

Animal Disease From Potential Bioterrorist Agents

CDC Category	Disease or Agent	Severity of disease in potentially affected species									Incubation Period	Prominent Clinical Signs
		■ Mild ▲ Moderate ● Severe										
		Cattle	Sheep	Goats	Pigs	Horses	Dog	Cat	Birds	Other		
A	Anthrax <i>Bacillus anthracis</i>	●	●	●	▲	●	▲	▲		wild herbivores and carnivores, guinea pig	3-7 days	Sudden death from septicemia with lack of rigor mortis; blood fails to clot; excitement followed by depression or stupor; blood from mouth, nose, anus; edema, especially neck, throat and shoulders
A	Botulism <i>Clostridium botulinum</i> toxin	●	●	●	■	●	■	■	●	foxes, mink	24-72 hours	Muscle paralysis - progressive symmetrical to flaccid; disturbed vision; unable to swallow or chew; death from respiratory or cardiac paralysis
A	Plague <i>Yersinia pestis</i>						■	●		rodents, rock and ground squirrel, prairie dog	Variable, several days	High fever; extremely swollen lymph nodes ("buboes"); severe pneumonia; septicemia
A	Tularemia <i>Francisella tularensis</i>		●		■	▲	■	■		rabbits, rodents, aquatic animals	1-10 days	Sudden high fever with lethargy and anorexia; stiffness; reduced mobility; tachycardia; tachypnea; prostration and death; miliary white necrotic foci of liver, spleen or lymph node
A	Viral Hemorrhagic Fevers <i>Ebola; Marburg; Lassa; Machupo</i>									non-human primates	2-16	Fever; petechiae; bleeding from orifices and internal organs; skin rash; splenomegaly
B	Brucellosis <i>Brucella melitensis</i>	■	●	●						wild ruminants	Variable	Abortions, stillborn or weak newborns; retained placentas; placentitis; orchitis; epididymitis; arthritis; lameness; Goats: May also have mastitis
B	Brucellosis <i>Brucella abortus, B. ovis, B. suis, B. canis</i>	●	●	●	●	■	▲			wild ruminants, buffalo, bison, elk	Variable	Abortions, stillborn or weak newborns; placentitis; orchitis; epididymitis; arthritis; lameness; Horses: suppurative bursitis ("fistulous withers")
B	Glanders <i>Burkholderia mallei</i>			■		●	■	▲		donkeys, mules, guinea pigs, hamsters	2 weeks	Ulcerated nodules on skin, upper respiratory tract, lungs; septicemia; high fever; thick mucopurulent nasal discharge; respiratory signs
B	Melioidosis <i>Burkholderia pseudomallei</i>	■	●	●	●	▲	▲	■		rodents, rabbits, kangaroos, other zoo animals, fish	Variable; Latency	Signs vary with site of lesion; suppurative or caseous lesions in lymph nodes, lungs, and viscera; pneumonia; possibly nasal discharge, arthritis or lameness; Horses: neurological; colic; Goats: mastitis

Note: Bioterrorism pathogens may have atypical routes of transmission and clinical manifestations. The information provided in this chart is intended to alert the public and medical professionals to the presence of possible bioterrorism agents. The information should not be used to rule out a diagnosis, and should not take the place of advice provided by a physician or veterinarian.

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		Cattle	Sheep	Goats	Pigs	Horses	Dog	Cat	Birds	Other		
B	Psittacosis <i>Chlamydophila psittaci</i>								█	parakeets, parrots, love birds	3-10 days	Nasal and ocular discharges; conjunctivitis; yellow-green droppings; inactivity; ruffled feathers; inappetence; weight loss
B	Q Fever <i>Coxiella burnetii</i>	▲	▲	▲			█	█		rodents, rabbits	1-3 weeks	Typically asymptomatic. Sheep, Goats: abortion; anorexia; Cattle: infertility; sporadic abortion; Dog, Cat: subclinical; abortions
B	Typhus fever <i>Rickettsia prowazekii</i>									flying squirrels	12 days	Asymptomatic
B	Viral encephalitis <i>VEE, EEE, WEE</i>					●			█	rodents	1-14 days	CNS dysfunction: altered behavior, impaired vision, wandering, head pressing, circling, unable to swallow; ataxia; paresis; paralysis; convulsions; death
B	Toxins <i>Clostridium perfringens, Ricinus communis, Staph. aureus</i>	●	●	●	●	●	●	●	●	nonhuman primates	12-72 hours	Ricin: violent vomiting; bloody diarrhea; salivation; trembling; incoordination; Clostridium: necrotic enteritis; bloody diarrhea; septicemia; acute death, esp in young; Staph: diarrhea; vomiting; pulmonary edema
C	Nipah <i>Nipah virus</i>			▲	●	█	▲	▲			7-14 days	Severe respiratory distress; harsh "barking" cough; open mouth breathing; possibly neurological signs; head pressing
C	Hantavirus <i>Hantavirus</i>									rodents		Asymptomatic carriers
	West Nile Fever <i>West Nile virus</i>	█	█	█		●	█	█	●	many mammals and reptiles	3-14 days	Fever; encephalitis; altered behavior; impaired vision; circling; head pressing; ataxia; weakness of limbs; partial paralysis; death
	Hendra <i>Hendra virus</i>					●	█	▲		guinea pigs	6-18 days	Acute respiratory syndrome; nasal discharge; head pressing; ataxia
	Rift Valley Fever <i>Rift Valley fever virus</i>	●	●	●			▲	▲		monkeys, camels	12-36 hours in young	Abortion storms; hepatic necrosis; high mortality in young; fever

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Human Disease From Potential Bioterrorist Agents

CDC Category	Disease or Agent	Route of Transmission	● = Potential Body System Affected						Incubation Period (days)	Person to Person	Prominent Clinical Signs
			Septicemia	Respiratory	Intestinal	Cutaneous	Ocular	Neurological			
A	Anthrax <i>Bacillus anthracis</i>	aerosol (inhalation) from environment; direct contact with infected animal body fluids; ingestion of infected animal	●	●	●	●			1-7	NO	Flu-like signs; pustules; scabs; respiratory distress; wide mediastinum on x-ray; bloody vomit and diarrhea; abdominal distress; sepsis; shock; death
A	Botulism <i>Clostridium botulinum</i> toxin	ingestion of contaminated food; aerosol (inhalation)	●	●	●	●		●	1-5	NO	Weakness; dizziness; dry mouth; nausea; vomiting; cranial nerve deficits: double vision, drooping eyes, slurred speech; symmetrical paralysis; respiratory paralysis; death
A	Plague <i>Yersinia pestis</i>	vector: fleas; direct contact with infected animal; aerosol (inhalation)	●	●					1-6	YES	Flu-like signs; enlarged tender lymph nodes ('buboes'); rapid pneumonia; respiratory failure; toxemia; shock; death
A	Smallpox <i>Variola major</i>	direct contact with infected human; aerosol (inhalation)				●			7-17	YES	Flu-like signs; vomiting; rash to pustules (skin, throat, mouth); death
A	Tularemia <i>Francisella tularensis</i>	vector: ticks, deer fly, mosquito; (aerosol) inhalation; direct contact with infected animal tissue; ingestion of contaminated food or water	●	●	●	●	●		1-14	NO	Flu-like signs; exhaustion; ulcerative lesions; enlarged painful lymph nodes; painful purulent conjunctivitis; abdominal pain; diarrhea; vomiting; chest pain; respiratory distress; pneumonia; sepsis; death
A	Viral Hemorrhagic Fevers <i>Ebola, Marburg, Lassa, Machupo</i>	varies with virus; vector: mosquitoes, ticks, rodents; direct contact with infected human	●			●		●	2-21	YES	Flu-like signs; fever; headache; vomiting; diarrhea; petechiae; maculopapular to hemorrhagic rash; hepatic damage; renal failure; seizures; shock; coma; death
B	Brucellosis <i>Brucella species</i>	direct contact with infected animal tissue; aerosol (inhalation); ingestion of contaminated food	●					●	1-21	Rare	Flu-like signs; cyclic fever; arthritis; orchitis; epididymitis; hepatomegaly; Chronic: neurological; endocarditis
B	Glanders <i>Burkholderia mallei</i>	infected animal; inhalation; wound contamination	●	●	●	●	●	●	1-14	YES	Flu-like signs; diarrhea; chest pain; pulmonary signs; pustules; ulcerations; swollen lymph nodes; photophobia
B	Melioidosis <i>Burkholderia pseudomallei</i>	inhalation; infected body fluids; wound contamination	●	●		●			2 days to years	Rare	Flu-like signs; pustules; chronic and prostatic abscesses; chest pain; pneumonia; bronchitis; acute sepsis; death

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			Septicemia	Respiratory	Intestinal	Cutaneous	Ocular	Neurological				
B	Psittacosis <i>Chlamydophila psittaci</i>	inhalation of dust from infected bird dander, droppings or secretions		●		●			7-28	NO	Flu-like signs; rash; extensive pneumonia; endocarditis, myocarditis; encephalitis	
B	Q Fever <i>Coxiella burnetii</i>	vector: ticks; aerosol (inhalation); direct contact with infected animal body fluids		●				●	●	10-40	NO	Flu-like signs; severe sweats; weakness; retrobulbar headache; pneumonitis but no cough or chest pain; granulomatous hepatitis; osteomyelitis; arteritis; endocarditis; neurologic signs
B	Typhus Fever <i>Rickettsia prowazekii</i>	vector: human body louse; fleas from flying squirrels	●	●	●	●			7-14	YES	Flu-like signs; macular eruptions on upper trunk then body, not face, palms or soles of feet; cough; chest pain; pneumonia; abdominal pain; toxemia	
B	Viral encephalitis <i>VEE, EEE, WEE</i>	vector: mosquitoes			●			●	●	2-6	NO	Flu-like signs; nausea; vomiting; conjunctival congestion; encephalitis; disorientation; seizures; coma; death
B	Toxins <i>Clostridium perfringens</i> <i>Ricinus communis</i> <i>Staph. aureus</i>	ingestion of contaminated food; aerosol (inhalation)		●	●	●	●	●	< 1	NO	Flu-like signs; vomiting; bloody diarrhea; abdominal cramps; kidney failure; shock; death	
C	Nipah <i>Nipah virus</i>	direct contact with infected animal; ingestion of contaminated food; aerosol (inhalation)		●						3-18	YES	Flu-like signs; drowsy; disoriented; neurological signs; seizures; respiratory distress; death
C	Hantavirus <i>Hantavirus</i>	aerosol (inhalation) of rodent urine, feces or saliva	●	●	●	●	●		4-42	Rare	HPS: Flu-like signs; back pain; myalgia; cough; shortness of breath; dyspnea; tachypnea; tachycardia; death; HFRS: Fever; hypotension; petechiae; conjunctival injection; oliguria followed by polyuria; shock; convalescence	
	West Nile Fever <i>West Nile virus</i>	vector: mosquitoes			●	●	●	●	3-12	YES	Flu-like signs; vomiting; lymphadenopathy; periocular pain; conjunctivitis; encephalitis; death	
	Hendra <i>Hendra virus</i>	Direct contact with infected animal; aerosol (inhalation)		●					3-14	NO	Flu-like signs; severe acute respiratory signs; neurological signs; death	
	Rift Valley Fever <i>Rift Valley fever virus</i>	vector: mosquitoes; direct contact with infected animal tissue				●	●	●	3-12	NO	Flu-like signs; petechiae; hemorrhage; fever; retinopathy; encephalitis; death	

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USDA High Consequence Foreign Animal Diseases and Pests

Disease or Agent	Humans Affected	Species Affected	Incubation Period	Mode of Transmission	Prominent Clinical Signs in Animals
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Tier 1: Diseases of national concern that pose the most significant threat (highest risk and consequence) to animal agriculture in the U.S..

African swine fever virus	No	domestic and wild pigs	5-15 days	direct contact with body fluids (blood); contaminated objects; ticks	High fever; recumbency; skin reddening; cyanotic blotching on ear, tail or legs; enlarged friable spleen; hemorrhagic lymph nodes; swollen tonsils; petechiae; fibrinous pericarditis; death
Classical swine fever virus (hog cholera)	No	pigs	2-14 days	ingestion (uncooked meat); contaminated objects; aerosol; direct contact	Variable. Fever, dullness; ataxia; constipation followed by diarrhea; cyanosis of abdomen and ears; abortions, stillbirths, mummification, congenital malformations; death
Foot-and-mouth disease virus	Rare	cattle, sheep, goats, pigs	1-5 days	aerosol; direct contact; ingestion; contaminated objects	Fever, vesicles and erosions in mouth, nares, muzzle, and feet (coronary band, interdigital) or teats; depression, anorexia; salivation; nasal discharge; sloughing of hoof, abortion
Avian influenza virus (highly pathogenic)	Yes	chicken, turkey, pigs, waterfowl, cats, dogs	3-7 days	aerosol; direct contact with body fluids; ingestion; contaminated objects	Depression; respiratory signs (coughing, sneezing, nasal discharge); ataxia, green watery diarrhea, swollen, cyanotic combs and wattles; edema of eyes and neck, hemorrhage of legs, decreased egg production, death.
Newcastle disease virus (virulent)	Yes	poultry, other avian species	2-15 days	direct contact with feces and respiratory droplets; fomites,	Respiratory signs (coughing, gasping); neurological signs (muscle tremors, circling, paralysis), green watery diarrhea, decreased egg production

Tier 2: Diseases transmitted primarily by pests; disease spread depends largely on the presence of pests in the environment and ability to disease between animals

Heartwater <i>Ehrlichia (Cowdria) ruminantium</i>	No	cattle, sheep, goats, wild ruminants	7-16 days	<i>Amblyomma</i> ticks	Fever, respiratory distress, lacrimation, neurologic signs (tongue protrusion, circling, high stepping gait); convulsions, death. Post mortem lesions: hydropericardium, ascites, hydrothorax, petechiae
New World Screwworm <i>Cochliomyia hominivorax</i>	Yes	mammals, birds	5-7 days	eggs laid in wounds	Variable diameter openings containing migrating larvae; death can occur from toxicity or secondary infections
Rift Valley fever	Yes	cattle, sheep, goats, dogs, cats, camels	12-36 hours in young	mosquitoes; other insects, ticks; <i>in utero</i> ; direct contact with infected tissues or aerosol	High mortality in newborn animals: fever, hemorrhagic diarrhea, abdominal pain, bloody nasal discharge; abortion storms in adults
Venezuelan equine encephalitis	Yes	horses, wild rodents, wild birds	1-5 days	mosquitoes	Fever; tachycardia; neurological signs indicative of encephalitis (altered behavior, hypersensitivity, involuntary muscle movement, impaired vision, paresis, paralysis, convulsions); death; disease can be mild or asymptomatic

Note: Information provided in this chart provides possible clinical signs for these diseases. Technical disease factsheets for these diseases are available at <http://www.cfsph.iastate.edu/DiseaseInfo/factsheets.php>. The USDA High Consequence Foreign Animal Diseases and Pests list can be accessed at https://www.aphis.usda.gov/publications/animal_health/2013/fs_hc_diseases.pdf.

USDA High Consequence Foreign Animal Diseases and Pests

Disease or Agent	Humans Affected	Species Affected	Incubation Period	Mode of Transmission	Prominent Clinical Signs in Animals
Tier 3: Diseases and pests that pose less risk and fewer consequences but still have potential negative impact on animal or human health					
African horse sickness virus	No	horses, zebras, donkeys, mules, camels	5-7 days	<i>Culicoides</i> midges, mechanically by other vectors	Variable forms; fever; severe dyspnea; spasmodic cough; serosanguinous nasal discharge; edema of supraorbital fossa, head, neck, and chest; profuse sweating; hydrothorax; hydropericardium
Contagious bovine pleuropneumonia <i>Mycoplasma mycoides mycoides</i>	No	cattle	20-123 days	close contact with respiratory droplets and other body fluids	Dyspnea, tachypnea, cough, fever; calves may have polyarthritis with or without pneumonia. Post mortem lesions: fibrinous, thickened, hyperemic "marbled" lung tissue; thickened interlobular septa
Contagious caprine pleuropneumonia <i>Mycoplasma capricolum/M. F38/M. mycoides capri</i>	No	goats	6-10 days	direct contact with respiratory droplets	Respiratory signs (coughing, labored respiration, frothy nasal discharge); fever; septicemia, lethargy; anorexia; death. Post mortem lesions: fibrinous pneumonia, no thickening of interlobular tissue
Glanders <i>Burkholderia mallei</i>	Yes	horses, dogs, goats, cats	14 days	direct contact, fomites, inhalation, ingestion, reproductive	Ulcerated nodules on skin, upper respiratory tract, lungs; septicemia; high fever; thick mucopurulent nasal discharge; respiratory signs
Hendra virus	Yes	horses, cats, dogs	6-18 days	ingestion, inhalation, close contact; fomites	Acute respiratory syndrome; nasal discharge; head pressing; ataxia
Melioidosis <i>Burkholderia pseudomallei</i>	Yes	sheep, goats, pigs, horses, dogs, cattle, cats	Variable latency	ingestion, inhalation, entry through wounds or abrasions	Signs vary with site of lesion; suppurative or caseous lesions in lymph nodes, lungs, and viscera; pneumonia; possibly nasal discharge, arthritis or lameness; Horses: neurological; colic; Goats: mastitis
Nipah virus	Yes	pigs, goats, dogs, cats, horses	7-14 days	aerosol, direct contact with respiratory secretions	Severe respiratory distress; harsh "barking" cough; open mouth breathing; possibly neurological signs; head pressing
Peste des petits ruminants virus	No	goats, sheep	3-10 days	close contact with body fluids; aerosol; contaminated objects	Sudden death; fever; restless; nasal discharge; respiratory distress; bronchopneumonia; necrotic stomatitis; diarrhea; death
Rinderpest virus	No	cattle, sheep, goats, pigs	3-15 days	direct or close contact with body fluids	High fever; tachypnea; tachycardia; oculonasal discharge; oral erosions and necrosis; watery to hemorrhagic diarrhea; abdominal pain; weakness; recumbency; sudden death
Tropical bont tick <i>Amblyomma variegatum</i>	Yes	cattle, sheep, goats, horses, dogs		direct contact (bite) of tick	Large wounds can damage skin and secondary infections; can transmit agents for heartwater and African tick-bite fever

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