

SUMMARY OF BIOLOGICAL TERRORISM AGENTS: REPORT ALL SUSPECTED CASES IMMEDIATELY

Disease (causative agent)	Incubation Period	Early Symptoms/ Prodrome	Pathognomonic signs/ Clinical syndrome	Diagnostic Samples	Diagnostic Assay	Infection Control/ Isolation	Treatment*	Post-Exposure Prophylaxis*
Inhalational Anthrax (<i>Bacillus anthracis</i>)	1-6 days (up to 42 days reported in literature)	Non-specific: fever, malaise, cough, dyspnea, headache, chills, weakness, vomiting, abdominal and chest pain	Widened mediastinum on chest X-ray in a previously healthy person Brief (0-3 d) improvement after prodrome, then rapid onset severe respiratory distress and stridor (due to hemorrhagic mediastinitis and thoracic lymphadenitis), shock, death w/in 24-36 hrs. Pneumonic consolidation unusual. Hemorrhagic meningitis may also occur.	Blood, CSF, pleural or ascitic fluid (BSL-2)	Gram stain (can be done on unspun blood) or Wright stain; culture (positive w/in 6-24 hrs) antigen detection (DFA, ELISA, or PCR) (<i>Large gram positive encapsulated bacilli, non-hemolytic, non-motile</i>)	Standard (no person to person transmission). Decontaminate accidental spills of potentially contaminated material using disinfectant (5% hypochlorite or 10% formalin).	<u>Penicillin-resistant or unknown sensitivity:</u> Ciprofloxacin 400 mg IV q 12 (alternatives are levo or ofloxacin); Doxycycline 200 mg IV then 100 mg IV q 12 <u>Known penicillin-sensitive:</u> Penicillin G 4 million U IV q 4; amoxicillin 500 mg IV q 8 <u>Duration:</u> 60 days unless vaccinated – use oral meds if condition improves or in mass casualty situation with limited IV medications	<u>Penicillin-resistant or unknown sensitivity:</u> Ciprofloxacin 500 mg PO bid (alternatives are levo or ofloxacin) <u>Known penicillin-sensitive:</u> Amoxicillin 500 mg PO tid or doxycycline 100 mg bid <u>Duration:</u> 60 days unless vaccinated Vaccine, if available, on days 0, 14 and 28
Smallpox (Variola virus)	7-17 days (avg 12-14 days)	Non-specific: fever, malaise, headache, prostration, rigors, vomiting, backache	Centrifugal, synchronous rash Maculopapular, vesicular, then pustular, begins on face, mucus membranes, hands and forearms, may include palms and soles, spreads to lower extremities and then to trunk; lesions deeply seated in dermis. Death in ~ 35%.	Vesicular or pustular fluid, pharyngeal swab, scab material (BSL-4)	PCR, viral isolation, electron or light microscopy, serology (<i>200 nm brick-shaped DNA virus [orthopoxvirus]</i>)	Highly transmissible: Isolation required. Droplet and airborne precautions for 17 days following exposure (negative pressure, HEPA filtration). P1 most infectious for 7-10 d after onset of rash.	Supportive care, antibiotics as indicated to treat secondary infection	Vaccination within 4 days of exposure, VIG (0.6 ml/kg IM within 3 days) if vaccine contraindicated. Note: neither smallpox vaccine nor VIG are commercially available. Requests must be made through NYCDOH or CDC.
Pneumonic Plague (<i>Yersinia pestis</i>)	1-6 days (avg 2-4 days)	Non-specific: high fever, cough, dyspnea, headache, chills, hemoptysis	Pneumonic – fulminant pneumonia, often with hemoptysis, rapid progression of respiratory failure, septicemia and shock. Pneumonic consolidation on X-ray and hemoptysis distinguish plague from inhalational anthrax.	Blood, sputum, lymph node aspirate; serum (BSL-2/3)	Gram, Wright, Giemsa, Wayson or FA stain; culture; serology; antigen by ELISA or DFA (<i>Gram negative pleomorphic coccobacilli, "safety-pin" bipolar staining</i>)	Droplet precautions until patient treated for 3 days (no person to person transmission)	Streptomycin 1 gm IM BID; gentamicin 5 mg/kg IM or IV q 24 or 2 mg/kg loading dose followed by 1.7 mg/kg IM or IV q 8; in mass casualty situation: doxycycline 100 mg PO bid; ciprofloxacin 500 mg PO bid <u>Duration:</u> 10 days	Doxycycline 100 mg PO bid; ciprofloxacin 500 mg PO bid <u>Duration:</u> 7 days
Tularemia (<i>Francisella tularensis</i>)	2-10 days (avg 3-5)	Non-specific: fever, fatigue, chills, malaise, cough, body ache, headache, chest discomfort	Pneumonitis, ARDS, pleural effusion, hemoptysis, sepsis. Ocular lesions, skin ulcers, oropharyngeal or glandular disease possible.	Blood, serum, sputum, pharyngeal washing, fasting gastric aspirate, ulcer swab, lymph node aspirate (BSL-2/3)	Gram stain, culture (slow growth - use cysteine-enriched media). DFA or IHC staining of secretions, exudates or biopsy specimens. <i>Small gram negative pleomorphic coccobacilli</i>	Standard precautions	Streptomycin 1 g IM bid; gentamicin 5 mg/kg/day IM or IV qd <u>Duration:</u> 10-14 days	Doxycycline 100 mg PO bid; ciprofloxacin 500 mg PO bid <u>Duration:</u> 14 days
Botulism (<i>Clostridium botulinum</i> toxins)	2 hours-8 days (avg 1-3 days)	Usually none. If foodborne, possibly nausea, vomiting, abdominal cramps or diarrhea	Acute, afebrile, symmetrical and descending flaccid paralysis Bulbar symptoms: ptosis, diplopia, dysarthria, dysphonia, dysphagia, generalized weakness, paralysis, airway obstruction and respiratory failure	Nasal swab, serum, stool (BSL-2)	Clinical diagnosis. Mouse bioassay for toxin (takes 1-2 days). Generally available at public health laboratories only.	Standard precautions	CDC trivalent equine antitoxin serotypes A, B, E; DOD heptavalent antitoxin for serotypes A-G (need to screen for hypersensitivity prior to administration of antitoxin)	None

Clues to a possible bioterrorist attack: single cases of disease due to uncommon, non-indigenous agents in patients with no history suggesting an explanation for illness; clusters of patients with similar syndrome with unusual characteristics (e.g., unusual age distribution) or unusually high morbidity and mortality; unexplained increase in the incidence of a common syndrome above seasonally-expected levels (e.g., increase in influenza-like illness during summer).

* Recommendations are taken from JAMA consensus statements on bioterrorist agents, published from May 1999 – June 2001 (see <http://jama.ama-assn.org>). These are not official recommendations by the NYSDOH and are provided for information only. The table also does not include specific recommendations for children or pregnant women – more detailed recommendations will be issued should the need arise.