

HAZARDOUS MATERIALS, CHEMICAL, AND RADIATION EXPOSURE DECONTAMINATION PROTOCOL

Until the Hazardous material decontamination plan is fully operational, patients contaminated with Hazardous Materials will be decontaminated to best of the hospital ability and supplemented with a FDNY Mobile HazMat unit (911, 718-636-1700). The Department of Emergency Medicine's Disaster Coordinator (Dr. Bonnie Arquilla 917-760-1454) will serve as liaison to coordinate the decontamination effort between Kings County Hospital and University Hospital of Brooklyn.

PURPOSE:

The purpose of external decontamination is twofold:

1. To remove hazardous materials from the skin and mucous membranes of a victim, thereby eliminating the potential toxic exposure and facilitating both the prevention and treatment of clinical effects.
2. To prevent contamination of the hospital facilities, personnel, and patients by a victim or victims exposed to hazardous materials, chemicals or radiation.

POLICY:

All University Hospital of Brooklyn SUNY employees will follow the decontamination procedures for their safety as set forth in this document.

PROCEDURE:

1. General Considerations:

Under most circumstances a patient or other individual contaminated with a hazardous material should not be allowed to enter the Emergency Department without prior decontamination.

Under no circumstances should hospital personnel approach or have contact with a patient contaminated with a hazardous material until proper physical precaution have been taken to protect themselves (See Instructions).

The New York Poison Control Center, FDNY, HAZMAT Team, NYPD, Department of Transportation, and/or manufacturer, distributor, or shipper should be contacted in an attempt to ascertain the exact contents and hazardous nature of the material in question. The initiation of these contacts should be through the Emergency Department office.

Until absolute identification of the hazardous material is made, all unknown material will be regarded as highly toxic and therefore life-threatening.

For the purpose of this document, radiation exposures considered to be "hazardous

material exposures” under the provisions of this protocol, related to those exposures in which radioactive material is present on the skin or mucous membranes of a patient; rather that the patient who has absorbed radiation from radioactive source without being externally contaminated.

If the number or spectrum of patients, or severity of exposure fall into the designation of an MCI (Mass Casualty Incident) the existing hospital MCI protocols will be used in conjunction with this protocol.

For the purpose of this document all references to the medical control officer will be interpreted to mean the attending physician in the Emergency Department unless otherwise designated during the incident.

2. **DECONTAMINATION SUPPLIES:**

Adequate supplies of the following decontamination equipment will be available:

- A. Saranex 23-P Suits:
Water and hazardous solvent resistant with hood and attached boots, elasticized wrists.
- B. Flock-lined Nitrile Gloves:
Resistant to aromatic, petroleum and chlorinated solvents; 0.013 gauge, 13 inch length
- C. Pro-Tech Full Face Respirator:
Neoprene with internal nose cup, polycarbonate lens
- D. Pro-Tech Piggy-back Cartridges for Full Face Respirator:
Combination filter: HEPA to protect against dust, mists, fumes, radionuclides, and organic vapor filter
- E. 2 inch wide by 60 yards Solid Color Tape:
3 rolls red, 3 rolls yellow
- F. Floor Stand Signs (6): “ Danger-Hazardous Area”

Other Equipment to be obtained from hospital supply or miscellaneous vendor(s):

- A. Decontamination bags, Hazard Bags
- B. Standard hospital gowns, gloves, shoe covers, face masks
- C. Linens (sheets, towels, patient gowns, washcloths)
- D. Soap (liquid)
- E. Sponges (several large)
- F. Rolls of brown paper for floor covering
- G. Rolls of plastic sheeting for floor covering found in the disaster cabinet.

The supplies will be kept at the ambulance entrance (the outer door is marked “HAZMAT Supplies”)

There are two rolling carts containing supplies, which will be brought into the street at the Emergency Department Ambulance entrance once they are notified.

Use of full face respirators

- A. Users of respirators will be instructed and trained in their proper use and limitations. Each user shall receive fitting instructions including demonstrations and practice on how the respirator should be worn, how to adjust it, and how to determine if it fits properly. A list of personnel who may be required to wear respirators shall be forwarded to the Department of Employee Health and Safety and Emergency Preparedness Committee.
- B. Respirators shall be regulated monthly cleaned and disinfected. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.
- C. The hospital's Emergency Department Staff shall routinely inspect respirators.

3. **COMMUNICATIONS:**

The AOD in the hospital shall be responsible for the notification of the following personnel when notified of a hazardous materials/chemical exposure incident:

- A. Attending Physician in the Emergency Department
- B. Director, Surgery/Medicine/Pediatrics
- C. Police (Campus/State)
- D. Emergency Department Charge Nurse and/or supervisor
- E. Environmental Services Supervisor
- F. Safety Control Officer
- G. Radiation Safety Officer (if radiation exposure)
- H. Disaster Coordinator
- I. Assistant Vice President for Physical Plant
- J. Telecommunications (Operators)

4. **DECONTAMINATING ZONE SETUP, MAINTENANCE, TRAFFIC FLOW:**

- A. **Zone Setup:**) Personnel from Environmental Services with the Emergency Department Staff will be responsible for applying paper, plastic, and tape to outline and setup the zones as per this protocol.
 - I) The Emergency Department nursing staff will ensure that decontamination supplies are delivered to the appropriate zones.
- B. **HOT ZONE:**
 - I) A HOT ZONE (contaminated zone) will be set up according to the attached floor plan of the Emergency Department, referred to as Figure 1. This HOT Zone will be designated by red vinyl tape applied to the concrete and asphalt walkway located at street ambulance entrance behind and including the decontamination unit as indicated in the figure. The red vinyl tape, and therefore the HOT zone, will extend 6-8 feet into the ambulance drive to allow the unloading of potentially contaminated patients directly into the HOT zone. The zone will also be indicated by placing patients directly into the HOT zone. The zone will also be indicated by placing "HAZARDOUS AREA" floor signs(4) on both the east and west borders of the zone, as indicated in the floor plan.

II) **Security and Traffic Flow:**

A police office will be placed on station adjacent to the HOT zones as indicated in Figure 1. It will be the responsibility of the police office to ensure:

- a) Unloading patients (ground transport) and **pre-hospital personnel** attending them will remain in the confines of the HOT zone, unless the triage physician or medical control officer determine otherwise.
- b) All other unauthorized hospital and non-hospital personnel are kept out of the confines of the HOT zone.
- c) All other non-contaminated Emergency Department traffic will follow the correct traffic pattern through the center and will enter the Emergency Department through the secondary doors located through the main building (450 Clarkson Ave). Non-contaminated patients destined for the Emergency Department will follow the usual course and enter the Emergency Room via Clarkson Avenue.

III) **Personnel and Equipment:**

All hospital personnel required to work within the confines of the HOT zone will be appropriately dressed. Unless determined otherwise by the medical control officer in concert with the Emergency Department nurse, One physician will be dressed in Saranex suit, full gloves and full- face respirator to stabilize, decontaminate, and triage contaminated patients as per protocol. If additional physician help is required for triage or treatment, one of the Emergency Department physicians assigned to the Fast Track section will be called upon to assist, unless otherwise designated by the Emergency Department attending physician in charge. If additional nursing help is required, it will be the responsibility of the Emergency Department charge nurse to redistribute available resources. The disaster medical officer in concert with the NYPD, HAZMAT/Poison Control can elect to forgo full protective gear and/or increase or decrease the number of personnel in the Hot Zone.

C. **WARM ZONE:**

- I) A WARM zone will be set up according to the attached floor plan of the entrance to the Emergency Department. This WARM zone will be designated by yellow vinyl tape applied to the floor of the Emergency Department directly in front of the decontaminated unit as indicated in Figure 1. Plain brown paper will be applied to the floor of the designated area. The vinyl tape will serve to designate the confines of the WARM zone and to hold the paper floor covering in place. The main entry doors to the Emergency Department will be deactivated and locked. The zone will also be indicated by plain "HAZARDOUS AREA" floor signs, (2) on the deactivated and locked Ambulance Emergency Room doors, as indicated in the floor plan.

Access is to be controlled by Police after decontamination.

- II) **Extended WARM zone:** The medical control office is authorized to “extend” the WARM zone to include needed space (as indicated on the floor plan) if a patient’s condition warrants immediate intervention without the completion of a formal decontamination sequence.
- III) **Security and Traffic Flow:** One police officer will be placed on station inside of the deactivated and locked Ambulance Emergency Department doors, and one security officer will be placed on station just adjacent to the WARM zone or Extended WARM zone boundary within the Emergency Department, both as indicated in the attached floor plan.

It will be the responsibility of the security officers to ensure:

- a) All unauthorized hospital and non-hospital personnel are kept outside the confines of the WARM zone.
 - b) Non-contaminated patients designated for the Emergency Department will follow the usual course and enter the Emergency Department through the main hospital entrance. (Clarkson Avenue Entrance).
- IV) **Personnel:** All hospital personnel required to work within the confines of the WARM zone will be appropriately dressed. Unless determined otherwise by the medical control officer in concert with the Emergency Department attending, all personnel will be dressed in standard disposable (paper) hospital gowns, gloves, shoe covers, face masks, and hair covers. The Disaster Medical Officer in consultation with the Emergency Department Attending may elect to forgo protective gear in the WARM zone. If additional physician help is required for triage or treatment, one of the Emergency Department Physician Assistants Urgent Care section will be called upon to assist, unless otherwise designated by the Emergency Department attending physician. If additional nursing help is required, it will be the responsibility of the Emergency Department charge nurse to redistribute available resources.

5. **PATIENT TRIAGE:**

a. **Stable Patients**

- I) If FDNY/Rescue/NYPD personnel do not perform initial external decontamination, the decontamination sequence will precede entry into the Emergency Department through the HOT zone.
- II) If FDNY/Rescue/NYPD personnel perform initial external decontamination, a second decontamination sequence through the HOT zone should be initiated prior to entry in the Emergency Department.

b. **Unstable Patients**

- I) If FDNY/Rescue/NYPD personnel do not perform initial external decontamination, the decontamination sequence through the HOT zone

may precede entry into the Emergency Department contingent on the toxic potential of the specific product as determined by the medical control or triage physician. Alternately, in a life-threatening situation, resuscitative equipment and supplies could be brought out to the decontamination area if external decontamination prior to Emergency Department entry is required due to hospital contamination risk.

- II) If FDNY/Rescue/NYPD personnel perform initial external decontamination, the triage physician may elect to allow entry of patient into resuscitation area for stabilization and subsequent secondary decontamination.

c. Post-Decontamination Triage:

- I) After completion of the decontamination sequence, patients will proceed to the designated areas of the Emergency Department for secondary care, as determined by the triaging physician using previously established Emergency Department guidelines.

6. DECONTAMINATION SEQUENCE:

- a. A “HOT zone” or sphere of contamination will be set up and enforced into which all patients and pre-hospital personnel (if they wish to enter the hospital) shall proceed through. All initial patient decontamination will take place in the decontamination unit within this zone. Equipment and personnel working within this zone shall not leave the zone until they are decontaminated to prevent the spread of contamination.
- b. The patient is stripped, including jewelry and washed twice with soap and water (careful attention to hair and fingernails), and if necessary a 10% bleach solution may be used. If eye exposure is a consideration, irrigation should be instituted. Emergency Department/NYPD/Poison Control will advise if the decontamination procedure requires specific treatment not outlined in this general protocol.
- c. Upon completion of the initial external decontamination, the patient is transferred to a **clean** stretcher in the WARM zone (at the inside door of the decontamination unit) whereupon secondary evaluation and triage to the appropriate section of the Emergency Department will take place. With severe exposures, or upon advice from the medical control physician in concert with the Emergency Department attending, a second round of dermal decontamination may take place within the WARM zone.
- d. Patients will be transferred to a clean stretcher or wheel chair upon exiting the WARM zone boundary on their way to the appropriate section of the Emergency Department. All equipment (e.g. stretcher, wheelchair) originally within the WARM zone will remain in the WARM zone until decontamination.
- e. All equipment and supplies will always flow from a clean area to a more contaminated area (e.g. Emergency Department to WARM zone, WARM zone to HOT zone) **never** in the opposite direction. If additional personnel

are required in a particular zone, the same sequence will be followed. Personnel may enter a more contaminated zone at will but cannot enter a cleaner zone without first performing the appropriate decontamination.

7. **PERSONNEL DECONTAMINATION:**

If personnel are appropriately dressed, he or she may proceed to the boundary of the lesser contaminated area (HOT to WARM, WARM to EMERGENCY DEPARTMENT), remove protective garments (placed into red bags in area), and proceed over the boundary. Personnel upon entry into normal environment should immediately wash hands and face with soap and water. If protective garments are breached during patient contact, personnel should receive same decontamination sequence as patients.

8. **EQUIPMENT AND AREA DECONTAMINATION:**

Equipment and hospital facilities will be decontaminated with appropriate cleansers as per Environmental Services Department protocols following completion of the patient decontamination sequence. Environmental Services personnel within the hospital shall be notified of the toxic potential and other particulars relating to the toxin in question. Environmental Service personnel will also wear appropriate decontamination gear during cleanup.

9. Respirators will be cleaned and disinfected after each use. The units will also be inspected by the Hospital Safety Coordinators and worn or deteriorated parts replaced.

Chemical Agents and Treatments

The following is an overview of possible chemical agents that could be expected to be involved in a Mass Casualty Incident involving NCB terrorism. This section is divided up by specific agents, clinical affects, antidotes, and required decontamination. As stated in the hazardous material section of the manual, it is expected that any event that required activation of the hazmat section of the Emergency Management Plan the entire MCI plan would be activated. It is also expected that the hazardous material and decontamination plan would be followed for all chemical agent exposures. The clinician must remember that the most important aspect of decontamination and treatment is to assure that no hospital personnel are placed in danger and that the hospital does not itself become contaminated: **METICULOUS DECONTAMINATION IS THE MOST IMPORTANT PART OF ALL TREATMENT.**

In addition, don't forget to report **ALL cases of suspected chemical agent exposure** to the **New York City Poison Control Center (212-POI-SONS)**. Expert Toxicologists are waiting to help you and you should use all of the resources available.

Specific HAZMAT CHEMICAL AGENTS

NERVE AGENTS	TABUN, SARIN, SOMAN, VX
BLOOD AGENTS	HYDROGEN CYANIDE, CYANOGEN CHLORIDE
CHOKING AGENTS	PHOSGENE, CHLORINE, AMMONIA
BLISTER AGENTS	MUSTARD, LEWISITE
RIOT CONTROL AGENTS	MACE, PEPPER SPRAY

NERVE AGENTS:

(Class of chemicals called organophosphates– Insecticides)

Overview:

- These are the most toxic of the expected chemical agents
- They are easily absorbed through skin, eyes, and mucous membranes
- They are liquid at normal ambient temperatures

Signs and Symptoms of Nerve Agent Exposure

A. INCREASED SECRETIONS (MUSCARINIC EFFECTS)

- Salivary Glands (saliva)
- Lacrimal glands (tears)
- Nasal glands
- Bronchial glands
- Gastrointestinal glands
- Sweat glands

B. SMOOTH MUSCLE STIMULATION (MUSCARINIC EFFECTS)

- Miosis
- Bronchoconstriction (shortness of breath)
- Gastrointestinal hyperactivity (nausea, vomiting, and diarrhea)

C. SKELETAL MUSCLES (NICOTONIC EFFECTS)

- Fasciculations
- Twitching
- Weakness
- Flaccid Paralysis

D. CENTRAL NERVOUS SYSTEM

- Loss of consciousness
- Seizures
- Apnea
- Psychological effects

E. OTHER

- Tachycardia (Bradycardia may also be seen due to muscarinic (vagal) effects)
- Hypertension

Types of Nerve Agents Exposures

A. Nerve Agents in Vapor Form

Exposure tends to lead to immediate symptoms with no delayed Symptoms.

Symptoms:

1. Minimal Exposure

- Miosis (dim vision, eye pain)
- Rhinorrhea
- Shortness of breath

2. Large Exposure

- Immediate LOC, seizures, apnea, and flaccid paralysis

B. Nerve Agents in Liquid form

Liquid nerve agents may have an 18-24 hour delay in onset of action. The clinician should assume that all nerve agent exposures are liquid and prepare for prolonged observation.

Symptoms:

1. Minimal Exposure

- Localized sweating
- Fasciculations

2. Moderate Exposure

- Gastrointestinal effects

3. Large Exposure

- Sudden loss of consciousness
- Seizures
- Apnea
- Flaccid paralysis
- Death

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

1. Removal of clothing and jewelry (decontamination at scene prior to evacuation is preferable and FDNY protocol at this time)
2. Patient should be washed with soap and water.

Decontamination should never be delayed if sodium hypochlorite or soap is not immediately available. If necessary, copious water is adequate for decontamination in most cases.

3. Patients arriving at the Emergency Department with an unclear exposure history who are symptomatic from nerve agent exposure should be fully decontaminated with soap and water or sodium hypochlorate before entering treatment areas.

Treatment

1. Airway and ventilation can be very difficult because of increased secretions therefore atropine should be administered before other measures are attempted. Positive pressure ventilation and frequent suctioning of secretions will be necessary.
2. Patients should be given eye ointment for relief of pain to eyes.
3. All patients must be observed for 18 hours for latent symptoms.
4. Antidote administration
 - a. Atropine sulfate: IV, IM or ET—2mg every 5 to 10 minutes until secretions decrease. Up to 20 mg may be needed. Even more atropine may be required if organophosphate pesticides, rather than true nerve agents, are used.
 - b. Pralidoxime chloride (2-PAM): 1-2 g in 100 mL of 0.9% NaCl given IV over 15-30 minutes initially. This may be repeated in 1 hr if weakness/fasciculations are not relieved and thereafter every 3-8 hours. Alternatively, a continuous infusion of 500 mg/hr may be started after the initial dose.
 - c. Diazepam: to treat seizure activity, 5 –10 mg IV.
 - d. Age related considerations for nerve agent antidotes
 - i. Children: 0.02 mg/kilogram atropine; 20-40 mg/kg of Pralidoxime chloride (2-PAM) followed by 10-20 mg/kg/hr
 - ii. Elderly: frail, hypertensive or renal disease- give half the usual dose of 2-PAMCI

- iii. If hypertension is significant with 2-PAM, use phentolamine to control BP (5mg IV in adults and 1mg IV children)

BLISTER AGENTS OR VESICANTS

- **Sulfur mustard**
- **Lewisite**

Blister agents cause injury via inhalation and liquid contact to eyes, skin, airway and some internal organs. There is a delayed action and exposure may result in blisters on the skin, temporary blindness, respiratory distress and bone marrow damage. There is no specific therapy.

Clinical Signs and Symptoms

- No immediate pain, no immediate skin discoloration, no immediate eye irritation.
- Clinical effects range between 2 to 48 hours. Usually 4 to 8 hours.
- Patients usually present with upper airway irritation, hoarseness, dyspnea and cough.
- Pulmonary edema is rare.

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

- Remove clothing
- Thoroughly wash skin with soap and water.
- Must be done as quickly as possible. Damage can occur if agent is in contact with skin for as little as one minute.

Treatment

- Basically supportive there is no antidote
- There is some evidence that Betadine solution applied to affected areas may decrease the ultimate extent of the injury
- Soothing cream/lotion
- Frequent irrigation
- Topical antibiotics
- Systemic analgesics
- Do not overhydrate; not a thermal burn

Care for Eye Injuries

- Irrigation
- For severe injuries topical mydriatics
- Oral pain medication
- Topical antibiotics and Vaseline should be applied to lids to prevent them from adhering
- Early ophthalmologic care is important

Treatment of Pulmonary Injuries

- Steam, cough suppressants for mild injuries
- Oxygen
- Assisted ventilation
- Early intubation: PEEP may be necessary
- Bronchodilators (steroids)
- Antibiotics **AFTER** organism identified

Lewisite

Is rapidly absorbed by eyes, skin and lungs and is highly irritating on initial exposure.

Clinical Signs and Symptoms:

SKIN

Lewisite causes greater skin damage than sulfur mustard. A gray area of dead skin can progress to blisters and severe tissue necrosis and sloughing.

LUNGS

Since Lewisite causes immediate irritation to the nose and sinuses. Pseudomembrane formation is common.

Treatment for Lewisite Exposure

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

Soap, water.

Antidote

British anti-Lewisite (dimercaprol or **BAL**) is used IM to reduce systemic effects. **Has no effect on skin and eyes.** Dosage must be adjusted to weight: 0.5 cc's per 25 pounds bodyweight up to a maximum of 4 cc's. IM injections should be repeated at different sites at 4, 8, and 12 hours for a total of 4 equal doses. For severe pulmonary symptoms or hypotension the interval between the first and second injection may be shortened to two hours. BAL may also be applied topically to treat ocular or dermal injuries.

Cyanide

Signs and Symptoms:

Low Concentrations

- Victims become anxious
- Hyperventilate
- Develop headache, dizziness and vomiting
- Skin may be flushed or “cherry red” color
- Symptoms improve when victim is removed from the source

High Concentrations

- 15 seconds – anxious and hyperventilate
- 30 seconds- seizures
- 3 to 5 minutes – breathing ceases
- 6 – 10 minutes – asystole-death

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

- Remove from area
- Remove clothing
- Mild exposure, conscious and breathing-O₂, IV fluids and observe
- Severe exposure, unconscious-give antidotes

Antidote

Prior to administration, oxygen supplementation, IV hydration and if necessary sodium bicarbonate to reverse metabolic acidosis

Utilize Commercial Cyanide Kit

- Amyl nitrite pearls (a temporizing measure to be used only until IV access is obtained)
- Sodium nitrite 3% solution
300 mg (10 cc amp) over 5 min, hypotension
Injected over 2 to 4 minutes
Pediatric dose 0.2 cc/kg not to exceed 10 cc's
- Sodium thiosulfate 25% solution
12.5 g (50 cc amp) over 5 minutes IV
Pediatrics 0.4 mg/kg or 1.65 cc's/kg of a 25% solution.

Choking Agents

- Phosgene
- Chlorine
- Ammonia

Phosgene

- Causes transient irritation to eyes, nose, sinus and throat
- Penetrates slowly
- Patient symptom-free 2 – 24 hours
- Attacks alveolar capillaries causing leakage, hypoxia and apnea
- Patient is volume depleted
- Odor of freshly mown hay

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

- Remove clothing
- Wash away all residual liquid with copious amounts of water

Treatment

- ABCs
- Supportive
- Intubate
- Hydrate
- Keep patients quiet do not allow to ambulate
- Transport by stretcher
- Life threatening lung damage can be accelerated by physical exertion of any type
- Lasix is contraindicated

Ammonia

Clinical Signs and Symptoms

Eyes

- Burning, tearing, severe pain, injury of the cornea and lens
- No latency (immediate symptoms after exposure)

Lungs

- Cough, SOB, chest pain, wheezing and laryngitis with mild exposure
- Hypoxia, chemical pneumonia, hemorrhage with moderate-severe exposures
- No latency (immediate symptoms after exposure)

Skin

- Pain, blister formation, deep burns

Gastrointestinal (ingestion)

- Severe mouth pain, cough and abdominal pain
- Nausea and vomiting
- Edema to lips and mouth (leading to airway obstruction)
- Esophageal strictures and perforation

Decontamination

(Use SUNY Emergency Preparedness Hazmat/Decon Protocol)

- Remove clothing
- Wash with soap and large amounts of water for 15 – 20 minutes
- Eyes should have continuous irrigation
- Early intubation for airway protection is recommended

Chlorine

- Is a significant irritant to eyes and respiratory and gastrointestinal tracts.
- Initial respiratory distress of coughing, wheezing, chest pain and sputum production.
- Is followed in 12-24 hours by non-cardiogenic pulmonary edema.

Decontamination

((Use SUNY Emergency Preparedness Hazmat/Decon Protocol))

Treatment

- Remove from source of exposure
- ABCs
- Flush skin and eyes with water
- O2, cool mist, bronchodilators
- Airway management (intubation, PEEP)
- Hydration

RIOT CONTROL AGENTS

- Irritating agents to eyes, nose, mouth and lung
- Effects last about 30 minutes
- Agents can include
 - CN (Mace)
 - CS (Tear gas)
 - OC (Oleoresin capsicum, capsaicin, pepper spray)
 - DM (Adamsite)

Decontamination

Most likely do not need full SUNY DMC Emergency Preparedness Hazmat/ Decon

Treatment

Eyes

- Irrigate
- Remove Contact Lenses
- Check for foreign body
- Check eye pH
- Follow-up with ophthalmologist

Lungs

- Bronchodilators
- Oxygen therapy

Skin

- **DO NOT USE BLEACH**
- Soap and water
- Soothing ointment or cream

Biohazard Preparedness (BP) Plan

PURPOSE: To enable the hospital and its staff to respond appropriately in the event that a biologic agent with the potential to cause widespread disease and panic is released into the community. The BP Plan is part of the overall UHB Disaster Plan. It is made up of three components:

- 1) Resource assessment and allocation
- 2) Education
- 3) Response

In all instances the Office of the Hospital Epidemiologist (OHE) or designee will provide input and guidance and coordinate activities with the general oversight of the Vice President for Clinical Affairs or the University, the Medical Director of the Hospital (alternately referred to throughout this document as the Chief Medical Officer) and the UHB Disaster Chairperson.

The plan recognizes that each activity will differ based upon the pathogen/agent in question and the scale of the emergency. The plan also recognizes that in the event of such an emergency overall direction of the plan may be altered at the discretion of the local authorities.

Review of the most likely pathogens/agents: (for more complete descriptions refer to www.cdc.gov)

- 1) **Anthrax-** is a non-contagious disease state caused by the gram positive bacillus *Bacillus anthracis*. It may cause either a severe inhalational disease, cutaneous disease or gastrointestinal disease. It is treatable provided antibiotics are started early after exposure or onset of disease. No special isolation precautions are necessary for patients with this disease. It is the most likely agent to be used in a bioterrorist event. Diagnostic tests include routine bacterial culture and gram stain.
- 2) **Smallpox-** is a highly contagious viral infection not seen in the United States for decades. It causes a characteristic rash and systemic symptoms. Except for individuals who recently participated in the smallpox vaccination program the entire population is considered non-immune to this agent. There is a 30% mortality rate for naive populations. Strict airborne isolation precautions must be taken for individuals with this infection. Although in vitro studies suggest some antiviral agents may be useful for the treatment of individuals with this disease this should be considered highly experimental. There is therefore no widely available active antiviral agent for the treatment of smallpox. Smallpox vaccine is available in only very limited quantities and is controlled by the US government. Supplies are expected to increase over the next two years. In the event of a smallpox case smallpox vaccination may be reinstituted.
- 3) **Pneumonic plague-** is caused by the bacteria *Yersinia pestis*. It is most often seen as a sepsis syndrome associated with the bite of an infected flea. Plague can be aerosolized to be used as a bioweapon. In this setting it can cause a severe pneumonia and life threatening sepsis syndrome. Plague pneumonia is transmissible in droplet form. It may be treated with aminoglycosides such as

- streptomycin and gentamicin. Tetracycline and fluoroquinolones can be substituted.
- 4) **Botulinum toxin**-This product is one of the most powerful toxins found in nature. Its primary effect is to impair the release of acetylcholine from nerve endings. This results in a classic descending bulbar and flaccid paralysis. Toxin can be detected using a bioassay. Equine derived anti-toxin is available through the CDC.
 - 5) **SARS-(Severe Acute Disease Syndrome)**
SARS is a communicable respiratory tract infection caused by a newly identified coronavirus. Infection was originally noted in Asia and spread to North America by travelers returning from Asia. Disease spread rapidly and fatally in some health care settings where proper infection control measures were not implemented. The mortality rate appears close to 10%. There is no known effective therapy or vaccine for SARS.
 - 6) **Avian Influenza – H5N1 Influenza A** is a strain that appears to be deadly to Avian hosts and has unlimited circumstances. It has caused serious disease in humans with close contact to infected birds. Human disease has thus far been restricted to Asia. Young people appear to be preferentially affected and the mortality rate is >50%. There is no effective vaccine widely available and antiviral agents may be of limited use.

Resource Assessment and Allocation:

- 1) **Pharmaceuticals**- The Hospital Epidemiologist and the Chair of the Disaster Committee in conjunction with the Director of Pharmacy will be responsible for determining the adequacy of pharmaceutical supplies (i.e. medication, vaccines etc) to deal with the most likely biohazard events. Decisions about such stocks will take into account current events and recommendations from the public health authorities. Decisions will also take into account the scale of expected biohazard events, treatment of the acutely ill from the community and the prophylaxis of hospital employees. Access to supplies from the national antibiotic stockpile and from outside vendors will be assessed. The Director of Pharmacy in conjunction with the Bioterrorism Coordinator will review the status of the hospital stockpile on a yearly basis. A report on the hospital stockpile will be submitted yearly to the hospital Disaster Committee including an estimate of capacity for surge needs. In the event that prophylactic antibiotics must be distributed to staff such distribution will take place according to the Point of Distribution Plan.
- 2) **Ventilators**- The Hospital Epidemiologist and the Chair of the Disaster Committee in conjunction with the Director of Respiratory Therapy will assess the inventory of ventilators available to the institution in order to respond and care for individuals with respiratory failure as a result of a biohazard event. The Director of Respiratory Therapy will submit a yearly report of ventilator resources to the Disaster Committee including an estimate of capacity for surge needs.
- 3) **Housekeeping and Laundry**: The handling of waste and laundry for patients with presumed or suspected agents of bioterrorism will follow guidelines as outlined by the Centers for Disease Control and Prevention (www.cdc.gov)

- 4) **Personal Protective Equipment**- the Hospital Epidemiologist in conjunction with the Director of Central Supplies will assess the adequacy of the inventory of gloves and masks appropriate to the care of varying numbers of individuals who are victims of a biohazard event. A yearly report of inventory and surge capacity to be submitted to the Disaster Committee.
- 5) **Isolation and Cohorting Facilities**- The Hospital Epidemiologist In conjunction with the Director of Nursing Services and the Chief of Facilities Management and Development, will be responsible for assessing the adequacy of isolation rooms in the hospital in the event of a need to place victims of a biohazard event in respiratory isolation. The number of working respiratory isolation rooms will meet current NYS-DOH requirements. The adequacy of negative pressure in these rooms will be maintained according to protocol set by the Department of Health. The hospital will maintain a supply of 10 portable HEPA filters which can be used if the number of isolation rooms is not adequate. These portable HEPA filters will be stored, maintained and supplied by Central Supply. The Director of Central Supply or designate will be responsible for tracking these units. They will submit a report on portable HEPA filter inventory on a yearly basis to the Disaster Committee and the capacity to expand for surge. If isolation facilities plus portable HEPA filters are not adequate to the scale of the number of patients requiring care, then efforts will be made to cohort patients requiring respiratory isolation on Nursing Station 62 or other alternative space. This decision will be made by the Medical Director in conjunction with the Hospital Epidemiologist (or designate). In such an event patients in this area will be moved or discharged. Protocol for the rapid discharge of stable patients as well as the transfer of patients who need ongoing clinical care but do not necessitate respiratory isolation is outlined in the Disaster Plan. When Nursing Station 62 is used for this purpose all patient doors will be kept closed at all times except when staff enters or leave the room. Corridor fire doors leading off the unit will also be closed. Once designated, movement by staff onto this unit will be restricted by Hospital Police at the direction of the Incident Command Center. Provision of negative air flow in the unit will be assessed by FM & D at the request of the Medical Director and Hospital Epidemiologist. Plastic Barriers will also be installed by Facilities Management at the request of the incident Commander.

In the event of a community wide medical emergency that overwhelms routine bed allocation, respiratory isolation will not be possible. As necessary to meet these needs all out-patient suites will be utilized for clinical care. Cots, stretchers and available bedding will be provided by hospital administration. Staffing and the provision of other supplies for patient care will be supplied by Nursing according to departmental protocol. Please refer to the Mass Screening and Triage Plan in this section.

Patients placed in isolation due to known or presumed exposure to agents of bioterrorism will be allowed visitors only at the discretion of the Incident Command Center in conjunction with the Hospital Epidemiologist (or designate). In-hospital transportation of patients placed in isolation due to known or presumed exposure to agents of bioterrorism will not routinely be allowed except at the discretion of the Incident Command Center (which will be opened in the event of bioterrorism events).

- 6) **Diagnosis**- Diagnostic tests for pathogens related to bioterrorism will be conducted in accordance with NYC-DOH guidelines.
- 7) **Exposure Reporting**- The recording of potential in-hospital exposure of patients, staff and visitors to individuals with known or presumed agents of bioterrorism will be conducted by staff from the Department of Epidemiology in conjunction with Public Safety personnel. This information will be shared with representatives of the NYC- Department of Health and Mental Hygiene.

Education

The OHE will be responsible, with the support of Hospital Administration and the Disaster Committee, to coordinate education activities in the institution as they relate to a biohazard event. The OHE will maintain close contact with public health authorities and will provide information to all sectors of the hospital community on an ongoing basis regarding the latest information on expected or actual biohazard events. This will be done through a variety of means including letters, web publications, lectures, videos etc. The OHE will work in conjunction with the Department of Emergency Medicine to make certain that there is maintained a high level of awareness among staff regarding the potential need to isolate patients with fever and a rash or fever and a cough. Patients will be encouraged to report such symptoms immediately to clinical staff.

Response:

- 1) In the setting of a BH event the Hospital Epidemiologist will be the designated Medical Control Officer for UHB. In his or her absence the Medical Control Officer will be the Infection Control Director, the Chief of Infectious Diseases, or the Infectious Diseases Attending on service as determined by availability. At all times during a disaster the Medical Control Officer will confer with Medical Director of the Hospital.
- 2) The response to any biohazard event will be determined by the scale of the event and the pathogen involved.
- 3) An **internal biohazard event** (i.e. a single or limited number of cases identified after hospitalization) will be managed as would any infectious etiology requiring disease or condition specific isolation precautions. An internal BH event might involve any of the agents listed above but could include other agents as well. In such an event the UHB Infection Control Office is alerted by either clinical or administrative staff. It will be the responsibility of the MCO (OHE), in consultation with Hospital Administration, to see that the NYC-DOH is notified regarding any suspicious or verified BH event and that the Incident Command Center is opened to plan for possible longitudinal disaster.
- 4) In the event of an **external BH event** the OHE (MCO for BH) will be notified. The need for implementation of the Hospital Disaster Plan will be determined by the Medical Director in consultation with the Hospital Epidemiologist or designate. Consultation with Hospital Administration and with representatives of the New York City Department of Health and Mental Hygiene will be sought. The need to activate the Hospital Disaster Plan will be determined by the scale of the event and the assessment of surge needs and planning. If a BH event results in implementation of the Hospital Disaster Plan the following steps may be taken:
 - a) Hospital lock down will occur (see University Police Plan)
 - b) Access will only be provided through the ED and Clarkson Avenue Ambulatory entrance where preliminary screening as to the need to report

to the Emergency Department will be the responsibility of the Emergency Department.

- c) Notification and Communication of a Disaster to hospital staff will take place as per protocol outlined in the hospital disaster plan (See Section 2)
- d) The MCO will confer with the ED Director regarding the screening and triaging of incoming patients
- e) The MCO will confer with Hospital Administration, Director of Nursing Services and FM&D regarding the allocation of hospital beds and the need to cohort patients based on their presumptive diagnosis.
- f) The MCO, Director of Pharmacy and the Director of Employee Health Services will confer regarding the provision of prophylactic antibiotics to hospital staff.
- g) Universal standard precautions will at a minimum be observed.
- h) Screening and subsequent triage of patients will take be conducted as per the UHB Disaster Plan pre-triage screening protocol for biologic events (Appendix C-Section: ' Pre-triage Screening Policy: Highly Contagious/Highly Dangerous Infectious Diseases')
- i) Clinical Microbiology Laboratory Director will be notified. The laboratory SOP for the handling of potential agents of bioterrorism will be consulted (Appendix D)

Anthrax- not contagious therefore no special measures for isolation or cohorting will be necessary except as it relates to the ease of management. Universal standard precaution will be followed. Decontamination will not ordinarily be necessary since patients who are ill with anthrax will likely have been exposed many days before presentation. The clinical microbiology laboratories should be notified at the first indication of anthrax so that safe specimen processing under biosafety level 2 conditions can be undertaken. A number of disinfectants used for standard hospital infection control, such as hypochlorite, are effective in cleaning environmental surfaces contaminated with infected bodily fluids. Laundry should be bagged as biohazard material and laundered in soap and water.

Smallpox- Patients presenting to the ER or admitted to the floor with fever and a rash will be assessed for possible smallpox by staff. Assessment will take into account presenting symptoms, i.e. morphology of the rash, their time course and accompanying features as well as the up-to-date epidemiologic factors consistent with smallpox exposure. On the basis of these considerations patients considered to have likely or possible smallpox will be isolated rapidly in the most immediately accessible negative pressure, airborne pathogen isolation facility. Patients being transferred will be required to wear an N95 respirator and will be covered as completely as possible with regular hospital sheets. Staff transporting or handling such patients in any way must themselves use an N95 respirator and latex gloves.

The Infection Control Office will be immediately notified about such patients and will confer with the AOD. Consultation will be sought with the NYC DOHMH. Based on preliminary assessment the Infection Control Officer and the AOD will decide whether the Incident Command Center is to be activated.

The AOD in conjunction with the Infection Control Staff and the public safety office will begin an inventory of all staff members potentially exposed to the presumed index case. Reference will be made to Infection Control records regarding previous vaccination history of staff. Those most recently vaccinated against smallpox through NYC-DOHMH

initiatives will be notified and asked to provide immediate care for the patient. Prophylactic smallpox vaccination of staff and/or the community will be at the discretion of the NYC-DOHMH. The Infection Control Office in conjunction with hospital administration will provide guidance for hospital staff including those exposed and those not presumptively exposed about where to go to obtain vaccination. In addition staff inadvertently exposed during the initial evaluation of the index patient will be require clearance by EHS on a daily basis for 3 weeks after exposure before returning to work.

In the event that the case of presumed smallpox has been verified or at least is very likely the hospital (i.e. the Director of Admissions and the Medical Charge Officer) will conduct an immediate assessment of the availability of all negative pressure respiratory isolation rooms. Patients already occupying these spaces who do not require continued isolation will be moved out of those spaces to either less acute beds or they will be discharged based on the protocol established in the 'Surge Capacity' section of the disaster plan. The MCO, Director of Infection Control, and the Hospital CEO or designate will determine the advisability of hospital 'lockdown'. Such a procedure would be implemented in order to avoid other potentially infected individuals from entering the facility and avoiding proper infection control protocols. In this circumstance entry would only be through the ED where rapid triage of potentially infectious cases would take place. Triage staff would be required to use N95 masks and gloves for all contact. In the event that not enough negative pressure airborne isolation rooms are available, cohorting may be done (i.e. 2 patients per room). In the event that this is not enough, Nursing Station 62 will be converted to a respiratory isolation ward. Patients will be moved from here to other available beds in the hospital. Discharges that can be made will be rapidly implemented. Swing space in the OPD area as identified in the Surge Capacity section of the Disaster Plan will be made available for NS 62 patients. Dedicated staff will be committed to these areas by Nursing and the other Clinical Departments at the request of the Medical Director. All doors on patient rooms will be closed as will the doorways leading out to the main corridor leading to the elevator vestibule. Plastic barrier sheeting will be placed in front of the doors leading to the nursing ward. A public safety officer will be stationed outside the nursing station. Only authorized personnel as designated by the senior hospital administrator in conjunction with the Infection Control Office will be permitted access to the ward. All laundry and waste should be placed in biohazard bags and autoclaved before being laundered or incinerated. Laboratory examination requires high containment BL-4 facilities and should not be undertaken at UHB. All bedding and clothing of smallpox patients should be bagged in biohazard containers, autoclaved and laundered in hot water with bleach. Standard hospital disinfectants are effective for cleaning contaminated surfaces.

Plague- Pneumonic plague may be spread through respiratory droplets. Patients with known or suspected plague should be triaged from the emergency area with a disposable surgical or other face mask to the hospital ward promptly. There they should be placed on droplet precautions (respiratory isolation). Prophylaxis should be considered for all close contacts. Those refusing prophylaxis should be monitored for the development of fever or other signs of infection. Patients should remain in isolation for 48 hours after the initiation of treatment and until clinical improvement is noted. Patients requiring transport should wear surgical face masks. Standard procedures for cleaning of bedding and environmental surfaces should be followed. The clinical microbiology laboratory should be alerted when specimens are sent with presumed *Yersinia pestis*. Specimens should be processed in a BL-2 facility.

Botulinum toxin- Since exposure might result in illness within hours, it is necessary that patients presenting as victims of an intentional release of botulinum toxin have their clothes removed and washed and their skin washed with soap and water. Contaminated surfaces may be cleaned with 0.1% hypochlorite bleach solution. Medical personnel caring for patients with suspected botulism should use standard universal precautions. Isolation is not necessary.

SARS- If SARS is suspected by clinical staff the Infection Control Office or designate should be contacted immediately. They will be responsible for contacting the NYC-DOH. A surgical mask should be placed on such patients early during the triage process until other recommended infection control precautions can be instituted including: Universal/Standard precautions (e.g., hand hygiene); in addition to routine standard precautions, health-care personnel should wear eye protection for all patient contact. Contact precautions (e.g., use of gown and gloves for contact with the patient or their environment).

Respiratory precautions (e.g., an isolation room with negative pressure relative to the surrounding area and use of an N-95 disposable respirator and goggles for persons entering the room) should be employed. Routine laboratory tests (i.e. CBC, Chem panel, CXR, LDH) including specific tests for common respiratory pathogens including influenza A and B (in flu season) should be performed.

If subsequent testing done at the instruction of NYC-DOH confirms a diagnosis of SARS health care workers inadvertently exposed to the index patient should be screened through the Student Employee Health Services/ED for the onset of fever or respiratory tract symptoms prior to coming to work. Those reporting symptoms should receive further medical evaluation and be reported to the NYCDOH.

The need for ongoing isolation of patients will be assessed by the Infection Control Office in conjunction with the NYC-DOH and the physician of record.

UHB Triage Plan

A. Pre-Hospital and ED

Traffic Pattern and Set Up

Traffic flow routes predetermined with NYPD for mass transit, ambulances, employees, and press will be set up. In coordination/cooperation with New York Police Department (NYPD) and hospital police from both institutions (KCH and UHB) the main street between the facilities (Clarkson ave) will be shut down to traffic immediately. Police will begin towing/flat bedding any vehicles on the street between the two hospitals within the hour. Lanes for ambulance triage will be set up with wooden barricades. Traffic will be diverted to streets south of the hospital as per NYPD. City Bus routes will likewise be diverted around the Hospitals to Linden blvd. The street immediately north (Winthrop) will be closed except for arrival of supplies, equipment, employee parking, and the dialysis access. This traffic flow will allow ambulance and patient flow to be directed toward the centralized triage station, while diverting press and the convergence phenomenon to the periphery and around the hospitals, away from the emergency entrances. Waterproof signs to identify key areas kept by UHB hospital police will be posted designating the triage areas, etc. Ambulatory patients will be directed into a central ambulatory triage. In the event of chemical or other toxic exposure this will help ensure safety of hospital personnel and avoid contamination of the treating facility plant. Location of central/ambulatory triage is in front of the D building of KCHC, under the

canopy if inclement weather. Here in this central location patients are equidistant from the entrances of UHB and KCH, and can be sent to either as designated.

Joint Triage

The staff and facilities of SUNY University Hospital of Brooklyn (UHB), Kings County Hospital (KCH), Kingsbrook Jewish (KBJ), and Kingsborough Psychiatric Hospital (KP) will be integrated with consideration of patient services available, resulting in better patient flow and distribution. Duplication of services will be minimized in order to maximize resources. No need for prehospital personnel to make designation decisions because unique/individual resources of each of the institutions are familiar to the triage staff, therefore patients can be brought to one centralized triage area.

After receiving notification, the Command centers will activate joint ambulance triage, and a single ambulatory triage station will be set up between KCHC and UHB. The first arriving casualties will be directed out toward the site where the exterior triage will be established, so as to not contaminate the facilities. All exposed and potentially exposed individuals should receive an initial brief triage, performed by medical personnel in PPE, before decontamination. Decontamination must be performed on all victims and responders before they cross into noncontaminated areas. (See Hazmat Protocols)

KCHC will provide three nurses and one attending for ambulatory triage. UHB will provide two attendings, two nurses and a technician with monitors for blood pressure, pulse oximetry, and temperature, a polaroid camera, charts, and ID badges. Gloves, masks and protective equipment necessary are supplied in case a chemical, biological, radioactive, or unknown agent is involved in the disaster. Because this triage station is outdoors, accumulation and ventilation of contaminants is not a great concern.

A single ambulance triage will also be set up between the two institutions for quick review in each ambulance by the triage physician, who will designate which hospital to deposit the patient and in what order. The ambulance triage physician will have a recorder to keep track of the number of patients sent to each facility.

Triage is a dynamic process therefore, all available wheelchairs and stretchers with transporters are set aside at the ambulatory site for upgrades of previously stable patients, or if an occasional "immediate" is brought by civilian means, to be transported.

Centrally (strategically) placed observers are used to watch ambulatory patients from one spot to another, not escorts, which are, too labor intensive. Clear lanes of traffic are (cordoned off) set up connecting the key areas for this purpose. Ambulatory patients presenting by taxi, walk in etc. will be funneled to ambulatory triage by NYPD, city and state hospital police and sinage. The front lobby of D building can serve as holding areas for triage in inclement weather at the direction of the command center, given no Hazmat hazard. Triage personnel are identified with labeled vests.

Two decontamination tents will be deployed, each in front of the respective institutions ER ambulance entrance*. The tent in front of the KCH C building trauma bay holds fewer patients, but can accommodate stretchers. The decontamination tent for UHB is designed/set up for higher volume ambulatory patients. Both tents are staffed by trained personnel with PPE, and suit/equipment supporters directed by the Hamat commander.

The Simple Triage and Rapid Treatment (START) triage will be used. The standard four-color triage categories are used; red for immediate, yellow for urgent,

* KCH tent will be in court yard 30 feet from ambulance bay. UHB tent will be on 37th street between Lenox and Clarkson. The UHB tent will be replaced by permanent showers in the ambulance bay when construction is completed.

green for minor injuries, black for deceased. Separate treatment areas are designated for specific types of injury, see appendix. Triage tags are made up of three copies. One, of course stays with the patient, the triage officer keeps one, and one is given to the institution designated by triage at the time of arrival to that hospital.

The ambulance triage officer will have a recorder assigned to him or her, (a clerk, medical student, etc,) to keep track of names, if possible sex and approximate age, number of total ambulance patients, and how many went to each institution with a breakdown of adult, psych, pediatrics, etc. The Triage officers have radios to communicate to the ED, so that the above information is readily accessible.

Ambulance triage occurs away from the ER arrival bay, at the center of Clarkson Ave, so as to not congest access. There are two ambulance lanes, critical and delayed, in this way vehicles carrying higher priority patients will have unencumbered access to the ED. Ambulances approach from the west, stopping in front of the Medical school for triage. A senior resident or attending will perform ambulance triage. Rapid evaluation (30 seconds or less) consisting of 1) type of injury ex. Penetrating, burn, crush, etc. 2) Anatomic location ex. Head, torso, extremity. 3) vital signs as presented by EMS. The ambulance triage officer will then make a determination of 1) critical/immediate – open lane into ambulance bay of facility with the appropriate resources. 2) delayed – slower lane, waiting in line 3) walking wounded – ambulate to ambulatory triage.

The ambulance triage officer will proceed from vehicle to vehicle tagging or retagging the patients, and designating the facility. In general multi-trauma patients will be admitted to KCHC, and isolated trauma and ambulatory patients, patients with isolated extremity fractures and orthopedic injuries not requiring hemodynamic stabilization will be directed to UHB and KBJ depending on the institutions level of stress and patient volume.

Psychiatric patients and distraught patients who are medically stable will be triaged to KBSP. Hospital transport vans will be made available at the triage area to transport ambulatory patients to the other receiving facilities. Patients will be decontaminated before being transported for obvious reasons. Communication between the command centers facilities will convey how many casualties are being directed to which institution and what types of injuries are to be expected.

Primary Triage and Patient Flow: All victims should be received through the ambulance entrance to the Primary Triage area. Any disaster victim exposed to radioactive and/or other contaminated materials or poisons will be transported to the decontamination area prior to being transported to the general treatment area. (see HAZMAT Protocol)

The Triage Officer and Triage Nurse will assign patients at triage to one of the following categories:

Triage Priority and Tags:

- **Red:** Critical patients in need of immediate life-saving care
- **Yellow:** Relatively stable patients in need of prompt medical attention
- **Green:** Minor injuries that can wait for appropriate treatment
- **Black:** Deceased patients and those who have no chance of survival. These patients will be taken to a curtained off section of the ED and taken to the morgue.

From Primary Triage the patient will be taken to:

- **Major Casualty (Red and Yellow tags)** will be taken to the main ED
- **Minor Casualties (Green tags)** will be sent to the Fast Track area until it is overwhelmed. The suites will then be utilized as follows:
 - i. OPD Lab-Waiting Area
 - ii. Suite A-Minor medical
 - iii. Suite B-Discharge Planning
 - iv. Suite D-Pediatric, medicine and minor trauma
 - v. Suite G-OB/GYN
 - vi. Behavioral Health
 - vii. Minor Trauma

PRE-TRIAGE SCREENING POLICY: HIGHLY CONTAGIOUS/HIGHLY DANGEROUS INFECTIOUS DISEASES

Purpose:

In the event of a biological event that threatens the hospital community a pre-triage screening will be activated by the Incident Command Center (ICC).

The goals of the activation of the pre-triage screening is to prevent the spread of diseases such as SARS (Severe Acute Respiratory Syndrome), plague, smallpox, influenza, Ebola and other hemorrhagic fever viruses, as well as, any new emerging infectious diseases.

The University Hospital of Brooklyn will insure early detection and treatment of persons with these highly infectious agents, and interruption of their transmission to others by appropriate screening and adherence to specific precautions.

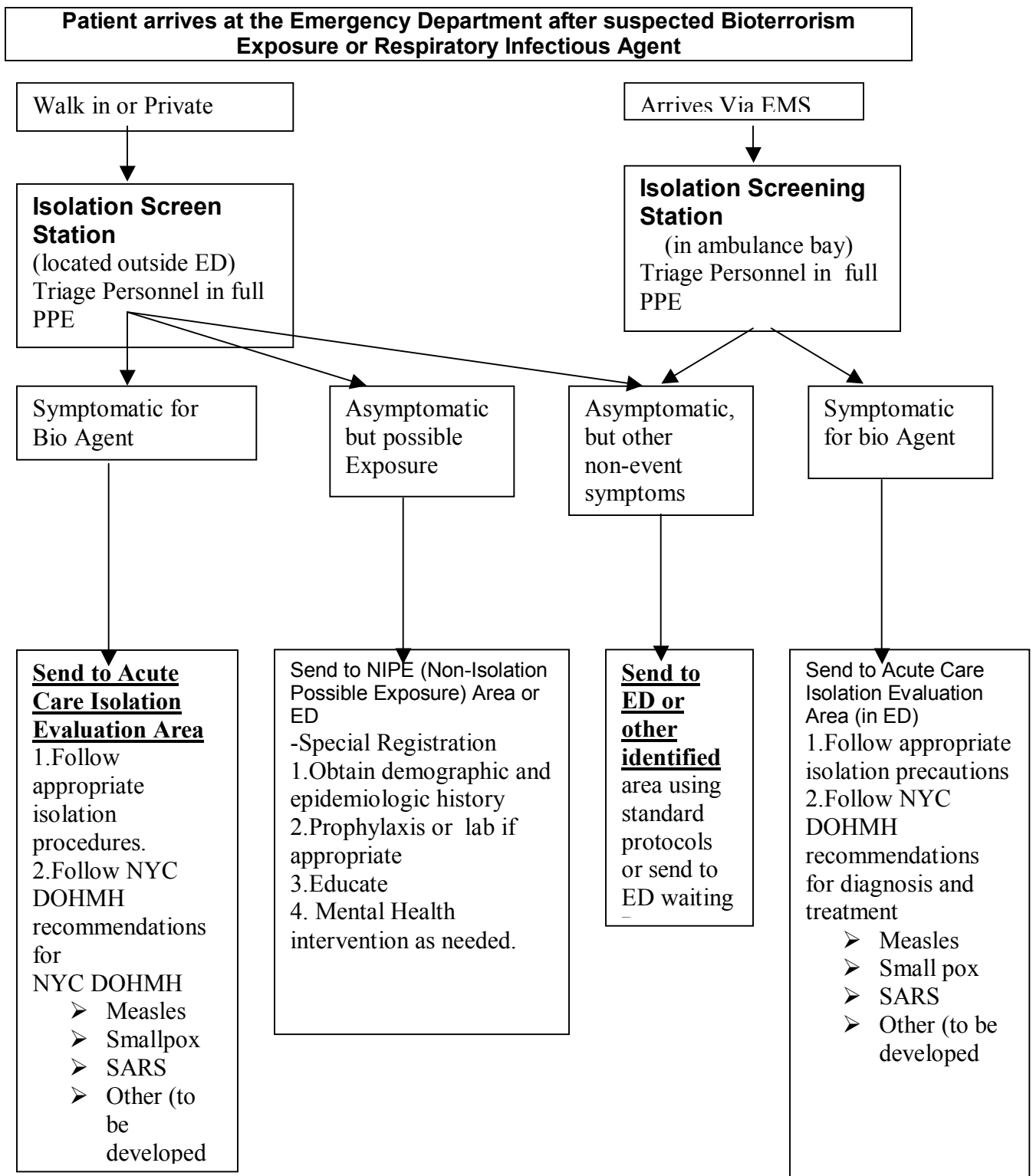
This policy provides a guide for pre-triage screening of highly contagious/highly dangerous infectious diseases,

Procedure:

1.
 - Upon notification by the MCO the University Hospital Police will lock down all entrances.
 - All Entrances will be closed except the ambulance bay and the swinging doors on Clarkson Ave and Lenox Road. (employee use only)
 - The revolving door will be closed and the Hospital Police manning that entrance will move outside the facility in PPE to direct employee to the 445 Lenox Road entrance. Employees will be screened by nursing personnel (or

other clinical staff) in conjunction with public safety before being permitted entrance to the facility. Employees who are ill/symptomatic will be referred back to the Clarkson Avenue entrance. Those who are not sick will have a sticker placed on their ID card by Public Safety affording them either unlimited institutional access or restricted access to critical areas. Decision regarding restrictions will be made by the ICC. Employees will be instructed to report to their stations unless otherwise instructed by their supervisors.

- The Director of Pharmacy or designate will be notified by the ICC that employee antibiotic prophylaxis may be necessary and will set up a dispensing station and distribution will take place according to the Point of Distribution Plan. Supervisory staff will be instructed to let their staff leave their work station in a staggered fashion and a log will be kept of all employees receiving prophylaxis..
 - Ambulatory patients will be directed to the screening nurse and if necessary to isolation.
 - Clinic areas will be closed to normal functions at the direction of the MCO/Med Director/ AOD
 - Elective admissions will be cancelled at the direction of the MCO/Medical Director/AOD
 - Early discharge plan will be activated at the discretion of the MCO/Medical Director/AOD.
 - The only open University entrance will be at 395 Lenox Road where screening of staff for symptoms in a fashion similar to that conducted at 445 Lenox Rd will take place. Public Safety and Clinical staff assigned by the MCO or designate will conduct this screening.
2. At the Hospital Police desk inside of the swinging doors the RN and Hospital Police will be in PPE (level D) and establish if the patient needs isolation.
- If the patient is in need of isolation (symptomatic) he/ she will be given a mask and directed to PED (Pediatrics) waiting area [Acute Care Isolation Evaluation Area]. In-depth triage will take place in the PED triage area. If the patient can be downgraded as a BT risk then they can go to regular waiting area or taken directly to the main Emergency Department (See diagram)
3. For Ambulance patients there will be a RN or a Physician in the PPE at the ambulance entrance who will determine if the incoming patient needs to stay on a stretcher and/or needs isolation.
- If the patient is in need of isolation (symptomatic) he/she will be masked in the ambulance bay and proceed to the acute care area-designated isolation rooms to be triaged and registered
(Diagram of isolation surge is attached)
 - If the patient does not need isolation but does need a stretcher the patient will proceed to the main Emergency Department and will be triaged and registered.
 - If the patient does not need isolation, or stretcher care the patient will go to ambulatory triage and proceed with registration
4. In the event that the Emergency Department becomes overwhelmed the surge capacity plan will be enacted at the direction of the Incident Command Center (MCO).



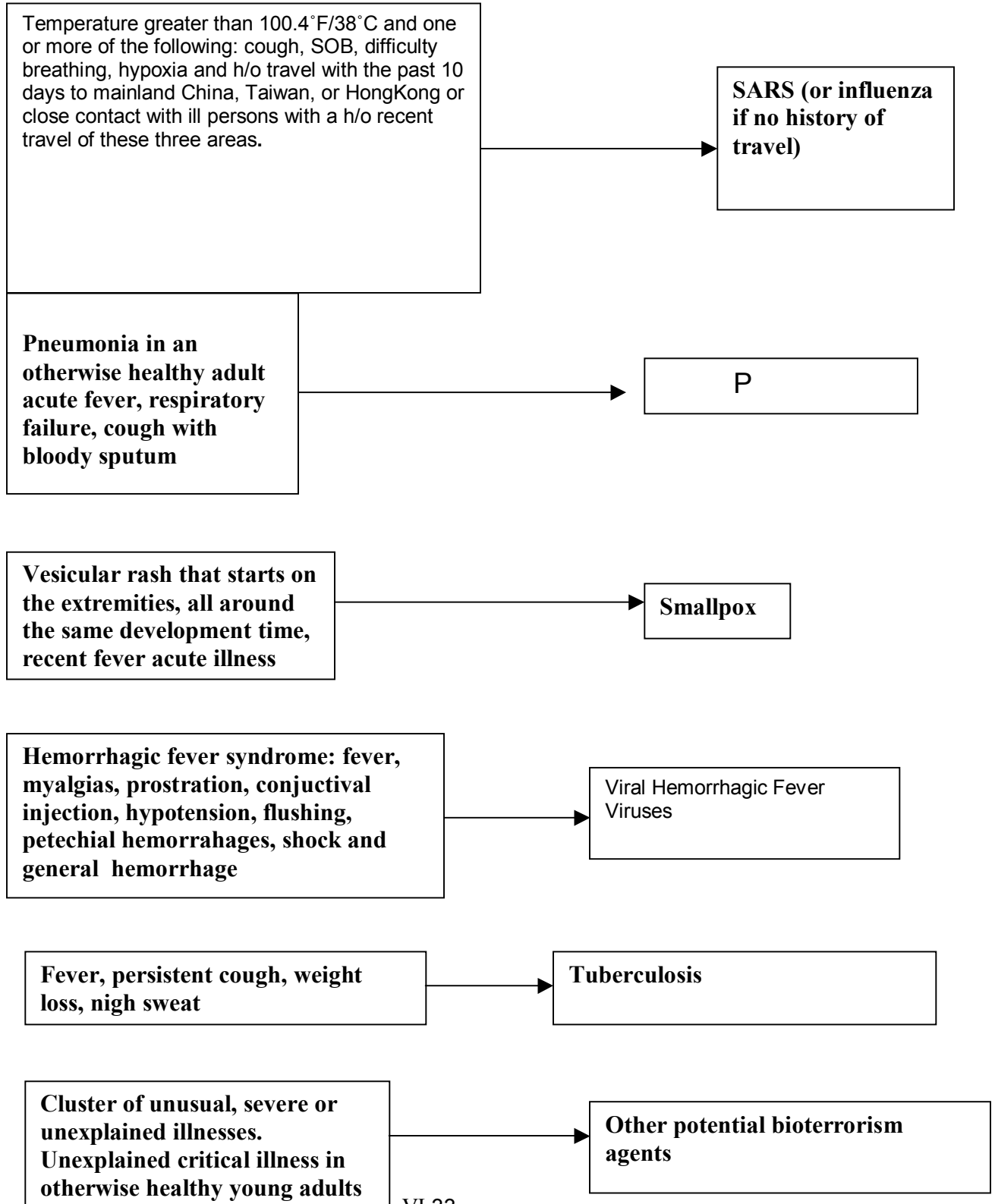
* If Acute Care Isolation Evaluation Area overwhelmed-overflow to Adult Waiting Area.
Asymptomatic patients for screening/triage will be directed to OPD Lab Waiting Area and out of the Adult Waiting Area.

Admitting

Admit to respiratory isolation beds as needed

Activate Respiratory Isolation Unit (as per protocol) if needed.

Consider:



Signage:

Signs, stating the main signs and symptoms of significant conditions listed above, shall be posted in the triage/waiting areas. The purpose of the signs is to encourage incoming patients to report to the triage nurse, as soon as possible conditions that might require special precautions.

The signs will state:

- **TELL THE TRIAGE NURSE IF YOU HAVE FEVER, RASH AND/OR SIGNS OF BLEEDING**
- **TELL THE TRIAGE NURSE IF YOU HAVE FEVER, PERSISTENT COUGH, WEIGHT LOSS, NIGHT SWEATS**
- **SARS WARNINGS WILL BE POSTED IN MULTIPLE LANGUAGES AS THEY ARE PREPARED AND MADE AVAILABLE BY PUBLIC HEALTH AGENCIES**

Personal Protective Equipment:

If a nurse/medical staff member suspects that a patient has a disease that spreads by the air or droplets, he/she will immediately don an N95 particulate filter respirator. The patient will don a surgical mask (or non-rebreather oxygen mask if they cannot tolerate the surgical mask), and will be covered as necessary before being transported to an isolation room. If SARS is suspected, the staff member will also put on goggles and a protective gown/suit. The charge nurse and the ED physician in charge must be notified immediately.

Quarantine of the Receiving Area:

A patient suspected of having one of the conditions listed above should not be moved until it is safe to do so (patient covered/mask in place, clear path to an available isolation room). The area the patient arrived to and where he/she was assessed may be quarantined, or it may be used for triage/care of patients with similar diseases.

The ED attending in charge will make the initial and immediate isolation/quarantine decision. All ED personnel will don N95 masks and appropriate personal protective equipment. For SARS, this will include gowns/suits and eye protection.

Bioterrorism Act/Outbreak:

If a large-scale disease outbreak or Bioterrorism Act is suspected, the Hospital's Emergency Response Plan will be activated.

The Emergency Department will utilize the ED isolation rooms first. If needed, the Incident Commander will make a decision to convert to negative pressure some or all patient rooms on the 6th floor. Converted rooms will be utilized next.

The Incident Command Center may elect to utilize particular areas predetermined in the Surge Plan.

At the direction of the Incident Commander, University Police will stop all non-essential personnel from entering the Emergency Department. They will take the name and

phone number of everyone who was in the Emergency Department or waiting area at the time the patient or patients arrived.

If patients were placed in the common waiting room in the Emergency Department before their condition was recognized, the names of all patients, visitors and staff who may have been exposed to them will be recorded for appropriate follow-up as per the DOHMH's requirement.

If required to provide additional protective barriers against biological agents, Biomedical Engineering will collect portable HEPA filters (Microcons) and bring them to requested locations.

Notification and Report:

Infectious Disease, Infection Control, the Emergency Department and hospital leadership must be notified immediately should any suspected or confirmed case of smallpox, plague, SARS, viral hemorrhagic fever occur.

Those conditions must be treated as Public Health Emergency and immediately reported to the New York City Department of Health and Mental Hygiene at:

(212) 788-9630 during business hours
(800) 222-1222 during nights and weekends

Mental Health Triage and Referral

In the event that patients or staff are deemed through the screening or triage procedures to warrant psychiatric evaluation they will be referred to Suite I. Mental Health professionals will be on site to manage these cases. It will be the responsibility of the SUNY-Downstate Department of Psychiatry in consultation with the MCO and ICC to staff Suite I (see section XI of the Emergency Management Plan). Staff will include but not be limited to behavioral health professionals, social workers, chaplain and SUNY-Downstate Human Resources representatives. In the event that the numbers of patients and/or staff warranting psychiatric evaluation overwhelm Suite I capacity, patients will be transported via UHB vans to Kingsboro Psychiatric Center for further evaluation and care. At Kingsboro Psychiatric Center staff there will be responsible for patient management. The Director of Clinical Services and Chief Administrator at Kingsboro Psychiatric Center will confer with the UHB MCO and ICC on the transfer of patients.

B. IN-HOSPITAL

1. Transporting Patients

Patients should only be transported from the Emergency Department to the identified appropriate isolation rooms in the hospital. When patients are transported, they must wear a surgical mask for the containment of respiratory secretions, or a non-rebreather mask if they are oxygen dependent. The patient should also be covered with a sheet or a blanket, completely covering the body from the neck and including feet during transport.

Individual elevators should be designated for such patients. Security will assist with control of elevators.

Patients should not be transported to other areas of the hospital unless absolutely necessary.

2. In patients identified with a Highly Dangerous/Highly Contagious Disease

If an in-patient is identified with one of the conditions addressed by this policy, the following steps should be taken:

- a) The Infectious Disease and the Infection Control departments must be immediately contacted.
- b) All the traffic to and from the affected unit must be stopped.
- c) Staff must don the appropriate PPE
- d) PPE will be considered for patients and visitors that must remain in the area to reduce their risk of exposure.
- e) The department manager or his/her designee will collect the names and phone numbers of potentially exposed individuals before they leave the unit.
- f) The department manager or his/her designee will notify the administrator on duty who will determine the need for the activation of the hospital Emergency Response Plan.
- g) Patient will be transferee to a negative pressure isolation room on the same floor. If this is not possible, a private room with a HEPA filter unit should be utilized.
- h) Engineering will verify the inward flow of air in the negative pressure rooms.
- i) Outside agencies will be notified as appropriate by the FCC.

3. Outbreak

If a large number of infectious patient are identified, or are expected:

- a) The Hospital Emergency Response Plan will be activated.
- b) The rapid discharge of possible patients will be initiated.
- c) Nursing Station 62 will be evacuated, and will be prepared to receive contagious patients.
- d) Engineering will confirm by smoke test that this area is negatively pressured.
- e) Station 62 will be evacuated and prepared to receive contagious patients when station 62 is at capacity.

Appendix D: Microbiology Laboratory Protocol*

Table. 1 Collection and Handling of Specimens Suspected to Contain Bioterrorism Organisms

Organism	Disease		Acceptable Specimens	Special Instruction	Specimen Receiving and Processing	Rejected Specimens
Bacillus anthracis	Anthrax	Cutaneous	Vesicular fluid, Eschar materials	<ol style="list-style-type: none"> 1. Notify the microbiology laboratory before collecting and sending the specimen. 2. Request, the name of person collecting and time of collection must be documented and must be accurate. A telephone and or pager number of physician must be included. 3. Do not send suspected specimens with routine specimen. Send with messenger and obtain the signature of the person transporting the specimen. (You may chose a chain of custody form available in the laboratory or any log form you may have in your floor) 4. When tissues are collected, they must be placed in sterile saline. 5. Collect all specimens in sterile, leak-proof, screw cap container. Must contact the laboratory before sending the specimen. 6. Transport at R.T. immediately. If transport is not possible within 2 h., Store at 2-8°C if needed. 	<ol style="list-style-type: none"> 1.Document receipt immediately and notify supervisor and director. 2. Follow standard operating procedure for setting up the culture, and presumptive identification 3. Must do so under biosafety cabinet (BSL2) 	<ol style="list-style-type: none"> 1.Swabs of any source 2.Environmental, specimens from announced event (Contact NYC -DOHMH directly) 3. Incomplete documentation 4. Improper packaging
		Inhalational	Sputum, Blood culture			
		Gastro-intestinal	Stool, Blood culture			
Brucella species	Brucellosis		Blood culture, Bone marrow culture, liver or spleen biopsies .			
Burkholderia mallei	Glanders		Blood culture, urine, skin abscess, tissue aspirate, or sputum depending on the clinical presentation			
Burkholderia Pseudomallei	Melioidosis		Blood culture			
Francisella tularensis	Tuleremia	Septicemic	Blood culture			
		Lymphocutaneous	Tissue aspirate, biopsy or scraping from ulcer			
Yersinia pestis	Plague	Pneumonic	Bronchial wash, Transtracheal aspirate			
		Septicemic	2 sets of Blood culture			

		Bubonic	Tissue aspirate or biopsy			
Botulinum Toxin	Botulism		Enema fluid, serum, stool or food samples	Follow all special instructions above		
Variola	Small Pox		Biopsies, vesicular fluid, or scabs	Follow all special instructions above		Do not attempt to perform any diagnostic test, Instead notify your supervisor and director immediately, so proper arrangements can be made with NYC-DOH. 212-788-9830
Dengue fever virus Ebola virus Hanta virus Lassa virus Marburg virus Yellow fever virus	Viral Hemorrhagic Fever (VHF)		Serum			

Table 2. Recognition of Organisms Suspected In Bioterrorism.

Organism	Gram Stain	Growth On ¹				Key Biochemical Tests ₂					Auto-ID. ³	
		BA	Mac	Other	Ox	Ur.	Ca t	Mot	XV	Other s		
Bacillus anthracis	Large Gram positive rod, encapsulated, sporulated and often in long chain	Non hemolytic, wavy border,(ground galss appearance), tencious.	No growth				P	N				B.anthraxis could not be ruled out. Must notify supervisor and director immediately.
Brucella species	Tiny, faintly stained, Gram negative coccobacilli ,	Small , non pigmented, non hemolytic, Punctate after 48 h.	No or poor growth	Small colonies on CA, TM	P	P (<2 h)	P	N	N			Not R. Not S. <i>Burkholderia mallei</i> could not be ruled out. Must notify supervisor and director immediately.
Burkholderia mallei	Faintly stained, Gram negative rods may be slightly curved	No growth after 24 h. Smooth, gray, translucent after 48h	Light pink after 72 h.	PC agar Growth at 42°C: N	V	N		N			TSI: K/K	<i>Burkholderia Pseudomallei</i> could not be ruled out. Must notify supervisor and director immediately
Burkholderia Pseudomallei	Gram negative rods with bipolar staining	Smooth, creamy after 24 h, become dry and wrinkled after 48h.	Light pink or colorless after 24-48 h	PC agar Growth at 42° C: P	P	V	P				TSI: K/K	

Francisella tularensis	Tiny, poorly stained, pleomorphic Gram negative coccobacilli , which may resemble Haemophilus	May grow first, but fail sub-cultures on BA (Requires Cysteine)	No growth	Small colonies on BCYE, CA, TM.	N	N	W P or N	N	N	β-lactamase. Pos.	Not R. Not S	<i>F.tularensis</i> could not be ruled out. Must notify supervisor and director immediately.
Yersinia pestis	Plump shape (Bipolar) medium size Gram negative rods mainly single or short chains	Gray-white, translucent. Too small after 24 h. Opaque and fried egg appearance after 48 h. Colonies also described as hammered copper.	Small Non lactose fermenter	In Broth : Clumbs, folccular, when settle looks like cotton fulff.	N	N	P	N	N		Not R. Not S.	<i>Y.pestis</i> could not be ruled out. Must notify supervisor and director immediately

Abbreviations:

1. Growth media: BA: Blood Agar, BCYE: Buffered charcoal Yeast Extract, CA: Chocolate Agar, Mac: MacConkey, PC: Pseudomonas Cepacia agar, TM: Thayer Martin,
2. Biochemical Tests: Cat: Catalase, Mot: Motility, Ox: Oxidase, Ur: Urease, XV: X and V factor requirement
3. Auto ID: Automated identification: Not R: Not reliable, Not S: Not safe

Note: All procedure must be performed under a biological safety cabinet.

***In the event that any Category A Bioterror related agent (i.e. Anthrax, Smallpox, Plague, Botulism, Tularemia, Viral Hemorrhagic fever) is suspected or confirmed it will be the responsibility of the Director of the Clinical Microbiology Laboratory or designate to contact the NYC-DOHMH Public Health Laboratory immediately at 212 447-1091. Under these circumstances it will also be the responsibility of the Director of the Clinical Microbiology Laboratory or designate to notify and consult with the Director of Infection Control or designate.**