



BIOTERRORIST AGENTS

WATCH FOR THESE SYMPTOMS





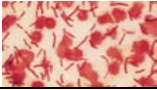

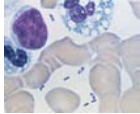

Disease	Signs & Symptoms	Incubation Time (Range)	Person-to-Person Transmission	Isolation	Diagnosis	Postexposure Prophylaxis for Adults	Treatment for Adults
Anthrax <i>Bacillus anthracis</i> A. Inhalation 	Flu-like symptoms (fever, fatigue, muscle aches, dyspnea, nonproductive cough, headache), chest pain; possible 1-2 day improvement then rapid respiratory failure and shock. Meningitis may develop.	1 to 6 days (up to 6 wks)	None	Standard Precautions	Chest x-ray evidence of widening mediastinum; obtain sputum and blood culture. Sensitivity and specificity of nasal swabs unknown - do not rely on for diagnosis.	Prophylaxis for 60 days: Ciprofloxacin* 500 mg PO q 12h Or Doxycycline 100 mg PO q 12h	Inhalation anthrax Combined IV/PO therapy for 60d Ciprofloxacin 500 mg q 12h Or Doxycycline 100 mg q 12h, AND 1 or 2 additional drugs (vancomycin, rifampin, imipenem clindamycin, chloramphenicol, clarithromycin, and if susceptible penicillin or ampicillin)
B. Cutaneous 	Intense itching followed by painless papular lesions, then vesicular lesions, developing into eschar surrounded by edema.	1 to 12 days	Direct contact with skin lesions may result in cutaneous infection.	Contact Precautions	Peripheral blood smear may demonstrate gram positive bacilli on unspun smear with sepsis.	Alternative (if strain susceptible and above contraindicated): Amoxicillin 500 mg PO q 8h * <i>In vitro</i> studies suggest that Levofloxacin 500 mg PO q 24h Or Gatifloxacin 400 mg PO q 24h Or Moxifloxacin 400 mg PO q 24h could be substituted	Cutaneous anthrax Ciprofloxacin 500 mg PO q 12h Or Doxycycline 100 mg PO 12h
C. Gastrointestinal (GI) 	Abdominal pain, nausea and vomiting, severe diarrhea, GI bleeding, and fever.	1 to 7 days	None	Standard Precautions	Culture blood and stool.	Recommendations same for pregnant women and immunocompromised persons	Recommendations same for pregnant women and immunocompromised persons
Botulism botulinum toxin 	Afebrile, excess mucus in throat, dysphagia, dry mouth and throat, dizziness, then difficulty moving eyes, mild pupillary dilation and nystagmus, intermittent ptosis, indistinct speech, unsteady gait, extreme symmetric descending weakness, flaccid paralysis; generally normal mental status.	Inhalation: 12-80 hours Foodborne: 12-72 hours (2-8 days)	None	Standard Precautions	Laboratory tests available from CDC or Public Health Dept; obtain serum, stool, gastric aspirate and suspect foods prior to administering antitoxin. Differential diagnosis includes polio, Guillain Barre, myasthenia, tick paralysis, CVA, meningococcal meningitis.	Pentavalent toxoid (types A, B, C, D, E) 0.5 ml SQ may be available as investigational product from USAMRIID.	Botulism antitoxins from public health authorities. Supportive care and ventilatory support. Avoid clindamycin and aminoglycosides.
Pneumonic Plague <i>Yersinia pestis</i> 	High fever, cough, hemoptysis, chest pain, nausea and vomiting, headache. Advanced disease: purpuric skin lesions, copious watery or purulent sputum production; respiratory failure in 1 to 6 days.	2-3 days (2-6 days)	Yes, droplet aerosols	Droplet Precautions until 48 hrs of effective antibiotic therapy	A presumptive diagnosis may be made by Gram, Wayson or Wright stain of lymph node aspirates, sputum, or cerebrospinal fluid with gram negative bacilli with bipolar (safety pin) staining.	Doxycycline 100 mg PO q 12h Or Ciprofloxacin 500 mg PO q 12h	Streptomycin 1 gm IM q 12h; Or Gentamicin 2 mg/kg, then 1.0 to 1.7 mg/kg IV q 8h Alternatives: Doxycycline 200 mg PO load, then 100 PO mg q 12h Or Ciprofloxacin 400 mg IV q 12h
Smallpox variola virus 	Prodromal period: malaise, fever, rigors, vomiting, headache, and backache. After 2-4 days, skin lesions appear and progress uniformly from macules to papules to vesicles and pustules, mostly on face, neck, palms, soles, and subsequently progress to 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 to 4 weeks)	Airborne (includes N95 mask) and Contact Precautions	Swab culture of vesicular fluid or scab, send to BL-4 laboratory. All lesions similar in appearance and develop synchronously as opposed to chickenpox. Electron microscopy can differentiate <i>variola virus</i> from varicella.	Early vaccine critical (in less than 4 days). Call CDC for vaccinia. Vaccinia immune globulin in special cases - call USAMRIID 301-619-2833.	Supportive care. Previous vaccination against smallpox does not confer lifelong immunity. Potential role for Cidofovir.

Photo Credits: Anthrax A and C - JAMA 1999;281:1737-8 ; Anthrax B - CDC; Botulism - JAMA 2001;285:1062 Copyrighted 2001 American Medical Association; Plague - JAMA 2000;283:2283; Smallpox - CDC

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<p>NOTIFICATION PROCEDURES IN THE EVENT OF A BIOTERRORIST INCIDENT</p> <ol style="list-style-type: none"> 1. First call the Public Health Officer at your local health department; after hours contact local Health Director via 911. 2. If criminal activity is suspected, call your local law enforcement and the FBI in your state. <p>FOR MORE INFORMATION ON BIOTERRORISM:</p> <p>CDC - Centers for Disease Control and Prevention www.bt.cdc.gov/</p> <p>APIC - Association for Professionals in Infection Control & Epidemiology www.apic.org/bioterror/</p> <p>SPICE - North Carolina Statewide Program for Infection Control and Epidemiology www.unc.edu/depts/spice/ 919-966-3242</p> <p>USAMRIID's Medical Management of Biological Casualties Handbook www.usamriid.army.mil/education/bluebook.html</p>	<p>DECONTAMINATION FOR ALL OF THESE AGENTS</p> <ol style="list-style-type: none"> 1. Place clothing from suspected victims in airtight impervious (e.g., plastic) bags and save for law authorities (e.g., FBI, SBI). 2. Use soap and water for washing victim. 3. For environmental disinfection for all of the above, use bleach (standard 6.0% - 6.15% sodium hypochlorite) in a 0.6% concentration (1 part bleach to 9 parts water). For botulism, plague and smallpox an alternative is to use an EPA-approved germicidal detergent. 4. For smallpox, all bedding and clothing must be autoclaved or laundered in hot water and bleach. 5. Healthcare worker should wear PPE (gowns, gloves and mask) during decontamination of anthrax, plague, and smallpox. <p>DETECTION OF OUTBREAKS</p> <p>Epidemiologic Strategies</p> <ul style="list-style-type: none"> • A rapidly increasing disease incidence • 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 • Lower attack rate among persons who had been indoors • Clusters of patients arriving from a single locale • Large numbers of rapidly fatal cases • Any patient presenting with a disease that is relatively uncommon and has bioterrorism potential
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Chart developed by:

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