

Virginia Department of Health

Glanders: Overview for Healthcare Providers

Organism	<ul style="list-style-type: none"> Caused by bacterium <i>Burkholderia mallei</i> (formerly <i>Pseudomonas mallei</i>) Primarily infects equids (horses, donkeys and mules), but also infects humans Gram negative coccobacilli
Reporting to Public Health	Suspected or confirmed cases require <u>immediate</u> notification to the local health department (LHD). See www.vdh.virginia.gov/LHD/index.htm .
Infectious Dose	Undetermined, but presumed to be very low when organism is aerosolized
Occurrence	<ul style="list-style-type: none"> Since 1940s, no naturally-occurring human cases in US; only cases identified have been acquired in a laboratory. Endemic foci in Asia, Africa, the Middle East and Central and South America
Natural Reservoir	<ul style="list-style-type: none"> Zoonotic disease. Infected hosts (primarily equids). Not found in water, soil or plants.
Route of Infection	<ul style="list-style-type: none"> Direct contact with mucosa (nasal, oral, conjunctival), skin lacerations Inhalation of infective aerosols
Communicability	<ul style="list-style-type: none"> Low risk of transmission from infected equids to humans Person-to-person transmission extremely rare. No human epidemics reported.
Risk factors	<ul style="list-style-type: none"> Laboratory work with cultures of <i>B. mallei</i> Close contact (veterinarians, caretakers, abattoir workers) with infected equids
Case-fatality Rate	<ul style="list-style-type: none"> Untreated septicemic form is generally fatal within 7–10 days. Untreated chronic form has ~50–70% case-fatality rate. With treatment, ~20% for localized infection and 40% overall.
Incubation Period	Varies depending on route of infection: in general, 1–14 days; if inhaled, 10–14 days; if direct skin contact, 1–5 days.
Clinical Description	<ul style="list-style-type: none"> Localized infections: May be limited to skin ulceration at site of bacterial entry. Subsequent symptoms may include nodules, abscesses, and ulcers in skin, mucous membranes, lymphatic vessels, and/or subcutaneous tissues, mucopurulent nasal discharge, or lymphadenopathy. Localized infections may disseminate, symptoms could include papular or pustular rash, abscesses of liver and/or spleen, pulmonary lesions or septic shock. Septicemia: May occur at any point in illness and signs and symptoms are consistent with typical sepsis syndrome. Multiple abscesses involving spleen, liver and lungs or granulomatous or necrotizing lesions in any organ might occur; jaundice, diarrhea or a generalized papular rash that progresses to a pustular rash might occur. Note: blood cultures often remain negative. Pulmonary: May include cough, fever, dyspnea, mucopurulent discharge, pulmonary abscesses, pleural effusions or symptoms described for septicemia. Chronic: May include multiple abscesses, nodules, or ulcers in the skin, liver, spleen or muscles of the arms and legs. Associated enlargement and induration of regional lymph nodes and channels. Characterized by remissions and exacerbations. Can persist for years.
Differential Diagnosis	Vary depending on form
Radiography	Chest x-ray may show lobar pneumonia, bronchopneumonia, or nodular densities; consolidation may be present
Specimen Collection and Laboratory Testing[†]	<ul style="list-style-type: none"> Culture and identify <i>B. mallei</i> from clinical specimens (including blood, urine, abscess material, sputum, tissue biopsy)

	<ul style="list-style-type: none"> † If glanders is suspected, notify LHD immediately to discuss the case and laboratory testing. Specimens should be sent to Division of Consolidated Laboratory Services (DCLS) <u>after</u> LHD has been consulted and testing has been approved by LHD/DCLS. The DCLS Emergency Duty Officer can be reached 24/7 at (804) 335-4617.
Treatment (uncomplicated, adult cases)*	<ul style="list-style-type: none"> Ceftazidime* [50 mg/kg /(max: 2 g) IV every 8 hours <u>or</u> 6 g/d by continuous infusion after a 2-g bolus for at least 10-14 days] Following 2-week IV antibiotic treatment, prolonged (at least 12 weeks) antibiotic treatment with oral trimethoprim-sulfamethoxazole is recommended to ensure complete eradication of organism. TMP-SMX: <ul style="list-style-type: none"> Adult >60 kg: 160 mg TMP /800 mg tablets: 2 tablets every 12 hours] * Adult, 40–60 kg: 80 mg/400 mg tablets: 3 tablets every 12 hours * Adult, <40 kg: 160 mg/800 mg tablets: 1 tablet every 12 hours <u>or</u> 80 mg/400 mg tablets: 2 tablets every 12 hours* *For additional information on dosing, please consult the package insert; for additional information on treatment, refer to VDH Glanders: Guidance for Healthcare Providers, available at: http://www.vdh.virginia.gov/oep/pdf/Glanders_GuidanceforHealthcareProviders.pdf
Post-Exposure Prophylaxis (adult)*	<ul style="list-style-type: none"> Trimethoprim-sulfamethoxazole for 21 days <ul style="list-style-type: none"> Adult, >60 kg: 160 mg/800 mg tablets: 2 tablets every 12 hours* Adult, 40–60 kg: 80 mg/400 mg tablets: 3 tablets every 12 hours* Adult, <40 kg: 160 mg/800 mg tablets: 1 tablet every 12 hours <u>or</u> 80 mg/400 mg tablets: 2 tablets every 12 hours* or Amoxicillin/clavulanic acid (co-amoxiclav) <ul style="list-style-type: none"> [Adult, ≥60 kg: 500 mg/125 mg tablets: 3 tablets every 8 hours; Adult, <60 kg: 500 mg/125 mg tablets: 2 tablets every 8 hours] *For additional information on dosing, please consult with the package insert; for additional information on PEP, refer to VDH Glanders: Guidance for Healthcare Providers, available at: http://www.vdh.virginia.gov/oep/pdf/Glanders_GuidanceforHealthcareProviders.pdf
Vaccine	<ul style="list-style-type: none"> No vaccine available
Infection Control	<ul style="list-style-type: none"> Standard precautions. Contact precautions also indicated for patients with draining lesions.