

AGENT	FACE OR NASAL SWAB	BLOOD CULTURE	SMEAR	ACUTE/ CONVALESCENT SERA	STOOL	URINE	OTHER
Anthrax	+	+	Pleural & CS Fluids Mediastinal	+	+	-	Cutaneous Lesion Aspirates
Brucella	+	+	-	+	-	-	Bone marrow and spinal fluid cultures; tissues, exudates
Cholera	-	-	-	+	+	-	-
Plague	+	+	Sputum	+	-	-	Bubo aspirate, CSF, sputum
Tularaemia	+	+	+	+	-	-	Lesion scraping; Lymph nodes
Q-Fever	+	1	Lesions	+	-	-	Lung, spleen, Lymph nodes; bone marrow
CCHF	+	2	-	+	-	-	Liver
VEE	+	2	-	+	-	-	CSF
Clostridial Toxins	+	-	Wound tissues	+	+	-	-
SEB Toxin	+	-	-	+	+	+	Lung, kidney
Ricin Toxin	+	-	-	+	+	+	Spleen, lung, kidney

Table 1. Specimens for Laboratory Diagnosis.

Disease	Likely methods of BW dissemination	Transmissibility man to man	Infectivity ¹	Incubation •time	Duration of Illness	Lethality (if untreated) ¹	Persistence	Vaccination available	Antimicrobial therapy
(Inhalation) Anthrax	Spores in aerosols	No	Moderate	1->6 days	3-5 days	High	Spores are highly stable	Yes	Effective if started early
Brucellosis	1. Aerosol 2. Sabotage (food/water supply)	No	High	Days to month	Weeks to years	Low	Long persistence in wet soil & food	Experimental	Moderately effective
Cholera	1. Sabotage (food/water supply)	Substantial	Moderate	1-5 days (supply)	1 or more weeks	Moderate to high	Unstable in pure water; persistent in polluted water	Yes, variable efficacy	Highly effective with re-hydration therapy
Melioidosis	Aerosol	Negligible	Moderate at best	Days to years	4-200 days	Variable	Stable	No	Moderately effective
(Pneumonic) Plague 2.	1. Aerosol Infected vectors	High	High	2-3 days	1-2 days	Very high	Less important because of high transmissibility. Potential for animal reservoir	No	Moderately effective if given early; good for prophylaxis
Tularaemia	Aerosol	No	High	2-10 days	2 or more weeks	30% if untreated	Not very stable	Experimental	Effective
Typhoid Fever	1. Sabotage) (food/water supply)	Orofaecal	Moderate	7-21 days	Several weeks	Moderate if untreated		Yes	Effective

¹ Low: 0 - 5%; Moderate 5 -50%; High > 50%; Very High > 90%.

Table 2. Bacteria.

Disease	Likely methods of BW dissemination	Transmissibility man to man	Infectivity	Incubation •time	Duration of Illness	Lethality (if untreated) ¹	Persistence	Vaccination available	Antimicrobial therapy
Epidemic Typhus 2.	1. Aerosol Infected vectors	No (indirect - infected vector)	High	6-16 days	Weeks to months	High	Not very stable	No	Effective
Q-Fever	1. Aerosol 2. Sabotage (food supply)	No	High	10-20 days	2 days to 2 weeks	Very low	Stable	Yes	Moderately effective; relapses occur
Rocky Mountain Spotted Fever	1. Aerosol 2. Infected vectors	No	High	3-10 days	2 weeks to months	High	Not very stable	No	Effective
11 Scrub Typhus	1. Aerosol 2. Infected vectors	No (indirect - infected vector)	High	4-15 days	Up to 16 days	Low	Not very stable	No	Effective

Table 3. Rickettsiae.

Disease	Likely methods of BW dissemination	Transmissibility man to man	Infectivity	Incubation •time	Duration of Illness	Lethality (if untreated) ¹	Persistence	Vaccination available	Antimicrobial therapy
Psittacosis	Aerosol	Negligible	Moderate	4-15 days	Weeks to months	Very Low	Stable	No	Effective
Coccidioidomycosis	Aerosol	No	High	1-2 weeks	Weeks to months	Low	Stable	No	Not very effective
Histoplasmosis	Aerosol	No	High	1-2 weeks	Weeks to months	Low	Long persistence in soil	No	Not very effective

Table 4. *Chlamydia and Other Agents.*

Disease	Likely methods of BW dissemination	Transmissibility man to man	Infectivity	Incubation •time	Duration of Illness	Lethality (if untreated)	Persistence	Vaccination available	Antimicrobial therapy
Chikungunya Fever	Aerosol	None	High	2-6 days	2 weeks	Very Low	Relatively unstable	Experimental	Not effective
CrimeanCongo Haemorrhagic Fever	Aerosol	Moderate	High	3-12 days	Days to weeks	High	Relatively unstable	No	Minimally effective
Dengue Fever	Aerosol	None	High	3-6 days	Days to weeks	Low	Relatively unstable	Experimental	Not effective
Eastern Equine Encephalitis	Aerosol	None	High	5-15 days	1-3 weeks	High	Relatively unstable	Experimental	Not effective
Ebola Fever	Aerosol	Moderate	High	7-9 days	5-16 days	High	Relatively unstable	No	Not effective
Influenza	Aerosol	High	High	1 - 3 days	5 - 14 days	Very Low	Relatively stable	Yes but strain specific	Amantadine Rimantadine Zanancivir
Korean Haemorrhagic Fever (Hantaan)	Aerosol	None	High	4-42 days	Days to weeks	Moderate	Relatively unstable	Experimental	Minimally effective
Lassa Fever	Aerosol	Low to Moderate	High	10-14 days	1-4 weeks	Unknown	Relatively unstable	No	Moderately effective
OmskHaemorrhagic Fever	1. Aerosol 2. Water	Negligible	High	3-7 days	7-10 days	Low	Relatively unstable	Experimental	Not effective
Rift Valley Fever	1. Aerosol 2. Infected vectors	Low	High	2-5 days	Days to weeks	Low	Relatively unstable	Experimental	Minimally effective
Russian Spring-Summer Encephalitis	1. Aerosol 2. Goat's Milk	None	High	8-14 days	Days to months	Moderate	Relatively unstable	Yes	Not effective
Smallpox	Aerosol	High	High	8-18 days	3 weeks	High	Stable	Yes	<i>in vitro</i> effectiveness
Western Equine Encephalitis	Aerosol	No	High	1-20 days	1-3 weeks	Low	Relatively unstable	Experimental	Not effective
Venezuelan Equine Encephalitis	1. Aerosol 2. Infected vectors	Low	High	1-5 days	Days to weeks	Low	Relatively unstable	Experimental	Not effective

Table 5. *Viruses.*

Disease	Likely methods of BW dissemination	Transmissibility man to man	Infectivity	Incubation 'time	Duration of Illness	Lethality (if untreated)	Persistence	Vaccination available	Antimicrobial therapy
Botulinum Toxin	1. Sabotage (food/water supply) 2. Aerosol	Negligible	Nil	Variable (hours to days)	Days to 6 months	High	Unstable in pure water, otherwise stable	No	Not effective ²
Clostridium Perfringens Toxin	1. Sabotage 2. Aerosol	No	Nil	8-12 hours	24 hours	Low	Stable	No	Not effective
Trichothecene Mycotoxins	1. Aerosol 2. Sabotage	No	Nil	Hours	Hours	High	Stable	No	Not effective
Palytoxin	1. Aerosol 2. Sabotage	No	Nil	Minutes	Minutes	High	Stable	No	Not effective
Ricin	Aerosol	No	Nil	Hours	Days	High	Stable	Under development	Not effective
Saxitoxin	1. Sabotage 2. Aerosol	No	Nil	Minutes to hours	Minutes to days	High	Stable	No	Not effective
Staphylococcal enterotoxin B	1. Aerosol 2. Sabotage	No	Nil	1-6 hours	Days to weeks	Low	Stable	Under development	Not effective
Tetrodotoxin	1. Sabotage 2. Aerosol	No	Nil	Minutes to hours	Minutes to days	High	Stable	No	Not effective

¹ Incubation applies to infectious disease. With toxins, its application refers to the period between exposure and appearance of the symptoms and signs of poisoning.
² Botulinum Toxin: antitoxin given during incubation period may prevent progression of clinical signs.

Table 6. Toxins.

Patient Management Charts

Item	Botulinum toxin	Nerve agent	Atropine
Sensorium	Usually normal.	Disorientation, agitation, coma, seizures.	Disorientation, excitation, agitation, Irritability, coma.
Ocular abnormalities	Dilated and fixed pupils, distorted blurred vision, ptosis, extraocular muscle paralysis.	Constricted pupils, dim vision (if vapour or aerosol exposure), little if any change if exposed via skin.	Weak effects if usual doses given causing pupillary dilation and paralysis of accommodation.
Paralysis	Flaccid paralysis. Early bulbar signs (dysphonia dysphagia) Descending to upper and lower extremities. Respiratory failure.	Rigid paralysis with twitching, jerking. Seizures.	None of significance.
Autonomic findings	Dry mouth and skin, constipation, ileus, urinary retention. Early emesis and diarrhoea after food ingestion.	Excess salivation, increased sweating, involuntary defecation and urination. Severe rhinorrhoea and bronchoconstriction occur if exposure is by inhalation.	Dry mouth and skin, constipation, ileus, urinary retention. Early emesis and diarrhoea after food ingestion.
Onset	24-36 hours by inhalation exposure. Not absorbed through intact skin; 12-72 hours onset by oral exposure.	1-10 minutes by inhalation exposure; 1-2 hours by dermal exposure.	Minutes after injection, can be exacerbated by dehydration and heat exposure.

Table 7. Differentiation Between Botulinum, Nerve Agent, and Atropine Intoxications.

Syndrome	General characteristics	Potential causes •
Fever		Any (Toxins less likely)
Flu-like	Fever, chills, malaise, headache, myalgia, eye pain, hyperaesthesia	Brucellosis Rift Valley Fever Venezuelan Equine Encephalitis Q-fever Influenza Dengue Fever Chikungunya Fever Inhalation anthrax (early)
Pharyngitis	Sore throat, dysphagia, with or without fever	Lassa Fever Botulinum toxins Ebola/Marburg Tularaemia Trichothecene mycotoxins Ricin
Rash-maculopapular	All rash syndromes typically accompanied by fever	Rocky Mountain Spotted Fever Scrub typhus Epidemic typhus Ebola/Marburg Argentine Haemorrhagic Fever Bolivian Haemorrhagic Fever Dengue Fever Chikungunya Fever Tularaemia (uncommon) Psittacosis (uncommon) Smallpox (early)
Rash-vesiculopustular		Smallpox Meliodosis Tularaemia
Rash-granulomatous or ulcerative		Melioidosis Tularaemia
Rash-petechial/ecchymotic		Korean Haemorrhagic Fever Crimean-Congo Haemorrhagic Fever Rocky Mountain spotted Fever Plague Smallpox (rare, fulminant) Argentine Haemorrhagic Fever Bolivian Haemorrhagic Fever Lassa Fever Dengue Fever Ebola/Marburg Rift Valley Fever (infrequent) Omsk Haemorrhagic Fever Yellow fever Scrub typhus Epidemic typhus Trichothecene mycotoxins

Table 8. An Approach to Potential BW Agents by Predominant Clinical Finding or Syndrome.

Syndrome	General characteristics	Potential causes •
Diarrhoea-dysentery	Typically with fever	Shigella
Diarrhoea-watery	With or without fever	Cholera Staphylococcus Enterotoxin B Lassa Fever Ebola/Marburg
Jaundice	With or without fever	Yellow Fever Lassa Fever Ebola/Marburg Toxins (especially aflatoxin)
Haemorrhagic fever	Fever; hypotension, with or without fever	Lassa Fever Ebola/Marburg Crimean-Congo Haemorrhagic Fever Omsk Haemorrhagic Fever Argentine Haemorrhagic Fever Bolivian Haemorrhagic Fever Yellow Fever Dengue Fever Trichothecene mycotoxins Plague Korean Haemorrhagic Fever Rift Valley Fever (infrequent)
Encephalitis/encephalopathy	With or without fever	Eastern Equine Encephalitis Western Equine Encephalitis Venezuelan Equine Encephalitis Russian Spring-Summer Encephalitis Argentine Haemorrhagic Fever Bolivian Haemorrhagic Fever Lassa Fever Psittacosis Plague Rift Valley Fever (infrequent)
Stiff neck syndrome	Typically with fever	Eastern Equine Encephalitis Western Equine Encephalitis Venezuelan Equine Encephalitis Psittacosis Histoplasmosis
Flaccid paralysis	Sensory paraesthesias, flaccid, weakness, cranial nerve abnormalities	Botulinum toxins Saxitoxin Tetrodotoxin
Oliguric renal failure	Typically with fever	Korean Haemorrhagic Fever Yellow Fever Psittacosis (rarely)
Pulmonary syndrome	Pneumonia, respiratory insufficiency, respiratory distress; usually with fever	Anthrax Tularaemia Plague Psittacosis Q fever Histoplasmosis Coccidioidomycosis Influenza Omsk Haemorrhagic Fever Crimean-Congo Haemorrhagic Fever Korean Haemorrhagic Fever Ricin Staphylococcus Enterotoxin B Botulinum toxin
Polyarthritis/polyarthralgia	Typically with fever	Chikungunya Fever
Rapid death syndrome	Death within minutes; fever may be present	Saxitoxin Tetrodotoxin Botulinum toxins Trichothecene mycotoxins Other toxins Chemical agents

- This list is not intended to be comprehensive. It does not suggest that clinical presentation of a given agent will necessarily be that of a syndrome listed. This table should serve only as a guide; additional clinical findings must be considered in each case in an attempt to obtain a definitive diagnosis.

Table 8 (contd). An Approach to Potential BW Agents by Predominant Clinical Finding or Syndrome.