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DR. JOHN BRICK Yardley, PA 19067 (Intoxikon@intoxikon.com)	**ANTHRAX** *(Bacterial)* Pulmonary (p) Cutaneous (c) G.I. (gi)	**BOTULISM** *(Bacterial)*	**BRUCELLOSIS** *(Bacterial)*	**CHOLERA** *(Bacterial)*	**GLANDERS** *(Bacterial)*	**PLAGUE** *(Bacterial)* Pneumonic plague=pp Bubonic plague=bp	**Q-FEVER** *(Bacterial)* Q-fever, Rickettsia	**TULAREMIA** *(Bacterial)* Ulcero-glandular=ut Typhoidal=tt	**HEMORRHAGIC FEVERS** *(Viral)* Ebola, Marburg, Lassa, Argentine, Bolivian, Congo-Crimean, Rift Valley, Yellow Fever, Dengue (Viral)
SYMPTOMS									
CARDIOVASCULAR CV Compromise	X (p)					X Collapse (pp)			X Hypotense
Cyanosis	X 2nd Stage					X (pp)			
Edema	X (p)								X
Hemorrhage						X (pp or bp)			X Easy bleeding
Diaphoresis	X 2nd Stage				X				
Diathesis						X Bleeding (pp)			X
Shock	X (p)								X
Tachycardia	X 2nd Stage								
PULMONARY Chest discomfort	X Moderate 1st Stage		X Pleuritic pain in 20% of cases		X Pleuritic chest pain	X Pain	X Pain		
Cough	X 1st Stage Nonproductive		X 20% of cases				X Non-productive	X (tt) Nonproductive	
Dyspnea	X 2nd Stage					X (pp)			
Hemoptysis						X (pp)			
Respiratory distress	X 1st Stage	X Paralysis				X Failure (pp)			
Respiratory failure	X > 2-4 d	X 2nd Stage							
Stridor	X 2nd Stage					X (pp)			
Substernal discomfort								X (tt)	
MUSCULAR-SKELETAL Arthralgias			X						
Myalgias			X		X		X		X
Rigors					X				
Sacrolitis			X						
Vertebral osteomyletis			X						
NEURO Blurred vision		X 1st Stage							
Chills/sweating			X			X Chills (pp)	X	X Chills (ut)	
Dizziness		X 1st Stage							
Diplopia		X 1st Stage							
Dysarthia		X 1st Stage							
Fatigue	X 1st Stage		X Severe						
Flaccid paralysis		X 2nd Stage							
Headache			X	X	X	X (pp)	X Severe	X (ut,tt)	X
Malaise	X 1st Stage					X (bp)	X	X (ut,tt)	X
Mental Status Change			X Depression				X Confusion		
Prostration								X (tt)	
Ptosis		X 1st Stage							
Weakness		X 1st Stage	X Severe						
IMMUNE Cervical adenopathy					X				
Fever	X 1st Stage		X Irregular	X Minimal	X	X High (pp,bp)	X 104-105°	X (ut, tt)	
Flu-like symptoms	X 1st Stage		X						
Lymph nodes	X					X Tender (bp)		X Regional adenopathy (ut)	
Splenomegaly					X				
G.I. Colic	X Bloody diarrhea (gi)			X, "rice water" stool			X		
Diarrhea	X		X	X					X
Dysphagia		X 1st Stage							
Nausea/Vomiting	X (gi)			X			X		X
Ulcer								X Local (ut)	
Weight Loss			X Anorexia					X (tt)	
Dry mouth/throat		X 1st Stage					X Sore		
SKIN Flushed face & chest									X
Lesions, depressed eschars	X (c) Lesions → black eschars								
Papular/pustular eruptions					X				
HEMOLYTIC Petechae									X
Toxemia						X (pp)			
RENAL Renal insufficiency									X

Decontamination solution: Hypochlorite is available as Clorox® (5.25% sodium hypochlorite). To make 0.5% solution, mix 1 part Clorox® and 9 parts water (1:9). Mix daily.

The purpose of this chart is to provide concise guidance in the general identification and management of biological casualties. It is not a definitive text, but is designed to be a quick reference of the most common symptoms and treatments. This chart does not list all potential biological weapons. For some agents (e.g., T2 and other mycotoxins) and many hemorrhagic fever viruses, no specific therapies are available. Therefore, they were not included in this chart. Vaccines against some biological weapons are available (see reverse side). For more information, consult the references listed below and contact the CDC (770) 488-7100 or (404) 639-2807, or your state health agency.

References: Medical Management of Biological Casualties Handbook, US Army Medical Research Institute of Infectious Diseases, Operational Medicine Division (1998); Jane's Chem-Bio Handbook, Jane's Information Group (1998); Biological Warfare and Terrorism: The Military and Public Health Response, Satellite Broadcast: US Army, Centers for Disease Control, Federal Drug Administration, Public Health Network (1999).

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© Document may be reproduced in its entirety without permission**	ANTHRAX	BOTULISM	BRUCELLOSIS	CHOLERA	GLANDERS	PLAGUE Pneumonic plague=pp Bubonic plague=bp	Q-FEVER	TULAREMIA Ulceroglandular=ut Typhoidal-tt	VIRAL HEMORRHAGIC FEVER
THERAPY	Supportive therapy may be required			Electrolyte replacement therapy mix 3.5 g NaCl (Salt), 2.5 g $NaHCO_3$ (sodium bicarbonate), 1.5 g KCl (potassium chloride); 20 g of glucose/liter water	Avoid contaminated biologicals, substances, objects (fomites)	Supportive therapy required	Self-limiting	Early therapy very effective	Intensive support may be required
Chloramphenicol						Meningitis: 1 g IV qid x 10-14 d			
Ciprofloxcin	400 mg IV, q 8-12 h No Cipro in pregnant women or children unless life threatening			500 mg q 12 h x 3 d					
Doxycycline	200 mg IV x 1 *plus* 100 mg IV q 8-12 h No Doxy in pregnant women or children unless life threatening		200 mg/d PO *plus* Rifampin 600-900 mg/d PO x 6 w	300 mg once or 100 mg q 12 hr x 3 d		200 mg IV then 100 mg IV bid x 10-14 d	100 mg q 12 h x 5-7 d		
Erythromycin				Adult: 500 mg q 6 hr x 3 d Pediatric: 40 mg/kg/d divided into 4 doses x 3 d					
Furazolidone				Pediatric: 5 mg/kg/d divided into 4 doses x 3 d or 7 mg/kg/d x 1					
Gentamicin	30 mg/kg IM qid					30 mg/kg/d (IM) in 2 doses x 10 d		3-5 mg/kg/d IV x 10-14 d	
Ofloxacin			400 mg/d PO x 6 w						
Penicillin	2,000,000 U IV q 2 h *plus* Streptomycin 30 mg/kg IM qid; Cutaneous-Procaine Penicillin 2,000.000 U qd until edema subsides then PO x 7-10 d	Ventilatory support critical. Trach or endotrach intubation will decrease fatalities							
Ribavirin									Rift Valley & poss. other HFVs: 30 mg/kg/IV then 15 mg/kg IV q 6 h x 4 d, then 7.5 mg/kg IV q 8 h x 6 d
Rifampin			600 mg/day PO x 6 w						
Streptomycin						30 mg/kg/d (IM) in 2 doses x 10 d		1 gm IM q 12 h x 10-14 d	
Sulfadiazene				Pediatric: 40 mg/kg/d divided into 2 doses x 3 d	100 mg/kg/d in divided doses x 3 w				
Tetracycline				500 mg q 6 h x 3 d Pediatric: 50 mg/kg/d divided into 4 doses x 3 d			500 mg PO q 6 h x 5-7 d		
Trimethoprin				Pediatric: 8 mg/kg/d divided into 2 doses x 3 d					

PROPHYLAXIS	Vaccine	IND vaccine	No vaccine Avoid unpasturized milk and cheese	Vaccine, but limited (50%) protection. Limited data on effectivenes against aerosol	No vaccine	Vaccine	Vaccine	IND Vaccine	Yellow Fever vaccine is licensed. Prophylactic ribavirin may be effective for other VHF.
Ciprofloxacin	500 mg PO bid x 4 w					500 mg PO bid x 7 d			
Doxycycline	100 mg PO bid x 4 w *plus* vaccine		200 mg/d PO *plus* Rifampin 600-900 mg/d PO x 6w			100 mg PO bid x 7 d	100 mg PO start 8-12 d post exposure x 5 d	100 mg PO bid x 14 d	
Tetracycline						500 mg PO qid x 7 d	500 mg PO start 8-12 d post exposure x 5 d	500 mg PO qid x 14 d	

Human-to-Human Transmission?	No, except when skin broken	No	No	Rare	Low	High	Rare except in pneumonia cases	No	Moderate
Transmission from Animals?	Yes, from infected animals	No	Tissue, urine, milk, raw milk, cheese						
Delivery	Aerosol weapon; Contaminated, undercooked meat Fly bites	Aerosol weapon; Food/vegetables	Aerosol or food supply Contact with infected animals	Aerosol weapon Food, contaminated water	Aerosol	Inhalation of bacteria-laden droplets. Infected fleas, direct contact with contaminated tissue.	Airborne dust Aerosol Placental tissues, milk, urine, feces	Skin, mucous membranes Insect bites Aerosol, fomites, mosquitoes	Aerosol, respiratory system Fomites, direct contact with body fluids (except Dengue) Yellow Fever, Dengue: Mosquitoes
Precautions Standard Precautions for healthcare workers = SP	SP	SP	SP Avoid unprotected contact with skin or mucous membranes Avoid unpasturized milk/cheese	SP Avoid contaminated biologicals, substances, objects	SP	SP	SP	SP	Contact Precautions for healthcare workers. Isolation and barrier nursing procedures apply. Avoid IM injections, aspirin, anti-coagulant drugs
Decontamination	Clorox®	0.5% Clorox® for 10 min; and/or soap and water		0.5% Clorox®	0.5% Clorox®	2-5% Clorox® Heat (162°F)	Soap and water or 70% ethyl alcohol	Heat (131° F)	Clorox, phenolic decontaminants
Incubation period	1-6 d	Inhalation – 24-36 h Ingestion – several days	5-60 d; Avg: 1-2 m	4 h – 5 d; Avg: ~2-3 d	10-14 d > 14 d if from aerosol attack	Pneumonic – 2-3 d Bubonic plague – 2-10 d	Pneumonia in 30-50% 10-40 d incubation period Highly infectious as inhalable cloud	1-21 d Illness lasts for > 2 w	2-7 d to 2-3 w
Fatal	24-36 h, 80-90% of cases	Respiratory -60% mortality Death in 24-72 h Most lethal of all toxins	Not usually, if treated with antibiotics	50% in untreated cases-Severe dehydration.	If untreated–fatal within 3-4 w In septicemic form – 7-10 d.	Pneumonic – 100% fatal if not treated within 24 h of onset. Bubonic – untreated – 50% fatality rate.	<1% fatality	Moderately lethal if untreated	Virus 5-20%+ Ebola – fatal in 50-90%