emergency dept., laboratory, pharmacy, chief of infectious diseases, and county police. The pharmacy will report to the ANO with an inventory of available antibiotics ASAP. In certain circumstances, the local police, FBI field office, CDC, and medical emergency services may be notified. This will be done at the discretion of Olive View-UCLA Inf Con personnel, the attending physician in the emergency department, or the medical director. Any potential BT incident at a Health Center is to be reported to the HC administration office at (818) 947 4026.

Infection Control Practices for Patient Management

For certain highly contagious organisms (smallpox, SARS), it may be necessary to screen those entering the facility. The Inf Con officer will determine if this is necessary and will assign individuals to assess patients at the entrance. It may be necessary to block some entrances. Most agents of BT are not transmitted from person to person; re-aerosolization of these agents is unlikely. For certain diseases or syndromes, special isolation measures may be needed. Smallpox requires both contact precautions and airborne precautions with negative pressure. Pneumonic plague requires droplet precautions without negative pressure. Ebola virus requires contact and airborne precautions. The laboratory should be notified immediately so that appropriate precautions can be taken.

Patient placement

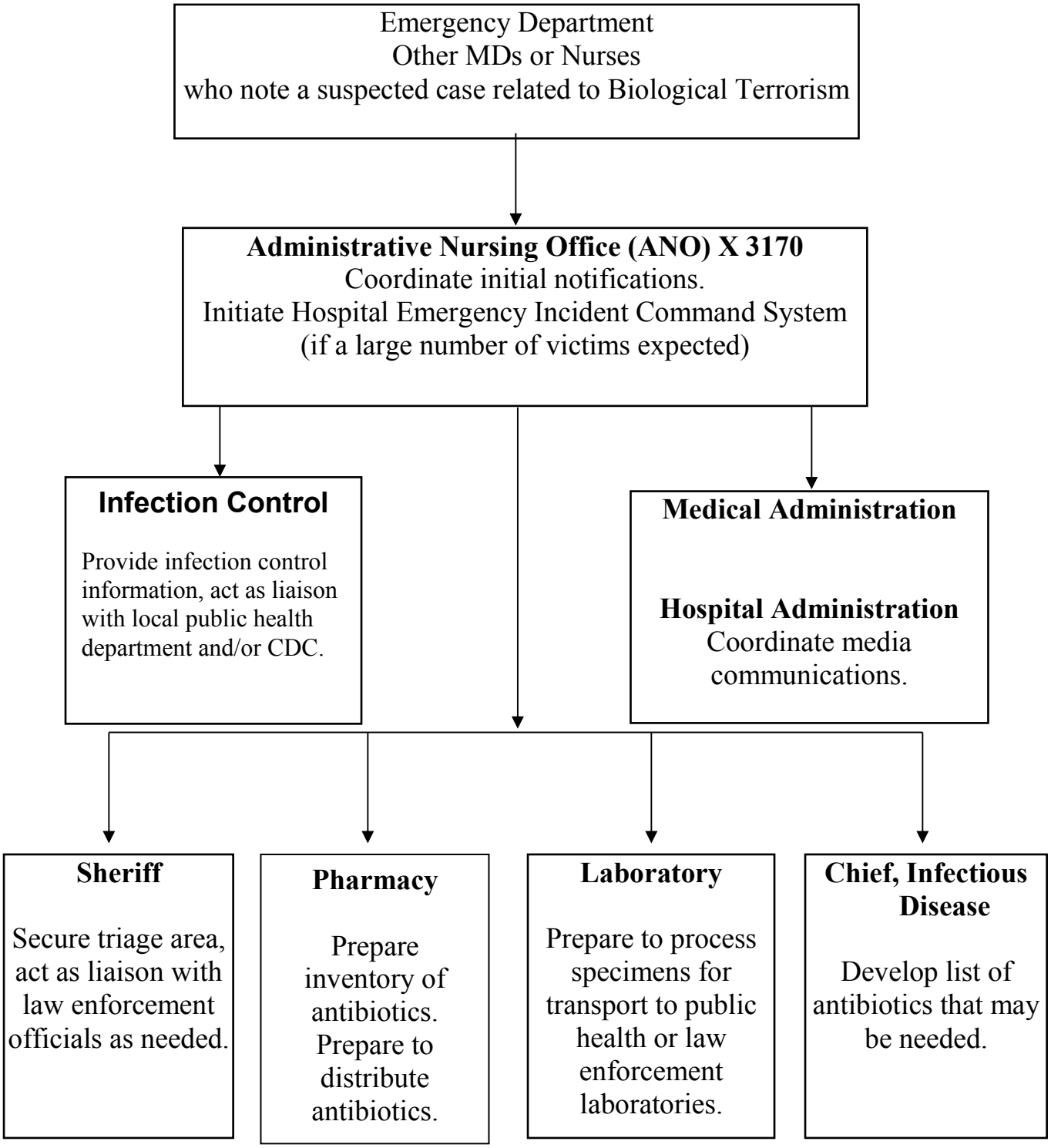
The triage of large numbers of patients will be done in accordance with the established disaster plan. In small-scale events, routine facility patient placement and infection control practices should be followed. However, if a large number of patients present it may be necessary to apply practical alternatives. These may include cohorting patients who present with similar syndromes, i.e., grouping affected patients into a designated section of a clinic or emergency department, or a designated ward. The Inf Con officer will determine if a specific area will be designated to cohort patients with a suspected infection.

Decontamination of Patients and Environment

The need for decontamination depends on the suspected exposure and in most cases will not be necessary. Decontamination should only be considered in instances of gross contamination. Decisions regarding decontamination should be made by the attending physician in the emergency department in consultation with Inf Con, ID, and state and local health departments. If decontamination is believed to be necessary, it will be done in the parking area outside of the emergency dept. entrance at OVMC. At the Health Centers, the decision will be made by the attending physician to call 911 for decontamination.

Disease-specific recommendations are included for anthrax, botulism, plague, smallpox, and SARS.

Olive View-UCLA Medical Center
Bio-Terrorism Internal Notification Flow Chart



Section I: General Categorical Recommendations for Any Suspected Bioterrorism Event

A. Reporting Requirements and Contact Information

If a bioterrorism (BT) event is suspected, notification should immediately include the Administrative Nurses Office (ANO), who will then immediately inform Infection Control (Inf Con). ANO will then notify the medical & hospital administration offices. If the Infection Control Officer believes there is a credible likelihood of a biological terrorism incident, then the local health department will be promptly notified. The ANO will be responsible for notifying the emergency dept., laboratory, pharmacy, chief of infectious diseases, and county police. The pharmacy will immediately report to the ANO with an inventory of available antibiotics. The chief of infectious disease will report to the ANO with a list of antibiotics that could be used to treat the organism, if known. In certain circumstances, the local police, FBI field office, CDC, and medical emergency services may be notified. This will be done at the discretion of Inf Con, the attending physician in the emergency department, or the medical director.

Any potential BT incident at a Health Center is to be reported to the Health Center administration office at (818) 947 4026; after-hours page (818) 529 0213 or (818) 529 0215. They will be responsible for notifying the proper authorities, including OVMC.

INTERNAL CONTACTS:

ADMINISTRATIVE NURSING OFFICE (ANO) x3170 (24 hours)
INFECTION CONTROL x3624 or 3150 (M-F daytime)
INFECTIOUS DISEASE/DEPT. OF MEDICINE x3205 (M-F daytime)
ADMINISTRATION/PUBLIC AFFAIRS x3001 (M-F daytime)
LABORATORY x6041 (microbiology - daytime) or x3476 (after hours)
PHARMACY x3059 (07:00-24:00 daily)
SHERIFF x3409 (24 hours)
SOCIAL WORK x4236 (M-F daytime)
HEALTH CENTERS: Administrative office (818) 947 4026.
After-hours page (818) 529 0213 or (818) 529 0215

EXTERNAL CONTACTS:

LOS ANGELES PUBLIC HEALTH DEPARTMENT	(213) 240 7941 or (213) 974 1234 (after hours)
CALIFORNIA STATE HEALTH DEPARTMENT	(916) 650-6416 (916) 650-6420 fax
FBI FIELD OFFICE	11000 Wilshire Blvd., Suite 1700 FOB, Los Angeles, CA 90024 (310) 477-6565
TERRORIST EARLY WARNING (TEW) GROUP	(323) 980-2070
BIOTERRORISM EMERGENCY NUMBER, CDC Emergency Response Office	(770) 488-7100
CDC HOSPITAL INFECTIONS PROGRAM	(404) 639-6413

B. Potential Agents

Four diseases with recognized BT potential (anthrax, botulism, plague, and smallpox) and the agents responsible for them are described in Section II of this document. The CDC does not prioritize these agents in any order of importance or likelihood of use. Some other agents with BT potential include those that cause tularemia, viral hemorrhagic fevers (ebola virus, etc.), brucellosis, Q fever, viral encephalitis, and disease associated with staphylococcal enterotoxin B. Many agents have potential for large natural outbreaks, including influenza and SARS.

C. Detection of Outbreaks Caused by Agents of Bioterrorism

BT may occur as covert events, in which persons are unknowingly exposed and an outbreak is suspected only upon recognition of unusual disease clusters or symptoms. BT may also occur as announced events, in which persons are warned that an exposure has occurred.

Announced event:

A number of announced BT events have occurred in the United States that were determined to have been "hoaxes;" that is, there were no true exposures to BT agents. Although the majority of suspected exposures (such as receipt of a letter or package with powder or other substance) are not true, it is important to consider the possibility of a true exposure. The possibility of a BT event should be ruled out with the assistance of law enforcement and public health officials. If a credible threat of biological terrorism has not been ruled out, then appropriate isolation and decontamination procedures should proceed.

For management of patients who present with possible exposure to anthrax, refer to Section II.

Covert Event

1. Syndrome-based criteria

Rapid response to a BT-related outbreak requires prompt identification of its onset. Because of the rapid progression to illness and potential for dissemination of some of these agents, it may not be practical to await diagnostic laboratory confirmation. Instead, it will be necessary to initiate a response based on the recognition of high-risk syndromes. Each of the agent-specific plans in Section II includes a syndrome description (i.e., typical combination of clinical features of the illness at presentation) that should alert healthcare practitioners to the possibility of a BT-related outbreak.

2. Epidemiologic features

Epidemiologic principles must be used to assess whether a patient's presentation is typical of an endemic disease or is an unusual event that should raise concern. Features that should alert healthcare providers to the possibility of a BT-related outbreak include:

- A rapidly increasing disease incidence (e.g., within hours or days) in a normally healthy population.

- An epidemic curve that rises and falls during a short period of time.
- An unusual increase in the number of people seeking care, especially with fever, respiratory, or gastrointestinal complaints.
- An endemic disease rapidly emerging at an uncharacteristic time or in an unusual pattern.
- Lower attack rates among people who had been indoors, especially in areas with filtered air or closed ventilation systems, compared with people who had been outdoors.
- Clusters of patients arriving from a single locale.
- Large numbers of rapidly fatal cases.
- Any patient presenting with a disease that is relatively uncommon and has BT potential (e.g., pulmonary anthrax, tularemia, or plague).

D. Infection Control Practices for Patient Management

1. Isolation precautions

For certain highly contagious organisms (smallpox), it may be necessary to screen those entering the facility. The Inf Con officer will determine if this is necessary and will assign individuals to assess patients at the entrance. It may be necessary to block some entrances.

Agents of BT are generally not transmitted from person to person; re-aerosolization of these agents is unlikely. **All** patients in health care facilities, including symptomatic patients with suspected or confirmed BT-related illnesses, should be managed utilizing **Standard Precautions**. Standard Precautions are designed to reduce transmission from both recognized and unrecognized sources of infection in healthcare facilities, and are recommended for all patients receiving care, regardless of their diagnosis or presumed infection status. **For certain diseases or syndromes, additional precautions may be needed to reduce the likelihood for transmission. Smallpox requires contact and airborne precautions with negative pressure. Pneumonic plague requires droplet precautions. Ebola virus and other hemorrhagic fevers require contact and airborne precautions.** See Section II for specific diseases and requirements for additional isolation precautions.

Standard Precautions prevent direct contact with all body fluids (including blood), secretions, excretions, non-intact skin (including rashes), and mucous membranes. Standard Precautions routinely practiced by healthcare providers include:

- **Hand Hygiene –** Hands are washed after touching blood, body fluids, excretions, secretions, or items contaminated with such body fluids, whether or not gloves are worn. Hands are washed immediately after gloves are removed, between patient contacts, and as appropriate to avoid transfer of microorganisms to other patients and the environment. Either plain or antimicrobial-containing soaps may be used according to facility policy. Alcohol-based handwash may be used when blood or body fluids are not present.

- **Gloves** – Clean, non-sterile gloves are worn when touching blood, body fluids, excretions, secretions, or items contaminated with such body fluids. Clean gloves are put on just before touching mucous membranes and nonintact skin. Gloves are changed between tasks and between procedures on the same patient if contact occurs with contaminated material. Hands are washed promptly after removing gloves and before leaving a patient care area.

- **Masks/Eye Protection or Face Shields** – A mask and eye protection (or face shield) are worn to protect mucous membranes of the eyes, nose, and mouth while performing procedures and patient care activities that may cause splashes of blood, body fluids, excretions, or secretions.

- **Gowns** – A gown is worn to protect skin and prevent soiling of clothing during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, excretions, or secretions. Selection of gowns and gown materials should be suitable for the activity and amount of body fluid likely to be encountered. Soiled gowns are removed promptly and hands are washed to avoid transfer of microorganisms to other patients and environments.

2. Patient Placement

In small-scale events, routine facility patient placement and infection control practices should be followed. However, when the number of patients presenting is too large to allow routine triage and isolation strategies (if required), it will be necessary to apply practical alternatives. These may include cohorting patients who present with similar syndromes, i.e., grouping affected patients into a designated section of a clinic or emergency department, or a designated ward or floor of a facility. The Inf Con Officer will determine if a medical ward or other treatment area will be designated to cohort patients with a suspected infection.

3. Patient Transport

Most infections associated with BT agents cannot be transmitted from patient-to-patient. Patient transport requirements for specific potential agents of BT are listed in Section II. In general, the transport and movement of patients with BT-related infections, as for patients with any epidemiologically important infections (e.g., pulmonary tuberculosis, chickenpox, measles), should be limited to movement that is essential to provide patient care, thus reducing the opportunities for transmission of microorganisms within health care facilities. Transportation from Health Centers will be coordinated via EMS when 911 is activated.

4. Cleaning, Disinfection, and Sterilization of Equipment and Environment

Principles of Standard Precautions should be generally applied for the management of patient-care equipment and environmental control.

- Routine procedures for the care, cleaning, and disinfection of environmental surfaces, beds, bedrails, exam tables, bedside and clinic equipment, and other frequently touched surfaces and equipment should be followed.
- Facility-approved germicidal cleaning agents should be available in patient care areas to use for cleaning spills of contaminated material and disinfecting non-critical equipment.
- Used patient-care equipment soiled or potentially contaminated with blood, body fluids, secretions, or excretions should be handled in a manner that prevents exposures to skin and mucous membranes, avoids contamination of clothing, and minimizes the likelihood of transfer of microbes to other patients and environments.

- Reusable equipment should not be used for the care of another patient until it has been appropriately cleaned and reprocessed. Single-use patient items should be appropriately discarded.
- Sterilization is required for all instruments or equipment that enter normally sterile tissues or through which blood flows.
- Rooms and bedside equipment of patients with BT-related infections should be cleaned using the same procedures that are used for all patients as a component of Standard Precautions, unless the infecting microorganism and the amount of environmental contamination indicates special cleaning (as determined by Inf Con). In addition to adequate cleaning, thorough disinfection of bedside equipment and environmental surfaces may be indicated for certain organisms that can survive in the inanimate environment for extended periods of time.
- Patient linen should be handled in accordance with Standard Precautions. Although linen may be contaminated, the risk of disease transmission is negligible if it is handled, transported, and laundered in a manner that avoids transfer of microorganisms to other patients, personnel and environments.
- Any items (e.g., linens, dishware) from the room of patients with known or suspected smallpox or hemorrhagic fever will be treated as biohazardous material. Any trash will be autoclaved before disposal. Any reusable items will be autoclaved before reuse. Disposable items should be used when possible.

5. Discharge Management

Ideally, patients with BT-related infections will not be discharged from the facility until they are deemed noninfectious. However, in the event that large numbers of persons exposed may preclude admission of all infected patients, written home care instructions for patients will be developed by Inf Con and a designated physician in the division of infectious diseases (ID) in consultation with the public health dept. Depending on the exposure and illness, home care instructions may include recommendations for the use of appropriate barrier precautions, handwashing, waste management, and cleaning and disinfection of the environment and patient-care items. (See Appendix for Sample Patient Information Sheets)

6. Post-mortem Care

Pathology departments and clinical laboratories should be informed of a potentially infectious outbreak prior to submitting any specimens for examination or disposal. All autopsies should be performed carefully using all personal protective equipment and standards of practice in accordance with Standard Precautions, including the use of masks and eye protection whenever the generation of aerosols or splatter of body fluids is anticipated. Instructions for funeral directors will be developed by Inf Con, ID, and pathology, based on the infectious threat.

E. Post Exposure Management

1. Decontamination of Patients and Environment

The need for decontamination depends on the suspected exposure and in most cases will not be necessary. The goal of decontamination after a potential exposure to a BT agent is to reduce the extent of external contamination of the patient and contain the contamination to prevent further spread. Decontamination should only be considered in instances of gross contamination. Decisions regarding the need for

decontamination should be made by the attending physician in the emergency department (or the treating physician in a health center) in consultation with Inf Con, ID, and state and local health departments. Decontamination of exposed individuals prior to receiving them in the healthcare facility may be necessary to ensure the safety of patients and staff while providing care. If decontamination is believed to be necessary, it will be done in the parking area outside of the OV emergency dept. entrance. Health centers should call 911 if decontamination is believed to be necessary.

Depending on the agent, the likelihood for re-aerosolization, or a risk associated with cutaneous exposure, clothing of exposed persons may need to be removed. After removal of contaminated clothing, patients should be instructed (or assisted if necessary) to immediately shower with soap and water. If shower facilities are not available, the patient should be assisted to wash the exposed areas with an available water source. **Potentially harmful practices, such as bathing patients with bleach solutions, are unnecessary and should be avoided**. Clean water, saline solution, or commercial ophthalmic solutions are recommended for rinsing eyes. If indicated, after removal at the decontamination site, patient clothing should be handled only by personnel wearing appropriate personal protective equipment (disposable gloves and an N-95 mask for most agents), and placed in an impervious bag to prevent further environmental contamination. Decontamination requirements for specific potential agents of BT are listed in Section II.

The FBI or other law enforcement may require collection of exposed clothing and other potential evidence for submission to FBI or Department of Defense laboratories to assist in exposure investigations.

2. Prophylaxis and Post-exposure Immunization

Recommendations for prophylaxis are subject to change. Current recommendations for post-exposure prophylaxis and immunization are provided in Section II for relevant potential BT agents. However, up-to-date recommendations should be obtained in consultation with local and state health departments and CDC. The usual infection control policies and procedures will be used to identify and manage health care workers exposed to infectious patients. For certain very high-risk agents (smallpox or Ebola virus) it may be necessary to temporarily detain all potentially exposed persons until they can be identified and cleared by infection control and public health. It may be important to have contact information so they can be followed by public health and possibly provided with vaccine. Exposed employees will follow up in employee health as required. If the employee health area is not open, any necessary prophylactic medications will be provided through the emergency dept.

3. Triage and Management of Large Scale Exposures and Suspected Exposures

The triage of large numbers of patients will be done in accordance with the established disaster plan for Valley Care / Olive View-UCLA Medical Center and Health Centers.

Additional considerations specific for a BT or other infectious event include:

- Contact with the local or state public health department may be required to supply larger quantities of available vaccines, immune globulin, antibiotics, and botulinum anti-toxin.
- Developing written discharge instructions for patients determined to be non-contagious or in need of additional on-site care, including details regarding if and when they should return for care or if

they should seek medical follow-up. This will be done by the infectious disease attending physician in consultation with infection control and the local public health department.

- Determining availability and sources for additional medical equipment and supplies (e.g., ventilators) that may be needed for urgent large-scale care. The respiratory therapy director will mobilize any available ventilators for use and will attempt to procure more ventilators from suppliers. The ICU attending physician will decide how limited numbers of ventilators will be distributed in the event of a large number of patients arriving with abrupt pulmonary decompensation. In the event of severely limited ventilator availability, ventilator support may need to be discontinued for terminally ill individuals.

4. Psychological aspects of bioterrorism

Following a BT-related event, fear and panic can be expected from both patients and healthcare providers. Psychological responses following a BT event may include horror, anger, panic, unrealistic concerns about infection, fear of contagion, paranoia, social isolation, or demoralization. Mental health and social work personnel will be made available for counseling of patients, families, or employees. Mental health resources will be coordinated by the chair of the dept. of psychiatry. Social work resources will be coordinated by the director of social services.

F. Laboratory Support and Confirmation

1. Obtaining diagnostic samples

See specific recommendations for diagnostic sampling for each agent. Sampling should be performed in accordance with Standard Precautions.

2. Laboratory criteria for processing potential bioterrorism agents

The Olive View-UCLA clinical laboratory is designated as a "Level A" laboratory, with basic ability to identify some agents that could be used for biological terrorism. If further testing is required, the clinical laboratory will utilize the Laboratory Response Network for Bioterrorism to forward specimens.

Laboratories are grouped into one of four levels, according to their ability to support the diagnostic needs presented by an event. The laboratory levels are:

- Level A: Clinical laboratories – minimal identification of agents (OV-UCLA Clinical Laboratory is a Level A lab)
- Level B: County/State/other laboratories – identification, confirmation, susceptibility testing
- Level C: State and other large facility laboratories with advanced capacity for testing (some molecular technologies)
- Level D: CDC or select Department of Defense laboratories, such as U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) – Bio Safety Level (BSL) 3 and 4 labs with special surge capacity and advanced molecular typing techniques.

3. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the

FBI. A chain of custody document may be requested by the FBI or other agencies to accompany the specimen from the moment of collection. The microbiology laboratory director will be responsible for identifying appropriate packaging materials and transport media.

G. Patient, Visitor, and Public Information

Clear, consistent, and understandable information should be provided to patients and visitors. During BT-related outbreaks, visitors may be strictly limited. Inf Con and Hospital Administration will determine whether visitors will be allowed into the facility.

Public information (announcements to hospital staff, patients, families, and the media) will be provided through hospital administration. The ANO will supply hospital administration with updates at least daily regarding the number of patients with a given syndrome or infection, number of deaths, and availability of critical supplies (e.g., antibiotics, ventilators).

H. Training of Staff

Staff will be educated and trained on recognizing and responding to BT events as outlined in this policy/plan.

Section II: Agent-Specific Recommendations

A. Anthrax

1. Description of Agent / Syndrome

Etiology – Anthrax is an acute infectious disease caused by *Bacillus anthracis,* a spore forming, gram-positive bacillus. Associated disease occurs most frequently in sheep, goats, and cattle, which acquire spores through ingestion of contaminated soil. Humans can become infected through skin contact, ingestion, or inhalation of *B. anthracis* spores from infected animals or animal products (as in "woolsorter's disease" from exposure to goat hair). Person-to-person transmission of inhalational disease does not occur. Direct exposure to vesicle secretions of cutaneous anthrax lesions may result in secondary cutaneous infection.

Clinical features – Human anthrax infection can occur in three forms: inhalation, cutaneous, or gastrointestinal, depending on the route of exposure. Of these forms, pulmonary anthrax is associated with BT exposure to aerosolized spores. Clinical features for each form of anthrax include:

- Inhalation
    - Non-specific prodrome of **flu-like symptoms** follows inhalation of infectious spores. Factors that may help to differentiate anthrax from viral illness include shortness of breath, pleuritic chest pain, nausea/vomiting, and absence of sore throat or rhinorrhea.
    - Two to four days after initial symptoms, **abrupt onset of respiratory failure** and hemodynamic collapse, possibly accompanied by thoracic edema and a **widened**

mediastinum on chest radiograph suggestive of mediastinal lymphadenopathy and hemorrhagic mediastinitis**.**
    - Meningitis may be present.
    - Gram-positive bacilli on blood culture, usually after the first two or three days of illness.
    - Treatable in early prodromal stage. Mortality remains extremely high despite antibiotic treatment if it is initiated after onset of respiratory symptoms.
- Cutaneous
    - Local skin involvement after direct contact with spores or bacilli.
    - Commonly seen on the head, forearms or hands.
    - Localized itching, followed by a papular lesion that turns vesicular, and within 2-6 days develops into a depressed black eschar.
    - Usually non-fatal if treated with antibiotics.
- Gastro-intestinal
    - Abdominal pain, nausea, vomiting, and fever following ingestion of contaminated food, usually meat.
    - Bloody diarrhea, hematemesis.
    - Gram-positive bacilli on blood culture, usually after the first two or three days of illness.
    - Usually fatal after progression to toxemia and sepsis.

Modes of transmission

The spore form of *B. anthracis* is durable. As a BT agent, it could be delivered as an aerosol. The modes of transmission for anthrax include:

- Inhalation of spores.
- Cutaneous contact with spores or spore-contaminated materials.
- Ingestion of contaminated food.

Incubation period

The incubation period following exposure to *B. anthracis* ranges from 1day to 8 weeks (average 5days), depending on the exposure route and dose:

- 2-60 days following pulmonary exposure.
- 1-7 days following cutaneous exposure.
- 1-7 days following ingestion.

Period of communicability

Transmission of anthrax infections from person to person is unlikely. Airborne transmission does not occur, but direct contact with skin lesions may result in cutaneous infection.

2. Preventive Measures

Vaccine availability

- Inactivated, cell-free anthrax vaccine (Bioport Corporation 517/327-1500, formerly Michigan Biologic Products Institute*) – limited availability.

3. Infection Control Practices for Patient Management

Isolation precautions

Standard Precautions are used for the care of patients with infections associated with *B. anthracis*. Standard Precautions include the routine use of gloves for contact with nonintact skin, including rashes and skin lesions.

Patient placement

Private room placement for patients with anthrax is not necessary. Airborne transmission of anthrax does not occur. Skin lesions may be infectious, but requires direct skin contact only.

Patient transport

Standard Precautions should be used for transport and movement of patients with *B. anthracis* infections.

Cleaning, disinfection, and sterilization of equipment and environment

Principles of Standard Precautions should be generally applied for the management of patient-care equipment and for environmental control (see Section I for more detail).

Discharge management

No special discharge instructions are indicated. Home care providers should be taught to use Standard Precautions for all patient care (e.g., dressing changes).

Post-mortem care

Standard Precautions should be used for post-mortem care. Standard Precautions include wearing appropriate personal protective equipment, including masks and eye protection, when generation of aerosols or splatter of body fluids is anticipated.

4. Post Exposure Management

Decontamination of patients / environment

The risk for re-aerosolization of *B. anthracis* spores appears to be extremely low in settings where spores were released intentionally or were present at low levels. In situations where the threat of gross exposure to *B. anthracis* spores exists, cleansing of skin and potentially contaminated fomites (e.g. clothing or environmental surfaces) may be considered to reduce the risk for cutaneous and gastrointestinal forms of disease.

Those who are only contaminated on hands or limited areas of skin should wash the area with soap and water. Any person who may be contaminated on clothing or on large areas of skin should be taken outside

to the decontamination area outside the emergency department. Contaminated clothing should be placed into a plastic bag. After showering, patients can be given a gown or other clothing to wear and can be brought into the emergency department. Personnel handling contaminated clothing or other materials should use disposable gloves and an N-95 mask ("duck bill").

If a patient at one of the Health Centers is believed to require full decontamination, take the patient outside, if possible, or keep the patient in the same room where they currently are. Call 911.

Environmental surfaces should be cleaned using an EPA-registered, facility-approved sporicidal/germicidal agent or 0.5% hypochlorite solution (one part household bleach added to nine parts water).

Prophylaxis and post-exposure immunization

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC. Prophylaxis should be initiated upon confirmation of an anthrax exposure (Table 1).

Table 1. Recommended post-exposure prophylaxis for exposure to *Bacillus anthracis*

Antimicrobial agent	Adults	Children §
Oral Fluoroquinolones		
One of the following:		
Ciprofloxacin	500 mg twice daily	10-15 mg per kg twice daily
Levofloxacin	500 mg once daily	Not recommended
If fluoroquinolones are not available or are contraindicated		
Doxycycline	100 mg twice daily	5 mg per kg of body mass per day divided into two doses

§ Pediatric use of fluoroquinolones and tetracyclines is associated with adverse effects that must be weighed against the risk of developing a lethal disease. If *B. anthracis* exposure is confirmed, the organism must be tested for penicillin susceptibility. If susceptible, exposed children may be treated with oral amoxicillin 40mg per kg of body mass per day divided every 8 hours (not to exceed 500mg, three times daily).

Prophylaxis should continue until *B. anthracis* exposure has been excluded. If exposure is confirmed, prophylaxis should continue for 60 days. In addition to prophylaxis, post-exposure immunization with an inactivated, cell-free anthrax vaccine is also indicated following anthrax exposure. If available, post-exposure vaccination consists of three doses of vaccine at 0, 2 and 4 weeks after exposure. With vaccination, post-exposure antimicrobial prophylaxis can be reduced to 30 days.

5. Laboratory Support and Confirmation

Diagnosis of anthrax is confirmed by aerobic culture performed in a BSL -2 laboratory. Diagnostic samples to obtain include:

- Blood cultures.
- Cultures of fluid or biopsy of suspicious skin lesions
- Acute serum for frozen storage.
- Stool culture if gastrointestinal disease is suspected.
- Nasal swab may be recommended by public health as an epidemiologic tool, but is not adequately sensitive to rule out anthrax exposure for an individual patient, and should not be used to make treatment decisions.

Procedures for swab specimens for anthrax:

a. Use a swab and transport medium set (culturette).
b. For nasal swabs (for possible inhalation exposure): Carefully insert the swab at least 1 cm into the nares, rotate the swab and leave it in place for 10-15 seconds.
   For skin lesions: Try to obtain fresh liquid material, if possible.
c. Insert swab into a transport container, and crush the vial of transport medium in the container.
d. Label the specimen "r/o anthrax" and place it in a plastic bag.
e. Do not refrigerate the specimen. Transport to laboratory as soon as possible.
f. **Do NOT use the pneumatic tube system** for any suspected bio-terrorism specimen.
g. In the computer enter lab order for bacterial culture of respiratory (nasal swab) or wound (skin swab) specimen, and in the comments section add "rule out anthrax".

Laboratory selection

The OV-UCLA clinical laboratory will process all clinical laboratory specimens, and will forward specimens on to local and state health department labs as appropriate. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document may be requested to accompany the specimen from the moment of collection. The microbiology laboratory director will be responsible for identifying appropriate packaging materials and transport media.

6. Patient, Visitor, and Public Information

Fact sheets for distribution will be prepared by infection control and physicians in the dept. of infectious disease, including explanation that people recently exposed to *B. anthracis* are not contagious, and antibiotics are available for prophylactic therapy along with the anthrax vaccine. Dosing information and potential side effects should be explained clearly. Decontamination procedures, i.e., showering thoroughly with soap and water; and environmental cleaning, i.e., with 0.5% hypochlorite solution (one part household bleach added to nine parts water), can be described.

7. Procedures for Patients who Present with Possible exposure to Anthrax

The likelihood of a true anthrax exposure is extremely low, so most patients will need only reassurance. These patients can be classified into various categories depending on the credibility of the exposure and the presence or absence of symptoms.

Assessing the Risk of Exposure Based on Patient History

Very few exposures would warrant a full investigation, lab testing, or treatment. The potential that an exposure is really due to anthrax is higher if the pt. reports:

- There is a threatening message with the substance
- The substance is sandy brown rather than stark white
- A suspicious letter or package is involved
- The exposed person is associated with a high-profile person or place (e.g. news media, political, entertainment) or mail-sorting

Characteristics associated with a low likelihood for a true anthrax exposure include *white* powder, no threatening message, powder in an envelope with expected mail or mail that can be easily traced to the sender, or a place where it might be expected to find white powder such as flour, sugar, etc.

Most low-risk exposures can be identified by health-care providers using common sense. If the provider is not sure about the credibility of an anthrax exposure, then county police should be contacted to initiate an investigation (x 3409 at OV).

Route of Exposure

Inhalation: Inhalation of anthrax spores requires a large dose of a very fine powder that is adequately dispersed into the air. It is technically very difficult to get anthrax spores into this form. Visible powders and letters or packages that are opened and contain powders are usually NOT threats for inhalation anthrax, but the possibility of inhaled anthrax should be considered from close contact with a highly suspicious letter, or with processing by mail-handling machinery.

Skin exposure: Cutaneous (skin) anthrax would be possible from spores on the skin. The incubation period of cutaneous anthrax is 1-12 days. This form of anthrax is relatively easy to recognize, and can be treated effectively with antibiotics. Possible exposures can be managed with observation for development of characteristic lesions.

Based on the above assessment of exposure risk, patient management should be directed as follows:

1. **Patients who have no symptoms, and have no exposure or a low-risk exposure**

   Reassurance only. There is NO need for any testing or treatment. Prophylactic antibiotics should not be provided.
   The vast majority of patients will be in this category.

2. **Patients who have no symptoms, but have a high-risk exposure**

Any patient with a specific, high-risk exposure should be reported to law enforcement (county police), as well as the infection control nurse (x 3170 at OV). Law enforcement will provide direction on the credibility of the threat and the need to contact public health to see whether testing or treatment is indicated. If public health cannot be contacted in a timely manner, contact the attending physician on the infectious disease consult service.

If the only exposure was to the skin (such as finding powder on a surface, opening a letter with powder in it) then testing or treatment is usually not indicated. Patients should be advised on what to look for (red spot >> papule >> vesicle >> black center over several days). Reassure them that cutaneous anthrax can be identified and treated if it occurs. They should observe the area and return if a typical lesion develops. If a powder is available for testing, it is usually safe to wait for results before treatment. There is no need to obtain skin culture swabs.

In the unlikely circumstance that there was a credible possibility for inhalation exposure but no substance is available for testing, public health officials may recommend obtaining nasal swab specimens (see procedures below).

3. **Patients who present with illness AND have no specific exposure or an exposure judged to be low-risk.**

Most of these patients require only reassurance. They should be managed in the usual manner. There is no need for anthrax testing or treatment. Those with viral illness should be told that antibiotics will give no benefit and may pose risks.

If a patient presents with skin lesions, reassure them that cutaneous anthrax can be identified and treated if it occurs, so they should observe the area and return for these findings: (red spot >> papule >> vesicle >> black center over several days). There is no need to obtain culture swabs from most skin lesions.

If a patient presents with a black eschar that is highly suspicious for anthrax, or a sepsis syndrome suggestive of anthrax (otherwise healthy, rapid progression, wide mediastinum) then notify the health department immediately: (213) 240 7941 or (213) 974 1234, and the infection control nurse (x 3170 at OV)

4. **Patients who present with illness AND a high-risk exposure.**

All patients with a <u>high-risk</u> exposure and illness suggestive of anthrax (influenza-like illness, sepsis, skin lesions, or severe gastrointestinal symptoms) should be reported immediately to the infection control nurse (x 3170 at OV) and the public health department: (213) 240 7941 or (213) 974 1234.

For those with influenza-like illness, the health department may advise obtaining nasal swab specimens for epidemiologic purposes and to begin antibiotic therapy.

For those with severe sepsis suggestive of inhalation anthrax, blood cultures would be the preferred test for identifying anthrax. Lab should be notified of suspected anthrax.

For those who present with skin lesions, the health department may advise obtaining fluid or material from the lesion for gram stain and culture. Antibiotics may be indicated pending test results.

Procedures for handling substances possibly contaminated with anthrax

Do not let people bring suspicious items onto the facility grounds if at all possible. Anybody inquiring should be told that we do NOT test suspicious substances at Valley Care facilities. People should be instructed to contact their local police department for concerns regarding suspicious substances. Do not allow the person to enter the building with the substance, if possible. Have the patient stand outside and contact county police.

If a person brings a suspicious powder, letter or other substance inside the facility

- Place the material in a plastic zip-lock bag or cover it with a paper towel (or other available cover) and leave it in the same place. Do not handle any materials if possible. If any material is handled, use disposable gloves. An N-95 ("duckbill") mask should be used if it is necessary to handle a suspicious material.
- Notify Sheriff immediately (x 3409 at OV), as well as infection control (x 3170 at OV). Health Centers should call 911. They will then notify the Terrorism Early Warning Group (TEWG) at (323) 980-2070
- Anyone who has handled any substance should immediately wash hands and other exposed areas with soap and water.
- Remove people from the area and close the door.
- Make a list of anyone who was in the immediate area (i.e., in the same room).
- If a person is grossly contaminated on clothing or extensive areas of skin, follow decontamination procedures outlined above.

B. Botulism

1. Description of Agent / Syndrome

Etiology

Clostridium botulinum is an anaerobic gram-positive bacillus that produces a potent neurotoxin, botulinum toxin. In humans, botulinum toxin inhibits the release of acetylcholine, resulting in characteristic flaccid paralysis. *C. botulinum* produces spores that are present in soil and marine sediment throughout the world. Foodborne botulism is the most common form of disease in adults. An inhalational form of botulism is also possible. Botulinum toxin exposure may occur in both forms as agents of BT.

Clinical features

Foodborne botulism is accompanied by gastrointestinal symptoms. Inhalational botulism and foodborne botulism are likely to share other symptoms including:

- Responsive patient with absence of fever.
- **Symmetric cranial neuropathies (drooping eyelids, weakened jaw clench, difficulty swallowing or speaking).**
- **Blurred vision** and diplopia due to extra-ocular muscle palsies.
- **Symmetric descending weakness in a proximal to distal pattern** (paralysis of arms first, followed by respiratory muscles, then legs).
- **Respiratory dysfunction** from respiratory muscle paralysis or upper airway obstruction due to weakened glottis.
- No sensory deficits.

Mode of transmission

Botulinum toxin is generally transmitted by ingestion of toxin-contaminated food. Aerosolization of botulinum toxin has been described and may be a mechanism for BT exposure.

Incubation period

- Neurologic symptoms of foodborne botulism begin 12 – 36 hours after ingestion.
- Neurologic symptoms of inhalational botulism begin 24- 72 hours after aerosol exposure.

Period of communicability

Botulism is not transmitted from person to person.

2. Preventive Measures

Vaccine availability

A pentavalent toxoid vaccine has been developed by the Department of Defense. This vaccine is available as an investigational new drug (contact USAMRIID, 301/619-2833). Completion of a recommended schedule (0, 2, 12 weeks) has been shown to induce protective antitoxin levels detectable at 1-year post vaccination.

Immunization recommendations

Routine immunization of the public, including healthcare workers, is not recommended.

3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed botulism should be managed according to current guidelines. Recommendations for therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact CDC or state health department.

Isolation precautions

Standard Precautions are used for the care of patients with botulism.

Patient placement

Patient-to-patient transmission of botulism does not occur. Patient room selection and care should be consistent with facility policy.

Patient transport

Standard Precautions should be used for transport and movement of patients with botulism.

Cleaning, disinfection, and sterilization of equipment and environment

Principles of Standard Precautions should be generally applied to the management of patient-care equipment and environmental control (see Section I for more detail).

Discharge management

No special discharge instructions are indicated.

Post-mortem care

Standard Precautions should be used for post-mortem care.

4. Post Exposure Management

Suspicion of even single cases of botulism should immediately raise concerns of an outbreak potentially associated with shared contaminated food. In collaboration with CDC and local /state health departments, attempts should be made to locate the contaminated food source and identify other persons who may have been exposed. Any individuals suspected to have been exposed to botulinum toxin should be carefully monitored for evidence of respiratory compromise.

Decontamination of patients / environment

Contamination with botulinum toxin does not place persons at risk for dermal exposure or risk associated with re-aerosolization. Therefore, decontamination of patients is not required.

Prophylaxis and post-exposure immunization

Trivalent botulinum antitoxin is available by contacting the state health department or by contacting CDC (404/639-2206 during office hours, 404/639-2888 after hours). This horse serum product has a <9% percent rate of hypersensitivity reactions. Skin testing should be performed according to the package insert prior to administration.

Triage and management of large scale exposures / potential exposures

Patients affected by botulinum toxin are at risk for respiratory dysfunction that may necessitate mechanical ventilation. Ventilatory support is required, on average, for 2 to 3 months before neuromuscular recovery allows unassisted breathing. Large-scale exposures to botulinum toxin may overwhelm the available resources for mechanical ventilation. See Section I for additional general details regarding planning for large-scale patient management.

5. Laboratory Support and Confirmation

Obtaining diagnostic samples

Routine laboratory tests are of limited value in the diagnosis of botulism. Detection of toxin is possible from serum, stool samples, or gastric secretions, but these tests take several days and must be done through the California State Dept. of Health. For advice regarding the appropriate diagnostic specimens to obtain, contact state health authorities or CDC (Foodborne and Diarrheal Diseases Branch, 404/639-2888).

Laboratory selection

Clinical specimens will be processed through the OV-UCLA clinical laboratory, and can be forwarded on to the state labs as necessary. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document may be requested to accompany the specimen from the moment of collection. The microbiology lab director will be responsible for determining appropriate packaging materials and transport media.

6. Patient, Visitor, and Public Information

Fact sheets for distribution will be prepared by a designated physician in the division of infectious diseases in consultation with infection control and the local health dept., including explanation that people exposed to botulinum toxin are not contagious. A clear description of symptoms including blurred vision, drooping eyelids, and shortness of breath should be provided with instructions to report for evaluation and care if such symptoms develop.

Plague

1. Description of Agent / Syndrome

Etiology

Plague is an acute bacterial disease caused by the gram-negative bacillus *Yersinia pestis,* which is usually transmitted by infected fleas, resulting in lymphatic and blood infections (bubonic and septicemic plague). A BT-related outbreak may be expected to be airborne, causing a pulmonary variant, pneumonic plague.

Clinical features

Clinical features of pneumonic plague include:

- Fever, cough, chest pain.
- Hemoptysis.
- Muco-purulent or watery sputum with gram-negative rods on gram stain.
- Radiographic evidence of bronchopneumonia.

Modes of transmission

- Plague is normally transmitted from an infected rodent to man by infected fleas.
- BT-related outbreaks are likely to be transmitted through dispersion of an aerosol.
- Person-to-person transmission of pneumonic plague is possible via large aerosol droplets.

Incubation period

The incubation period for plague is normally 2 – 8 days if due to fleaborne transmission. The incubation period may be shorter for pulmonary exposure (1-3 days).

Period of communicability

Patients with pneumonic plague may have coughs productive of infectious particle droplets. Droplet precautions, including the use of a surgical mask for patient care, should be implemented until the patient has completed 72 hours of antimicrobial therapy.

2. Preventive Measures

Vaccine availability

Formalin-killed vaccine exists for bubonic plague, but has not been proven to be effective for pneumonic plague. It is not currently available in the United States.

Immunization recommendations

Routine vaccination requires multiple doses given over several weeks and is not recommended for the general population. Post-exposure immunization has no utility.

3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed plague should be managed according to current guidelines. Recommendations for specific therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact CDC or state health department.

Isolation precautions

For pneumonic plague, Droplet Precautions should be used in addition to Standard Precautions. Unlike organisms such as tuberculosis or smallpox, plague is not transmitted by aerosols that remain in the air for long periods of time, so a negative-pressure room is not necessary.

- Droplet Precautions are used for patients known or suspected to be infected with microorganisms transmitted by large particle droplets, generally larger than 5μ in size, that can be generated by the infected patient during coughing, sneezing, talking, or during respiratory-care procedures.
- Droplet Precautions require healthcare providers and others to wear a surgical-type mask when entering the room of the infected patient.
- Droplet Precautions should be maintained until patient has completed 72 hours of antimicrobial therapy.

Patient placement

Patients suspected or confirmed to have pneumonic plague require Droplet Precautions. Patient placement recommendations for Droplet Precautions include:

- Placing infected patient in a private room. Negative pressure is not necessary for plague.
- Cohort in symptomatic patients with similar symptoms and the same presumptive diagnosis (i.e. pneumonic plague) when private rooms are not available.
- Maintaining spatial separation of at least 3 feet between infected patients and others when cohorting is not achievable.
- Avoiding placement of patient requiring Droplet Precautions in the same room with an immunocompromised patient.

Patient transport

- Limit the movement and transport of patients on Droplet Precautions to essential medical purposes only.
- Minimize dispersal of droplets by placing a surgical-type mask on the patient when transport is necessary.

Cleaning, disinfection, and sterilization of equipment and environment

Principles of Standard Precautions should be generally applied to the management of patient-care equipment and for environmental control (see Section I for more detail).

Discharge management

Generally, patients with pneumonic plague would not be discharged from a healthcare facility until no longer infectious (completion of 72 hours of antimicrobial therapy) and would require no special discharge instructions. In the event of a large BT exposure with patients receiving care in their homes, home care providers should be taught to use Standard and Droplet Precautions for all patient care.

Post-mortem care

Standard Precautions and Droplet Precautions should be used for post-mortem care.

4. Post Exposure Management

Decontamination of patients / environment

The risk for re-aerosolization of *Y. pestis* from the contaminated clothing of exposed persons is low. In situations where there may have been gross exposure to *Y. pestis*, decontamination of skin and potentially contaminated fomites (e.g. clothing or environmental surfaces) may be considered to reduce the risk for cutaneous or bubonic forms of the disease. The plan for decontaminating patients may include:

- Instructing patients to remove contaminated clothing and storing in labeled, plastic bags.
- Handling clothing minimally to avoid agitation.
- Instructing to patients to shower thoroughly with soap and water (and providing assistance if necessary).
- Instructing personnel regarding Standard Precautions and wearing appropriate barriers (e.g. gloves, gown, face shield) when handling contaminated clothing or other contaminated fomites.
- Performing environmental surface decontamination using an EPA-registered, facility-approved sporicidal/germicidal agent or 0.5% hypochlorite solution (one part household bleach added to nine parts water).

Prophylaxis

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC.

Post-exposure prophylaxis should be initiated following confirmed or suspected BT *Y. pestis* exposure, and for post-exposure management of healthcare workers and others who had unprotected face-to-face contact with symptomatic patients (Table 2).

Table 2. Recommended post-exposure prophylaxis for exposure to *Yersinia pestis.*

Antimicrobial agent	Adults	Children §
First choice		
Doxycycline	100 mg twice daily	5 mg per kg of body mass per day divided into two doses
2nd choice		
Ciprofloxacin	500 mg twice daily	20-30 mg per kg of body mass daily, divided into two doses

§ Pediatric use of tetracyclines and flouroquinolones is associated with adverse effects that must be weighed against the risk of developing a lethal disease.

Prophylaxis should continue for 7 days after last known or suspected *Y. pestis* exposure, or until exposure has been excluded.

The usual infection control policies will be used to identify and manage health care workers exposed to infectious patients. Employee health and Inf Con will manage identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers.

Triage and management of large scale exposures / potential exposures

Masks are available in the disaster carts for the emergency department. If additional masks are needed for a large-scale event, the incident command center will facilitate obtaining masks from materials management. Employee health will coordinate distributing prophylactic antibiotics to employees, as necessary. If employee health is closed during the initial hours of an event, initial doses of antibiotics will be distributed through the emergency department. See Section I for additional general details regarding planning for large-scale patient management.

5. Laboratory Support and Confirmation

Laboratory confirmation of plague is by standard microbiologic culture, but slow growth and misidentification in automated systems are likely to delay diagnosis. For decisions regarding obtaining and processing diagnostic specimens, contact state laboratory authorities or CDC.

Diagnostic Samples to Obtain

Diagnostic samples to obtain include:

- Serum for capsular antigen testing.
- Blood cultures.
- Sputum or tracheal aspirates for Gram's, Wayson's, and fluorescent antibody staining.
- Sputum or tracheal aspirates for culture.

Laboratory selection

Handling of clinical specimens should be coordinated with local and state health departments, and undertaken in Bio-Safety Level (BSL) -2 or -3 laboratories. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.
Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. The microbiology lab director will be responsible for determining appropriate packaging materials and transport media.

6. Patient, Visitor, and Public Information

Fact sheets for distribution will be prepared by a designated physician in the division of infectious diseases in consultation with infection control and the local health dept., including a clear description of Droplet Precautions, symptoms of plague, and instructions to report for evaluation and care if such symptoms are recognized. The difference between prophylactic antimicrobial therapy and treatment of an

actual infection should be clarified. Decontamination by showering thoroughly with soap and water can be recommended.

Smallpox

1. Description of Agent / Syndrome

Etiology

Smallpox is an acute viral illness caused by the variola virus. Smallpox is a BT threat due to its potential to cause severe morbidity in a nonimmune population and because it can be transmitted via the airborne route. A single case is considered a public health emergency.
Clinical features

Early clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza. Skin lesions appear, quickly progressing from macules to papules to vesicles. Other clinical symptoms to aid in identification of smallpox include:

- 2-4 day, non-specific prodrome of **fever, myalgias.**
- **rash most prominent on face and extremities** (including palms and soles) in contrast to the truncal distribution of varicella.
- **rash scabs over in 1-2 weeks**.
- In contrast to the rash of varicella, which arises in "crops," **variola rash has a synchronous onset**.

Mode of transmission

Smallpox is transmitted via both large and small respiratory droplets. Patient-to-patient transmission is likely from airborne and droplet exposure, and by contact with skin lesions or secretions. Patients are considered more infectious if coughing or if they have a hemorrhagic form of smallpox. The incubation period for smallpox is 7-17 days; the average is 12 days.

Period of communicability

Unlike varicella, which is contagious before the rash is apparent, patients with smallpox become infectious at the onset of the rash and remain infectious until their scabs separate (approximately 3 weeks).

2. Preventive Measures

Vaccine

A live-virus intradermal vaccination is available for the prevention of smallpox. Smallpox vaccine is not widely available, but could be made available through the LA County Dept. of Health Services if needed in the event of an outbreak or for pre-event vaccination.

Since the last naturally acquired case of smallpox in the world occurred more than 20 years ago, routine public vaccination has not been recommended. **Vaccination against smallpox does not reliably confer**

lifelong immunity. Even previously vaccinated persons should be considered susceptible to smallpox.

In the event of a smallpox outbreak, there will be a need to rapidly vaccinate staff. Vaccination of staff will be coordinated by employee health, with consultation from the division of infectious disease and LA DHS. Employee health (EH) will be responsible for keeping a list of staff who have been vaccinated against smallpox, and sharing that list with incident commanders and infection control staff. EH will also be responsible for monitoring for vaccine adverse events among hospital staff. Vaccination will be coordinated in concert with the LA County Smallpox Preparedness Plan, and may involve vaccination of staff at a site established by DHS.

In the event that smallpox vaccine is initially available in limited supply, the following staff would be priority for vaccination with the first 100 doses:

Emergency Dept. Physicians	7
Emergency Dept. Nurses	12
Ambulatory Care Physicians	4
Ambulatory Care Nurses	6
ICU Physicians	2
ICU Nurses	12
Ward Medical Staff Physicians	4
Ward Nurses	12
Infection Control Staff	3
Respiratory Therapists	8
Radiology Technicians	2
Hospital Security	5
Environmental Services	5
Engineering / Maintenance	2
Employee Health	3
Surgical Team – MDs, Nurses, Anesthesia	5
Psychiatry – MDs and Social Workers	3
Hospital Chaplain	1
Financial Workers	2
Laboratory / Pathology staff	2
TOTAL	100

3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed smallpox should be managed according to current guidelines. Treatment is primarily supportive. Recommendations for specific therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact the CDC or state health department.

<u>Isolation precautions</u>

For patients with suspected or confirmed smallpox, Contact and Airborne Precautions with a negative pressure room should be used in addition to Standard Precautions.

- Airborne precautions with a negative pressure room are used for patients known or suspected to be infected with microorganisms transmitted by airborne droplet nuclei (small particle residue, 5μ or smaller in size) of evaporated droplets containing microorganisms that can remain suspended in air and can be widely dispersed by air currents.
- Airborne and Contact Precautions require healthcare providers and others to wear respiratory protection when entering the patient room (N-95 "duckbill" mask), as well as gown and gloves. Hands must be washed using an antimicrobial agent.
- Contact Precautions are used for patients known or suspected to be infected or colonized with epidemiologically important organisms that can be transmitted by direct contact with the patient or indirect contact with potentially contaminated surfaces in the patient's care area.
- Any items from the room of patients with known or suspected smallpox will be treated as biohazardous material (e.g., linens, dishware). Disposable items should be used when possible. Any trash will be autoclaved before disposal. Any reusable items will be autoclaved before reuse.

Patient placement

Patients suspected or confirmed with smallpox require placement in a negative-pressure isolation room. If there are not an adequate number of isolation rooms available, then infection control will coordinate a cohort arrangement, or will assist with transfer to another facility.

Patient transport

- Limit the movement and transport of patients with suspected or confirmed smallpox to essential medical purposes only.
- When transport is necessary, minimize the dispersal of respiratory droplets by placing a mask on the patient, if possible.

Cleaning, disinfection, and sterilization of equipment and environment

A component of Contact Precautions is careful management of potentially contaminated equipment and environmental surfaces.

- When possible, noncritical patient care equipment should be dedicated to a single patient (or cohort of patients with the same illness).
- If use of common items is unavoidable, all potentially contaminated, reusable equipment should not be used for the care of another patient until it has been appropriately cleaned and reprocessed (including autoclave).

Discharge management

In general, patients with smallpox will not be discharged from a healthcare facility until determined they are no longer infectious. Therefore, no special discharge instructions are required. If patients are to be sent home sooner, written instructions will be developed by Inf Con.

Post-mortem care

Airborne and Contact Precautions should be used for post-mortem care.

4. Post Exposure Management

Identification of Possible Contacts

If a patient is suspected to have smallpox, any possible contacts in the immediate area (staff, patients, or visitors) should be detained until they can be identified by infection control and released by public health. Nobody should be allowed into or out of the immediate area until approved by infection control. It is important to identify these contacts so they can be followed by public health and possibly provided with vaccine.

Infection control and employee health will coordinate the identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers.

Decontamination of patients / environment

- Patient decontamination after exposure to smallpox is not indicated.
- Items potentially contaminated by infectious lesions should be handled using Contact Precautions.

Prophylaxis and post-exposure immunization

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC.

Post-exposure immunization with smallpox vaccine (vaccinia virus) is effective. Vaccination alone is recommended if given within 3 days of exposure. Passive immunization is also available in the form of vaccinia immune-globulin (VIG) (0.6ml/kg IM). If greater than 3 days has elapsed since exposure, both vaccination and VIG are recommended. VIG is maintained at USAMRIID, 301/619-2833.

Vaccination is generally contraindicated in pregnant women, and persons with immunosuppression, HIV–infection, and eczema, who are at risk for disseminated vaccinia disease. However, the risk of smallpox vaccination should be weighed against the likelihood for developing smallpox following a known exposure. VIG should be given concomitantly with vaccination in these patients.

Following prophylactic care, exposed individuals should be instructed to monitor themselves for development of flu-like symptoms or rash during the incubation period (i.e., for 7 to 17 days after exposure) and immediately report to designated care sites selected to minimize the risk of exposure to others.

Triage and management of large scale exposures / potential exposures

Facilities management will assist infection control in identifying sites (e.g., a designated ward or clinic) that can provide proper airborne precautions (including negative pressure) if it is necessary to cohort a large number of patients.

5. Laboratory Support and Confirmation

Diagnostic samples to obtain

For decisions regarding obtaining and processing diagnostic specimens, the director of the microbiology laboratory will contact state laboratory authorities or CDC.

Laboratory selection

Handling of clinical specimens must be coordinated with state health departments, CDC, and USAMRIID. Testing can be performed only in BSL - 4 laboratories. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document may be requested to accompany the specimen from the moment of collection. The microbiology lab director will be responsible for determining appropriate packaging materials and transport media.

6. Patient, Visitor, and Public Information

Fact sheets for distribution will be prepared by a designated physician in the division of infectious diseases in consultation with infection control and the local health dept., including a clear description of symptoms and where to report for evaluation and care if such symptoms are recognized. Details about the type and duration of isolation should be provided. Vaccination information that details who should receive the vaccine and possible side effects should be provided. Extreme measures such as burning or boiling potentially exposed materials should be discouraged.

C. SARS (Severe Acute Respiratory Syndrome)

1. Description of Agent / Syndrome

Etiology

SARS is an acute viral illness caused by a corona virus known as SARS CoV. SARS is an agent that is known to cause outbreaks that can spread rapidly in the health care setting. Previous SARS outbreaks have occurred in specific geographic areas, so a history of travel to (or exposure to people who have traveled to) these areas may be important. The CDC website (www.cdc.gov) is the best source of current information on geographic areas that have a risk of SARS.

Clinical features

Early clinical symptoms of SARS may resemble other acute febrile viral illnesses, such as influenza. As the illness progresses patients may develop a respiratory distress syndrome with hypoxia and progressive CXR infiltrates. Mortality of SARS is approximately 15% overall, and may be as high as 50% in the elderly.

Mode of transmission

SARS is primarily transmitted via respiratory droplets. Spread by contaminated body fluids (diarrhea) has been implicated in some outbreaks.

Incubation period

The incubation period for SARS is 2-10 days.

2. Preventive Measures

There is currently no vaccine for SARS, though vaccines are in development. The primary means of controlling SARS is infection control measures.

3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed SARS should be managed according to current guidelines. Treatment is primarily supportive. Intravenous corticosteroids may be beneficial in reducing the progression of lung damage. Treatment with a combination of ribavirin plus interferon may be helpful. Recommendations for specific therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact the CDC or health department.

Isolation precautions

Although transmission appears to be primarily by droplet infection, due to the observed rapid spread of SARS in health-care setting, patients with suspected or confirmed SARS should be placed in Contact and Airborne Precautions with a negative pressure room in addition to Standard Precautions.

- Airborne and Contact Precautions require healthcare providers and others to wear respiratory protection when entering the patient room (N-95 "duckbill" mask), as well as gown and gloves. Hands must be washed using an antimicrobial agent.
- Contact Precautions are used for patients known or suspected to be infected or colonized with epidemiologically important organisms that can be transmitted by direct contact with the patient or indirect contact with potentially contaminated surfaces in the patient's care area.

Patient placement

Patients suspected or confirmed with SARS require placement in a negative-pressure airborne isolation room. If there are not an adequate number of isolation rooms available, then infection control will coordinate a cohort arrangement, or will assist with transfer to another facility.

Patient transport

- Limit the movement and transport of patients with suspected or confirmed SARS to essential medical purposes only.
- When transport is necessary, minimize the dispersal of respiratory droplets by placing a mask on the patient, if possible.

Cleaning, disinfection, and sterilization of equipment and environment

A component of Contact Precautions is careful management of potentially contaminated equipment and environmental surfaces.

- When possible, noncritical patient care equipment should be dedicated to a single patient (or cohort of patients with the same illness).
- If use of common items is unavoidable, all potentially contaminated, reusable equipment should not be used for the care of another patient until it has been appropriately cleaned and reprocessed (including autoclave).

Discharge management

If patients are to be sent home, written instructions will be developed by Inf Con. These instructions may include "sheltering in place" and avoiding exposing others while symptoms persist.

Post-mortem care

Airborne and Contact Precautions should be used for post-mortem care.

4. Post Exposure Management

Identification of Possible Contacts

If a patient is suspected to have SARS, any possible contacts in the immediate area (staff, patients, or visitors) should be detained until they can be identified by infection control and released by public health. It is important to identify these contacts so they can be followed by public health.

Infection control and employee health will coordinate the identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers.

Decontamination of patients / environment

- Patient decontamination after exposure to SARS is not indicated.
- Items potentially contaminated by infectious droplets should be handled using Contact Precautions.

Post-Exposure Prophylaxis

There is currently no known effective post-exposure prophylaxis for SARS. Exposed individuals should be instructed to monitor themselves for development of fever or respiratory symptoms during the incubation period (i.e., up to 10 days after exposure).

Triage and management of large scale exposures / potential exposures

Facilities management will assist infection control in identifying sites (e.g., a designated ward or clinic) that can provide proper airborne precautions if it is necessary to cohort a large number of patients.

5. Laboratory Support and Confirmation

A serology test for SARS antibodies is available that can be performed on blood samples. The antibody test may be negative during the acute phase of illness, and confirmation may require testing convalescent serum 3 weeks later. PCR testing is not well studied, and may not be available. For decisions regarding obtaining and processing diagnostic specimens, the director of the microbiology laboratory will contact Los Angeles DHS for instructions on specimen processing and testing. SARS testing can be done through the local health department lab. The microbiology lab director will be responsible for determining appropriate packaging materials and transport media.

6. Patient, Visitor, and Public Information

Fact sheets for distribution will be prepared by a designated physician in the division of infectious diseases in consultation with infection control and the local health dept., including a clear description of symptoms and where to report for evaluation and care if such symptoms are recognized. Details about the type and duration of isolation should be provided.

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New Engl J Med May 15, 2003 issue (multiple SARS articles)

Appendix : Other sources of information:

USAMRIID 301 619-2833

BIOPORT (producers of anthrax vaccine) 517 327-1500

AMERICAN RED CROSS 818 243 3121

SALVATION ARMY 1-888 321-3433

US PUBLIC HEALTH SERVICE 1-800-872-6367

DOMESTIC PREPAREDNESS INFORMATION LINE 1-800-368-6498

NATIONAL RESPONSE CENTER 1-800-424-8802

Websites Relevant to Bioterrorism Readiness

http://www.apic.org

http://www.cdc.gov/ncidod/diseases/bioterr.htm

http://www.cdc.gov/ncidod/dbmd/anthrax.htm

http://www.cdc.gov/ncidod/diseases/foodborn/botu.htm

http://www.cdc.gov/ncidod/srp/drugservice/immuodrugs.htm

http://www.nbc-med.org/SiteContent/HomePage/WhatsNew/anthraxinfo/Anthraxinfo3.htm

http://www.defenselink.mil/specials/Anthrax/anth.htm

http://www.hopkins-id.edu/bioterr/bioterr_1.html

http://www.who.int/emc-documents/zoonoses/docs/whoemczdi986.html

http://www.hopkins-biodefense.org

http://www.fema.gov

http://www.labt.org