SUMMARY OF POTENTIAL BT DISEASE SYNDROMES

Disease	Symptoms	Physical Exam	Diagnostic Tests	Key Differential Diagnosis	Incubation Period	Duration of Illness
Inhalation Anthrax	Fever, malaise, cough, mild chest discomfort, possible short recovery phase then onset of dyspnea, diaphoresis, stridor, cyanosis, shock. Death 24-36 hours after onset of severe symptoms, Hemorrhagic meningitis in up to 50%	Non-specific physical findings.	Serology (acute & convalescent samples); gram stain & culture of the blood; polymerase chain reaction (PCR); CXR - widened mediastinum. Rarely pneumonia.	Hantavirus pulmonary syndrome (HPS), Dissecting aortic aneurysm (no fever)	1-6 days (up to 45 days)	3-5 days
Pneumonic plague	High fever, chills, headache, hemoptysis, and toxemia, rapid progression to dyspnea, stridor, and cyanosis. Death from respiratory failure, shock, and bleeding.	Rales, hemoptysis, purpura	Gram stain & culture of blood and target tissue, serum immunoassay for capsular antigen, Serology to confirm ; PCR, immunohistochemical stains (IHC)	HPS, TB, community acquired pneumonia (CAP), meningococcemia, rickettsioses	2-3 days	1-6 days
Tularemia	Fever, headache, malaise, chest discomfort, anorexia, non-productive cough. Pneumonia in 30-80%. Oculoglandular from inoculation of conjunctiva with periorbital edema.	No adenopathy with typhoidal illness.	Serology; culture of blood, sputum, or skin lesions ; PCR; IHC; CXR - pneumonia, mediastinal lymphadenopathy, or pleural effusion.	Atypical community acquired pneumonia, Q fever, Brucellosis	1-10 days (average 3-5 days	>2 weeks
Smallpox	Fever, back pain, vomiting, malaise, headache, rigors, delirium. Papules 2-3 days later, progressing to pustular vesicles. Abundant on face and extremities initially.	Papules, pustules, or scabs of similar stage, many on face/extremities, palm/soles.	Clinical diagnosis ; Guarnieri bodies on Giemsa or modified silver stain, virions on electron microscopy, PCR, viral isolation, IHC	Varicella, vaccinia, monkeypox, cowpox, disseminated herpes zoster.	7-17 days (average 12 days)	4 weeks
Botulism	Ptosis, blurred vision, diplopia, generalized weakness, dizziness, dysarthria, dysphonia, dysphagia 24 - 36 hours after exposure followed by symmetrical descending flaccid paralysis and respiratory failure.	No fever, patient alert, postural hypotension, pupils unreactive, normal sensation, variable muscle weakness.	Diagnosis – clinical. Serology, toxin assays/ anaerobic cultures of blood/stool; electromyography studies.	Guillian-Barré, myasthenia gravis, tick paralysis, Mg++ intoxication, organophosphate poisoning, polio	1-5 days	Death 24-72 hours or ventilator support for months
Filoviruses (Marburg, Ebola)	Fever, severe headache, malaise, myalgia, maculopapular rash day 5; progression to pharyngitis, hematemesis, melena, uncontrolled bleeding; shock/death days 6-9.	Petechiae, ecchymoses, conjunctivitis, uncontrolled bleeding.	Serology (antigen capture ELISA, IgM Elisa or PCR during acute phase), viral isolation (requires containment facility), IHC; leukopenia, thrombocytopenia, proteinuria.	Meningococcemia, malaria, typhus, leptospirosis, borreliosis, thrombotic thrombocytopenic purpura (TTP), rickettsiosis, hemolytic uremic syndrome (HUS), arenaviruses.	2-19 days (average 4-10 days)	Days to weeks

SUMMARY OF POTENTIAL BT DISEASE SYNDROMES (CONTINUED)

Disease	Symptoms	Physical Exam	Diagnostic Tests	Key Differential Diagnosis	Incubation Period	Duration of Illness
Arenaviruses (Lassa, Junin, Sabia, Machupo, Guanarito)	Fever, malaise, myalgia, headache, nausea, vomiting, pharyngitis, cough, retrosternal pain, bleeding, tremors of tongue and hands (Junin), shock, aseptic meningitis, coma, hearing loss in some.	Conjunctivitis, petechia, ecchymoses, flushing over head and upper torso.	Serology, viral isolation, PCR, IHC; leukopenia, thrombocytopenia, proteinuria	Leptospirosis, meningococcemia, malaria, typhus, borreliosis, rickettsiosis, TTP, HUS, filoviruses.	5-21 days Lassa; 7-16 days Sabia, Junin, Machupo, Guanarito	7-15 days
Brucellosis	Irregular fever, chills, sweating, myalgias, cough and arthritis lasting for weeks. Profound weakness and fatigue, depression and mental status changes.	Chest x-ray may be normal or show lung abscesses, single or military nodules, bronchopneumonia, enlarged hilar nodes & pleural effusion.	Serology, cultures of blood, liver or bone marrow.	Influenza, Infectious mononucleosis, malaria, tuberculosis, Hodgkin's disease, and lymphoblastoma	5-60 days	Undulant form < 1 yr. Chronic form > 1 year
Q-Fever	Fever, chills, headache early, pleuritic chest pain. Weight loss, myalgia and cough appearing late during course.		Abnormal liver function tests, normal WBC with thrombocytopenia. Serology – IFA or ELISA (2-3 wks after presentation. CXR consolidation	Mycoplasma pneumoniae, Legionella pneumophila, Chlamydia psittaci & Chlamydia pneumoniae.	2-14 days	2 days to 2 weeks
Venezuelan Equine Encephalitis	Generalized malaise, spiking fever, rigors, severe headache, photophobia & myalgias in the legs and lumbosacral area. Nausea, vomiting, cough, sore throat and diarrhea may follow.	Non-specific	Serum for IgM ELISA indirect FA, hemagglutination inhibition, complement fixation and neutralization. White blood count often – leukopenia & lymphopenia		1-5 days	1 – 2 weeks
Staphylococcal Enterotoxin B	Fever, myalgia, nausea, diarrhea and cough.		Clinical diagnosis. Serology and urine toxin levels are useful retrospectively.	Influenza, adenovirus, mycoplasma	3–12 hours	Days to weeks
Cholera	Vomiting, headache, intestinal cramping with little or no fever and soon painless voluminous diarrhea.	Rice water diarrhea & dehydration.	Clinical diagnosis. Darkfield or phase-contrast microscopy of the stool – darting motile vibrio	Acute bacillary dysentery, food poisoning, heat exhaustion and some forms of malaria.	4 hours – 5 days	3 – 5 days

SUMMARY OF POTENTIAL BT DISEASE SYNDROMES (CONTINUED)

Disease	Symptoms	Physical Exam	Diagnostic Tests	Key Differential Diagnosis	Incubation Period	Duration of Illness
Ricin	Weakness, fever, progressive cough, pulmonary edema, cyanosis, chest tightness, dyspnea, nausea & arthralgias.	Respiratory distress and death	Specific serum ELISA. Acute and convalescent sera should be collected.	Staphylococcal enterotoxin B, Q fever, tularemia, plague, some chemical warfare agents such as phosgene.	4 – 8 hours	Death 36 –72 hours
Mycotoxins (T-2)	Skin – burning pain, redness, tenderness, blistering. Nasal itching and pain, sneezing, epistaxis and rhinorrhea. Pulmonary/tracheobronchial – dyspnea, wheezing, and cough. Eyes – pain, tearing, redness, foreign body sensation and blurred vision may occur	Skin blisters, epistaxis, blood tinged saliva and sputum.	Blood, tissue and environmental samples – chromatography-mass spectrometry	Mustard agent, staphylococcal Enterotoxin B	Minutes to hours	Death in minutes, hours or days

Bioterrorism Syndromes

If you suspect disease from a potential bioterrorism event, call the Garrett County Health Department IMMEDIATELY:
Telephone 301-334-7777 or 301-895-3111. After hours, weekends and holidays call 301-334-7369.
Garrett County Health Department will arrange for specialized laboratory testing; provide guidelines for treatment, prophylaxis and infection control; and activate local, state and federal emergency response systems.

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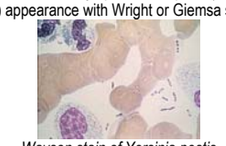
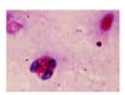
Syndrome	Disease	Signs and Symptoms	Incu-bation Period (Range)	Person-to-Person Trans-mission	Laboratory and Diagnostic Tests	Initial laboratory and Other Diagnostic Test Results	Differential Diagnosis	Isolation	Immediate Public Health Action	Post-Exposure Prophylaxis for Non-Pregnant Adults	Treatment for Non-Pregnant Adults
Acute Respiratory Distress with Fever	Inhalation Anthrax 	Abrupt onset of flu-like symptoms (fever, fatigue, muscle aches, dyspnea, chest pain). Respiratory distress without radiographic findings of pneumonia. No history of trauma or chronic disease. Possible 1-2 day improvement, then rapid progression to shock and death within 24-36 hours.	1-6 days (up to 6 weeks)	None	Chest X-ray. Obtain sputum and blood cultures. Sensitivity and specificity of nasal swabs unknown – do not rely on for diagnosis	Chest X-ray with widened mediastinum. Gram positive bacilli in sputum or blood.  Definitive testing available at the State Laboratory.	Dissecting aortic aneurism Pulmonary embolism Influenza	Standard precautions	Call the local health department. Alert your laboratory of the possibility of anthrax.	Prophylaxis for 60 days: Ciprofloxicin 500mg PO BID, OR Doxycycline 100mg PO BID, OR Amoxicillin 500 mg PO TID, PLUS Option 1: Additional 40 days of antibiotic treatment Option 2: Additional 40 days of antibiotic treatment, PLUS anthrax vaccine. *Refer to the CDC website for the latest guidelines. www.bt.cdc.gov	Ciprofloxicin 400mg IV q 12h, OR Doxycycline 100mg IV q 12h, PLUS Rifampin 600mg PO q day, OR Vancomycin 500mg IV/PO q 6h, OR Imipenem 500mg IM/IV q 12h, OR Ampicillin 500mg IV/PO q 6h, OR Biaxin 500mg BID
	Pneumonic Plague 	Apparent severe community-acquired pneumonia (high fever, cough) but with hemoptysis, cyanosis, chest pain, nausea, vomiting, headache and shock. Advanced disease; purpuric lesions, copiuous watery or purpuric sputum production. Respiratory failure in 1-6 days.	2-3 days (2-6 days)	Yes, droplet aerosols	Obtain lymph node aspirates, sputum, or cerebrospinal fluid. Presumptive diagnosis may be made by: Gram stain Wayson stain Wright stain	Gram negative bacilli or coccobacilli in sputum blood or lymph node. Bipolar (safety pin) appearance with Wright or Giemsa stain  *Wayson stain of Yersinia pestis* Definitive testing available at the State Laboratory.	Community-acquired pneumonia Hantavirus pulmonary syndrome Meningococcemia Rickettsiosis Influenza	Standard precautions Droplet precautions until 48 hours of effective antibiotic therapy.	Call hospital infection control and the local health department. Alert laboratory of possible plague. Ask family members/close contacts of patient to stay at the hospital (if already present) for a public health interview and chemo-prophylaxis.	Doxycycline 100mg PO q 12h, OR Ciprofloxicin 500mg PO q 12h	Streptomycin 1gm IM q 12h, OR Gentamicin 2mg/kg, then 1.0 to 1.7mg/kg IV q 8h Alternatives: Doxycycline 200mg PO load, then 100POmg q 12h, OR Ciprofloxicin 400mg IV q 12h
	Ricin (aerosolized)	Acute onset of fever, chest pain/tightness, cough, nausea and dyspnea. Airway necrosis and pulmonary capillary leak. Severe respiratory distress, hypoxia and death. No improvement with antibiotics.	4-8 hours 18-24 hours 36-72 hours	None	Chest X-ray	Chest X-ray with pulmonary edema	Plague Q fever Staphylococcus enterotoxin B Phosgene Tularemia Influenza	Standard precautions	Call the local health department.	No vaccine available. Wash skin with soap and water.	Supportive care only. Ventilation support, gastric lavage activated charcoal and Mg citrate if ingested.
	Staphylococcal Enterotoxin B	Acute onset of fever that may last 2-5 days, chills, headache, nonproductive cough that may persist for 4 weeks, and myelgia (flu-like illness) with a NORMAL chest X-ray.	3-12 hours after inhalation	None	Chest X-ray	NORMAL Chest X-ray	Influenza Adenovirus Mycoplasma	Standard precautions SEB is not dermally active.	Call the local health department.	No vaccine available.	Supportive care. Ventilation for inhalation exposure.
Acute Rash with Fever	Smallpox 	Prodomal Period: malaise, fever, rigors, vomiting, headache and backache. After 2-4 days, rash appears that begins on the face and extremities, and progresses uniformly from macules to papule, vesicles and pustules, mostly on the face, neck, palms, soles and subsequently progresses to the trunk.	12-14 days (7-17 days)	Yes, airborne droplet nuclei or direct contact with skin lesions or secretions until all scabs separate and fall off (3-4 weeks)	Swab culture of vesicular fluid or scab. Send to BL-4 laboratory.	All lesions are similar in appearance and develop synchronously as opposed to chicken pox. Electron microscopy can differentiate *variola virus* from varicella.	Varicella Disseminated herpes zoster Monkeypox Cowpox	Standard precautions Airborne Precautions (includes N95 mask) Contact precautions	Call hospital infection control and the local health department immediately. Ask family members/close contacts of patient to stay at the hospital (if already present) for a public health interview and vaccination.	Early vaccination is critical (in less than 4 days) after exposure. CDC has vaccine stock. Call the health department to obtain vaccine. Vaccinia immune globulin (VIG), in special cases, can be obtained through USAMRIID. Call the health department to obtain VIG.	Supportive care. Previous vaccination against smallpox does not confer lifelong immunity. Potential role for Cidofovir
	Viral Hemorrhagic Fever (e.g., Ebola)	Fever with mucous membrane bleeding, petechiae, thrombocytopenia, and hypotension in a patient without underlying malignancy. Syndrome develops to varying degrees depending on viral virulence, strain characteristics, routes of exposure, dose and host factors	3-16 days	Nosocomial	Blood film for malaria and blood culture. Obtain a stool culture if bloody diarrhea present. Definitive testing available through the Centers for Disease Control and Prevention.	 Ebola	Memingococcemia Malaria Typhus Leptospirosis Borreliosis Thrombotic thrombocytopenic pupura (TTP) Hemolytic uremic syndrome (HUS)	Standard precautions Contact precautions Autoclave or liberally disinfect contaminated materials, using hypochorite or phenolic disinfectants.	Call hospital infection control and the local health department immediately. Ask family members/close contacts of patient to stay at the hospital (if already present) for a public health interview and follow-up. Get detailed contact information.	No vaccine available.	Supportive care. Patients with VHF generally benefit from rapid, non-traumatic hospitalization to prevent unnecessary damage to the capillary beds.

Syndrome	Disease	Signs and Symptoms	Incu-bation Period (Range)	Person-to-Person Trans-mission	Laboratory and Diagnostic Tests	Initial laboratory and Other Diagnostic Test Results	Differential Diagnosis	Isolation	Immediate Public Health Action	Post-Exposure Prophylaxis for Non-Pregnant Adults	Treatment for Non-Pregnant Adults
Neurologic Syndromes	Botulism	Afebrile, excess mucus in throat, dry mouth and throat, then difficulty moving eyes, mild papillary dilation and nystagmus, intermittent ptosis, indistinct speech, unsteady gait. Acute bilateral descending flaccid paralysis beginning with cranial nerve palsies. Generally normal mental status.	Inhalation: 12-80 hours Foodborne: 12-72 hours (2-8 days)	None	Obtain serum, stool, gastric aspirate and suspect foods prior to administering antitoxin. Laboratory tests available at the State Laboratory		Guillain-Barre syndrome Myasthenia gravis Mid-brain stroke Mg++ Intoxication Organophosphate, carbon monoxide, paralytic shellfish poisoning or belladonna-like alkaloid poisoning Polio Eaton-Lambert myasthenic syndrome Tick paralysis Meningococcal meningitis	Standard precautions	Call the local health department.	Pentavalent toxoid (types A, B, C, D, E) 0.5 ml SQ may be available as an investigation product from USAMRIID. Call the local health department to obtain toxoid.	Botulism antitoxins from public health authorities. Supportive care and ventilatory support. Avoid clindamycin and aminogycosides.
	Encephalitis (Venezuelan, Eastern, Western)	Prostrating syndrome of chills, high fever, headache, malaise, photophobia, sore throat, vomiting and myalgia. Encephalopathy with fever and seiqures and/or focal neurologic deficits.	VEE: 2-6 days EEE: 5-15 days WEE: 5-10 days	None	Serologic testing (virus isolation) available at the State Laboratory	VEE IgM antibodies are present in acute phase sera. EEE: Viremia occurs during febrile prodrome. WEE: IgM, HI and neutralizing antibodies generally present by end of first week of illness.	Herpes simplex Post-infectious Other viral encephalitides	Standard precautions	Call the local health department	No vaccine available for the general public. Investigational vaccine (TC-83) may be available through the U.S. Army.	No specific therapy exists. Treatment is aimed at management of specific symptoms.
Influenza-Like Illness	Brucellosis  *Brucella Suis*	Irregular fever, chillds, malaise, headache, weight loss, profound weakness and fatigue. Arthralgies, sacroilitis, paravertebral abscesses. Anorexia, nausea, vomiting, diarrhea, hepatosplenomegaly. May have cough and pleuritic chest pain.	Days to months	None	Obtain blood and bone marrow (if possible) cultures. Serologic testing and culture available at the State Laboratory. Chest X-ray	Tiny, slow-growing faintly-staining gram negative coccobacilli in blood or bone marrow culture. Leukocyte count normal or low. Chest X-ray nonspecific: normal bronchopneumonia, abscesses, single or military nodules, enlarged hilar nodes, and effusion.	Numerous diseases, including Q fever	Standard precautions	Call the local health department. Notify your laboratory of suspected brucellosis – microbiological testing should be done in a biological safety cabinet to prevent lab-acquired infection.	No vaccine available	Doxycycline 100mg PO q 12h PLUS Rifampin 600mg PO QD
	Tularemia (Typhoidal, Pneumonic)	Initially fever, chills, rigors, headache, myalgias, coryza, sore throat. Followed by weakness, weight loss and anorexia. Substantial discomfort, dry cough if pneumonic disease.	3-6 days	None	Obtain blood and sputum samples. Chest X-ray	Tiny, slow-growing faintly-staining non-motile anaerobic gram negative coccobacilli in smears of culture of sputum. Chest X-ray may show infiltrate, hilar adenopathy and effusion. Definitive tests available at the State Laboratory.	Numerous disease, including Q fever and brucellosis	Standard precautions	Call the local health department. Notify your laboratory if tularemia is suspected – microbiological testing should be done in a biological safety cabinet to prevent lab-acquired infection.	No vaccine available	Gentamycin 1mg/kg q 8h, OR Ciprofloxicin 750mg PO q 12h, OR Streptomycin 7 5-10mg/kg IM q 12h

Decontamination for These Agents

1. Place clothing from suspected victims in airtight plastic bags and save for law enforcement authorities (e.g. FBI).
2. Use soap and water to wash victim.
3. For environmental disinfection, use bleach (standards 6/0%-6.15% sodium hypochlorite) in a 0.6% concentration (1 part bleach to 9 parts water).
4. For smallpox, all bedding and clothing must be autoclaved or laundered in hot water and bleach.
5. Health care workers should wear PPE (gowns, gloves and mask) during decontamination of anthrax, plague and smallpox.

Notification Procedure in the Event of a Bioterrorist Incident

1. Call the Garrett County Health Department at 301-334-7777, or after business hours, weekends, and holidays 301-334-7369.
2. If criminal activity is suspected, call your local law enforcement agency.

More Information about Bioterrorism

CDC (Centers for Disease Control and Prevention)
www.bt.cdc.gov

APIC (Association for Professionals in Infections Control and Epidemiology) www.apic.org/bioterror/

USAMRRID Medical Management of Biological Casualties Handbook
www.usamriid.army.mil/education/bluebook.html

Detection of Outbreaks Epidemiologic Strategies

1. A rapidly increasing disease incidence.
2. An unusual increase in the number of people seeking care, especially with fever, respiratory or gastrointestinal symptoms. An endemic disease rapidly emerging at an uncharacteristic time or in an unusual pattern.
3. Lower attack rate among persons who had been indoors.
4. Clusters of patients arriving from a single locale.
5. Large numbers of rapidly fatal cases. Any patient presenting with a disease that is relatively uncommon and has bioterrorism potential.

Compiled by: Garrett County Health Department, 1025 Memorial Drive, Oakland, Maryland 21550. Phone: 301-334-7777, Fax: 301-334-7771