



# Zoonotic Diseases of Equids

Zoonotic Disease	R	Transmission	Clinical Signs in Equids	Clinical Signs in People
Etiologic Agent			Prevention for Equids	Prevention for People
<b>Anthrax</b> <i>Bacillus anthracis</i>  Woolsorters' disease in humans	H	<b>Ingestion:</b> (animals) spores from grazing, forage, bone meal; (people) meat from infected animal <b>Inhalation:</b> spores in soil, hides, wool <b>Direct contact:</b> animal tissues, blood	<b>Incubation period: 1-10 days</b> <b>Sudden death</b> , lack of rigor mortis; highly infectious blood from mouth, nose, anus fails to clot; respiratory difficulty, edema in neck, throat, shoulders  Clean and disinfect; dispose of carcasses – burn if possible; don't contaminate soil with infectious blood; vaccinate	<b>Incubation period:</b> 1-10 days, can be variable <b>Cutaneous:</b> pustules; dark black scab (eschar) <b>Gastrointestinal:</b> severe vomiting; bloody stools <b>Respiratory:</b> flu-like signs; respiratory distress <b>All forms:</b> sepsis, shock, death  Wash hands; wear personal protective equipment (PPE) (gloves, mask, eye protection, coveralls); cover wounds; ventilate animal areas; disinfect hides; avoid suspect animals
<b>Brucellosis</b> <i>Brucella abortus</i> <i>Brucella suis</i>  (uncommon in horses)	AH	<b>Direct contact:</b> skin lesions; reproductive tissues <b>Fomites</b>	<b>Incubation period:</b> Varies <b>Cutaneous:</b> suppurative bursitis, "fistulous withers" <b>Reproductive:</b> abortion, infertility, orchitis  Clean and disinfect; prevent exposure to wild reservoirs	<b>Incubation period:</b> 2-4 weeks, up to 6 months <b>Flu-like:</b> headache; fever; fatigue; chills; aches <b>Chronic:</b> waxing and waning fever (undulant fever); bone, joint infections  Wash hands; wear gloves when handling lesions; cover wounds; do not touch your face
<b>Dermatophilosis</b> <i>Dermatophilus congolensis</i>		<b>Direct contact:</b> skin lesions <b>Fomites:</b> soil <b>Vector:</b> (mechanical) biting insects	<b>Incubation period:</b> 1-30 days <b>Asymptomatic</b> <b>Cutaneous:</b> serous exudates at base of hair shaft ("paintbrush lesions"), crusts, alopecia  Clean and disinfect (especially equipment like tack, grooming tools); isolate infected animals; control mechanical vectors; keep skin dry; prevent zinc deficiency	<b>Incubation period:</b> 1-10 days <b>Asymptomatic</b> <b>Cutaneous:</b> multiple pustules on hands, forearms; rupture, leaving reddish crater-like cavity  Wash hands; wear gloves; cover wounds
<b>Dermatophytosis/ Ringworm</b> <i>Microsporum spp.</i> , <i>Trichophyton spp.</i>		<b>Direct contact:</b> infected animals; skin lesions <b>Fomites:</b> objects, environment	<b>Incubation period:</b> 2-4 weeks <b>Cutaneous:</b> alopecia, scaling, crusts, erythema; legs, chest, intermaxillary skin  Clean and disinfect, specially shared equipment; quarantine and test new animals; isolate and treat affected animals	<b>Incubation period:</b> 1-2 weeks <b>Cutaneous:</b> pink to red, scaly, slightly elevated skin lesions; follicular papules, pustules, or vesicles at the borders  Wash hands; wear gloves when handling lesions
<b>Equine encephalitis viruses</b> <i>Alphavirus</i> <i>EEE-Eastern eq. enceph.</i> <i>WEE-Western eq. enceph</i> <i>VEE-Venezuelan eq. enceph</i>	AH	<b>Vector:</b> mosquitoes	<b>Incubation period:</b> 1-14 days <b>Neurological:</b> CNS dysfunction; altered behavior, impaired vision, wandering, head pressing, circling, unable to swallow; ataxia; paresis; paralysis; convulsions; death  Vector control; vaccination; house animals in screened facilities; keep screens in good repair	<b>Incubation period: 2-6 days</b> Flu-like signs; nausea; vomiting; <b>Ocular:</b> conjunctival congestion; <b>Neurological:</b> encephalitis; disorientation; seizures; coma; death  Prevent mosquito bites (insect repellants; protective clothing; permethrin-treated clothing and gear; bed nets); keep window screens in good repair

R=Reportable Disease; A=for animals, H=for humans

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<b>Giardiasis</b> <i>Giardia duodenalis</i> or <i>G. intestinalis</i>	H	<b>Ingestion:</b> cysts in contaminated water <b>Direct contact:</b> infected animals	<b>Incubation period:</b> 3-10 days <b>Asymptomatic</b> <b>Gastrointestinal:</b> intermittent diarrhea, young more affected  Clean and disinfect; remove manure; change bedding frequently; do not overcrowd	<b>Incubation period:</b> 1-45 days; signs usually within 1-2 weeks <b>Gastrointestinal:</b> mild-severe, acute-chronic diarrhea <b>Systemic:</b> anemia; anorexia; weight loss  Wash hands; wear gloves; do not drink untreated water; avoid contact with feces
		<b>Direct contact:</b> infected animal; handling infected tissues <b>Inhalation:</b> aerosols <b>Ingestion:</b> (horses) contaminated feed; water <b>Fomites:</b> grooming equipment; harnesses; troughs <b>Reproductive:</b> venereal; vertical from mare to foal <b>Vectors:</b> flies (mechanical)	<b>Incubation period:</b> 3-10 days <b>Asymptomatic:</b> may be latent <b>Respiratory:</b> nodules in upper respiratory tract, lungs; thick mucopurulent nasal discharge; occasional dyspnea <b>Cutaneous:</b> ulcerated nodules on skin <b>Systemic:</b> septicemia; high fever  Quarantine affected premises; euthanize positive animals; clean and disinfect, especially any contaminated surfaces and equipment; burn or bury any affected carcasses, food, and bedding; quarantine and test any imported animals	<b>Incubation period:</b> 1-14 days; localized disease within 5 days, chronic form may take months to appear - Uncommon in humans, but often fatal if untreated <b>Asymptomatic</b> <b>Respiratory:</b> abscesses, pleural effusion, pneumonia <b>Cutaneous:</b> nodules, abscesses, ulcers on mucous membranes, skin or subcutaneous tissue; lymphangitis <b>Systemic:</b> malaise, headache, lymphadenopathy, septicemia  Wash hands; wear gloves when handling infected animals and contaminated surfaces; wear masks to prevent aerosol exposure
<b>Glanders</b> <i>Burkholderia pseudomallei</i>	AH	<b>Direct contact:</b> infected horses; infected tissues or oronasal discharge <b>Inhalation:</b> aerosols from infected horses within enclosed environments (e.g., stables, during necropsies) <b>Reservoirs:</b> flying foxes (pteropid fruit bats)-shed in urine, feces, nasal, and oral secretions	<b>Incubation period:</b> 3-16 days <b>Asymptomatic</b> <b>Respiratory:</b> rapid, shallow, labored respiration; purulent to frothy, blood-tinged nasal discharge; congested mucous membranes, +/- with icterus; subcutaneous facial edema <b>Neurologic:</b> ataxia; high-stepping gait; walking aimlessly; altered consciousness; unilateral or bilateral blindness; circling; head tilt; muscle fasciculation; tremors; lock jaw; facial paralysis; involuntary chewing and jaw spasms <b>Systemic:</b> fever, elevated heart rate; rapid death  Vaccination; clean and disinfect contaminated areas and surfaces; prevent exposure to flying foxes and their body fluids; cover feed bins and water troughs; isolate symptomatic animals; prompt and proper carcass disposal	<b>Incubation period:</b> 5-16 days <b>Asymptomatic</b> <b>Flu-like illness:</b> fever; muscle pain; dizziness; respiratory signs; cough; sore throat; fatigue; cervical lymphadenopathy <b>Neurologic:</b> encephalitis; meningoencephalitis (headache, vomiting, stiff neck, drowsiness); ataxia; confusion; bilateral ptosis; difficulty speaking; seizures; coma; death; if people recover, there can be persistent neurological deficits <b>Systemic:</b> multiple organ failure; pneumonitis; arterial thrombosis  Wash hands; use extreme caution during necropsies of suspect horses - wear gloves and masks (N95 respirator) and eye protection (face shield, goggles); avoid creating aerosols or splashing material during exams and when disinfecting; C&D all contaminated instruments and surfaces; minimize exposure to infected animals
		<b>Direct contact:</b> infected horses; infected tissues or oronasal discharge <b>Inhalation:</b> aerosols from infected horses within enclosed environments (e.g., stables, during necropsies) <b>Reservoirs:</b> flying foxes (pteropid fruit bats)-shed in urine, feces, nasal, and oral secretions	<b>Incubation period:</b> 3-16 days <b>Asymptomatic</b> <b>Respiratory:</b> rapid, shallow, labored respiration; purulent to frothy, blood-tinged nasal discharge; congested mucous membranes, +/- with icterus; subcutaneous facial edema <b>Neurologic:</b> ataxia; high-stepping gait; walking aimlessly; altered consciousness; unilateral or bilateral blindness; circling; head tilt; muscle fasciculation; tremors; lock jaw; facial paralysis; involuntary chewing and jaw spasms <b>Systemic:</b> fever, elevated heart rate; rapid death  Vaccination; clean and disinfect contaminated areas and surfaces; prevent exposure to flying foxes and their body fluids; cover feed bins and water troughs; isolate symptomatic animals; prompt and proper carcass disposal	<b>Incubation period:</b> 5-16 days <b>Asymptomatic</b> <b>Flu-like illness:</b> fever; muscle pain; dizziness; respiratory signs; cough; sore throat; fatigue; cervical lymphadenopathy <b>Neurologic:</b> encephalitis; meningoencephalitis (headache, vomiting, stiff neck, drowsiness); ataxia; confusion; bilateral ptosis; difficulty speaking; seizures; coma; death; if people recover, there can be persistent neurological deficits <b>Systemic:</b> multiple organ failure; pneumonitis; arterial thrombosis  Wash hands; use extreme caution during necropsies of suspect horses - wear gloves and masks (N95 respirator) and eye protection (face shield, goggles); avoid creating aerosols or splashing material during exams and when disinfecting; C&D all contaminated instruments and surfaces; minimize exposure to infected animals
<b>Hendra virus</b> <i>Henipavirus</i>  Emerging disease in Australia	AH	<b>Direct contact:</b> infected horses; infected tissues or oronasal discharge <b>Inhalation:</b> aerosols from infected horses within enclosed environments (e.g., stables, during necropsies) <b>Reservoirs:</b> flying foxes (pteropid fruit bats)-shed in urine, feces, nasal, and oral secretions	<b>Incubation period:</b> 3-16 days <b>Asymptomatic</b> <b>Respiratory:</b> rapid, shallow, labored respiration; purulent to frothy, blood-tinged nasal discharge; congested mucous membranes, +/- with icterus; subcutaneous facial edema <b>Neurologic:</b> ataxia; high-stepping gait; walking aimlessly; altered consciousness; unilateral or bilateral blindness; circling; head tilt; muscle fasciculation; tremors; lock jaw; facial paralysis; involuntary chewing and jaw spasms <b>Systemic:</b> fever, elevated heart rate; rapid death  Vaccination; clean and disinfect contaminated areas and surfaces; prevent exposure to flying foxes and their body fluids; cover feed bins and water troughs; isolate symptomatic animals; prompt and proper carcass disposal	<b>Incubation period:</b> 5-16 days <b>Asymptomatic</b> <b>Flu-like illness:</b> fever; muscle pain; dizziness; respiratory signs; cough; sore throat; fatigue; cervical lymphadenopathy <b>Neurologic:</b> encephalitis; meningoencephalitis (headache, vomiting, stiff neck, drowsiness); ataxia; confusion; bilateral ptosis; difficulty speaking; seizures; coma; death; if people recover, there can be persistent neurological deficits <b>Systemic:</b> multiple organ failure; pneumonitis; arterial thrombosis  Wash hands; use extreme caution during necropsies of suspect horses - wear gloves and masks (N95 respirator) and eye protection (face shield, goggles); avoid creating aerosols or splashing material during exams and when disinfecting; C&D all contaminated instruments and surfaces; minimize exposure to infected animals



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<b>Japanese encephalitis</b> Flavivirus	AH	<b>Vectors:</b> <i>Culex</i> mosquitoes <b>Reproductive:</b> semen; transplacental possible	<b>Incubation period:</b> 4-14 days <b>Asymptomatic</b> <b>Systemic:</b> transient fever, anorexia, lethargy, and congested or jaundiced mucous membranes <b>Neurologic:</b> incoordination; neck rigidity; impaired vision; encephalitis; violent and demented behavior; muscle tremors; profuse sweating	<b>Incubation period:</b> 5-15 days <b>Asymptomatic</b> <b>Flu-like illness:</b> fever; chills; myalgia; severe headache <b>Neurologic:</b> encephalitis (children); confusion, behavior changes, unconsciousness; convulsions; seizures; coma <b>Musculoskeletal:</b> movement disorder – hemiplegia; quadriplegia; neck pain and stiffness; Parkinson’s like signs; <b>Gastrointestinal:</b> (children) nausea; vomiting; abdominal pain; +/- diarrhea <b>Reproductive:</b> miscarriage if infected in first pregnancy
			Vector control; vaccines in endemic areas (Asia; Western Pacific); house animals in screened facilities; keep screens in good repair; minimize exposure to wild birds	Vaccination (endemic areas); prevent mosquito bites (insect repellants; protective clothing; permethrin-treated clothing and gear; bed nets); keep window screens in good repair
<b>Leptospirosis</b> <i>Leptospira</i> spp.  Weil’s disease in humans	H	<b>Direct contact:</b> infected urine; contaminated water; aborted tissues <b>Ingestion:</b> contaminated feed, water <b>Inhalation:</b> aerosolized urine, water	<b>Incubation period:</b> 7-12 days <b>Systemic:</b> (foals) fever; icterus; anemia; death; pulmonary bleeding, respiratory distress <b>Ocular:</b> recurrent inflammatory uveitis; conjunctivitis; cataracts	<b>Incubation period:</b> 7-12 days <b>Acute/septicemic phase:</b> fever, chills, conjunctival suffusion, headache; myalgia; nausea; vomiting <b>Immune phase:</b> anicteric (common) or icteric forms; aseptic meningitis; stiff neck; headache; kidney failure; pulmonary hemorrhage; edema; dyspnea; death
			Clean and disinfect animal areas and equipment; vaccinate; control rodents; prevent contact with reservoirs; provide safe, clean water for drinking; avoid contaminated water sources/ flood waters; quarantine and test new animals	Wash hands; wear PPE (gloves, mask, eye protection, coveralls); cover wounds; control rodents; avoid wildlife; avoid contaminated water (like floodwaters); drain standing water
<b>Staphylococcosis</b> <i>including methicillin-resistant Staphylococcus aureus (MRSA)</i>		<b>Direct contact:</b> skin wounds; feces <b>Fomites</b> <b>Inhalation:</b> aerosols (dust)	<b>Incubation period:</b> variable <b>Cutaneous:</b> wound infections, abscesses <b>Reproductive:</b> (cattle, sheep, swine) mastitis; metritis	<b>Incubation period:</b> variable; 4-10 days <b>Cutaneous:</b> skin, soft tissue infection; necrotizing fasciitis; staphylococcal scalded skin syndrome <b>Gastrointestinal:</b> acute gastroenteritis (food poisoning); nausea; vomiting; diarrhea; abdominal pain; fever; headache
			Clean and disinfect; remove manure; don’t overcrowd; isolate infected animals; good hand hygiene when milking; separate grooming equipment/tack for each horse;	Wash hands; wear face mask, gloves when handling animals cover wounds; avoid touching animal wounds, secretions; don’t share personal items (e.g., towels)
<b>Rabies</b> <i>Lyssavirus</i>	HA	<b>Direct contact:</b> infected animal saliva (bite, droplet on mucous membrane, aerosol, broken skin)	<b>Incubation period:</b> 10 days to 6 months <b>Paralytic:</b> progressive paralysis; dysphagia; hypersalivation; ataxia;; death in 2-6 days; <b>Furious:</b> tremors; restlessness; aggression; ascending paralysis; death in 4-8 days	<b>Incubation period:</b> a few days to years, most 1-3 mos. <b>Neurologic:</b> headache; fever; pain at inoculation site; anxiety; confusion; agitation, inability to swallow; hydrophobia; death; generalized paralysis; death
			Quarantine exposed animals; isolate, euthanize and test symptomatic animals; vaccination; prevent access to wildlife	Wash hands; wear PPE around exposed animals (gloves, eye protection, coveralls); avoid saliva; rabies vaccine if high-risk; cover wounds; stay away from places where bats live



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<b>Rhodococcosis</b> <i>Rhodococcus equi</i>		<b>Inhalation:</b> contaminated dust (foals infected soon after birth) <b>Ingestion:</b> soil (ubiquitous), feces <b>Direct contact:</b> animals, feces	<b>Incubation period:</b> 9 days to 4 weeks <b>Asymptomatic</b> in adult horses <b>Respiratory:</b> (foals) suppurative bronchopneumonia suppurative lymphadenitis fever; cough; purulent nasal discharge; death  Clean and disinfect; remove manure; provide colostrum; screen foals; keep foals in dust-free areas with good ventilation; reduce, eliminate, or avoid dusty areas (dirt paddocks); prevent overcrowding; isolate sick foals	Incubation period: not known Most cases in immunocompromised people <b>Cutaneous:</b> wound infections <b>Respiratory:</b> chest pain; cough; dyspnea; pneumonia  Wear PPE (gloves, mask) when working in dusty environment or with sick foals; keep vulnerable people away from farms that are known to have infections
<b>Salmonellosis</b> <i>Salmonella</i> spp.  ser. Typhimurium ser. Enteritidis	H	<b>Ingestion:</b> contaminated feed, water <b>Direct contact:</b> infected animal, feces <b>Fomites</b> <b>Reproductive:</b> vertical (poultry) <b>Mechanical vectors:</b> flies	<b>Incubation period:</b> varies; less than 1-2 days if severe <b>Gastrointestinal:</b> severe enteritis +/- blood; young most affected <b>Reproductive:</b> abortion <b>Systemic:</b> septicemia; CNS signs; (foals) pneumonia <b>Musculoskeletal:</b> (foals) arthritis  Clean and disinfect (equipment, buildings); remove manure; biosecurity; control vectors; reduce stress; prevent overcrowding; provide colostrum; quarantine new animals	<b>Incubation period:</b> 6-72 hours <b>Gastrointestinal:</b> acute diarrhea (+/- blood); abdominal pain; nausea; vomiting; dehydration <b>Flu-like:</b> fever; muscle pain; headache; malaise; chills <b>Systemic:</b> (immunocompromised most at risk) bacteremia; septicemia  Wash hands; wear gloves
<b>Streptococcosis</b> <i>Streptococcus equi</i> subsp. zooepidemicus		<b>Direct contact:</b> infected animals <b>Inhalation:</b> aerosols <b>Fomites</b> <b>Ingestion:</b> contaminated feed, water	<b>Incubation period:</b> varies; toxic shock within hours <b>Reproductive:</b> mastitis, metritis, placentitis, abortion <b>Respiratory:</b> rhinitis, bronchitis, plueropneumonia <b>Systemic:</b> (foals) septicemia  Clean and disinfect; remove manure; control flies; minimize stress; keep wounds clean; practice good animal husbandry;	<b>Incubation period:</b> hours to 3 days <b>Flu-like:</b> chills; fever; malaise; upper respiratory disease <b>Gastrointestinal:</b> nausea; vomiting; abdominal pain <b>Systemic:</b> septicemia; endocarditis; renal disease; septic shock  Wash hands; wear PPE (gloves, coveralls) when handling animals; clean, cover wounds; don't consume raw dairy
<b>Vesicular stomatitis</b> <i>Vesiculovirus</i>	A	<b>Direct contact:</b> skin lesions; saliva, nasal secretions <b>Fomites</b> <b>Vectors:</b> black flies, sand flies, biting midges	<b>Incubation period:</b> 3-7 days <b>Asymptomatic</b> <b>Cutaneous:</b> fever; papules, vesicles in/on oral cavity <b>Musculoskeletal:</b> lameness  Clean and disinfect; minimize stress; control vectors; quarantine new animals; isolate infected animals; rule out foot-and-mouth disease	<b>Incubation period:</b> 1-6 days <b>Flu-like:</b> fever; headache; myalgia; malaise <b>Cutaneous:</b> (rare) vesicles <b>Gastrointestinal:</b> nausea; vomiting; diarrhea  Wash hands; wear PPE (gloves, coveralls); clean and cover wounds

