

## Virginia Department of Health Melioidosis: Overview for Healthcare Providers

<b>Organism</b>	<ul style="list-style-type: none"> <li>Caused by the bacterium <i>Burkholderia pseudomallei</i>, a saprophytic gram-negative motile rod</li> <li>Found in contaminated soil or water and can be spread to humans or animals, including sheep, goats, swine, horses, cats, dogs, and cattle</li> </ul>
<b>Reporting to Public Health</b>	Suspected or confirmed cases require <b>immediate</b> notification to the local health department (LHD). See <a href="https://www.vdh.virginia.gov/health-department-locator/">https://www.vdh.virginia.gov/health-department-locator/</a>
<b>Infectious Dose</b>	Unknown
<b>Occurrence</b>	<ul style="list-style-type: none"> <li>Global annual incidence is estimated at 165,000 cases with 89,000 deaths</li> <li>Endemic in Southeast Asia and northern Australia</li> <li>~12 cases reported annually in the U.S., most occur secondary to international travel; however, <i>B. pseudomallei</i> has been identified in the environment in Mississippi, Puerto Rico and the U.S. Virgin Islands.</li> </ul>
<b>Natural Reservoir</b>	<ul style="list-style-type: none"> <li>Found in soil and water and widely distributed in tropical and subtropical countries</li> <li>Various animals, including sheep, goats, horses, swine, monkeys, and rodents can become infected, without evidence that they are important reservoirs</li> </ul>
<b>Route of Infection</b>	Percutaneous inoculation (e.g., through skin abrasions), inhalation of contaminated dust or water droplets, and ingestion of contaminated water or soil-contaminated food
<b>Communicability</b>	Person-to-person transmission is very rare, but has been documented
<b>Risk Factors</b>	<ul style="list-style-type: none"> <li>Close and regular contact with the soil in endemic areas (e.g., adventure travelers or ecotourists, construction or resource extraction workers, military personnel)</li> <li>Underlying chronic disease, e.g., diabetes, alcohol abuse, and chronic lung or renal disease</li> <li>Tropical freshwater fish in home aquariums</li> <li>2021 multistate outbreak related to aromatherapy spray (<a href="https://www.cdc.gov/melioidosis/outbreak/2021/index.html">https://www.cdc.gov/melioidosis/outbreak/2021/index.html</a>)</li> </ul>
<b>Case-fatality Rate</b>	Mortality ranges from 15%–40% despite use of appropriate antimicrobial therapy
<b>Incubation Period</b>	<ul style="list-style-type: none"> <li>Not well defined; often cited as 1–21 days with a median of 9 days</li> <li>Can remain latent for months or years before symptoms develop</li> </ul>
<b>Clinical Description</b>	<ul style="list-style-type: none"> <li>Asymptomatic, localized (e.g., cutaneous abscesses or ulcerations), pneumonia, and sepsis</li> <li>Sometimes referred to as the “Great mimicker,” as it may be mistaken for tuberculosis</li> <li>Symptoms are nonspecific and vary by route of infection: abdominal discomfort; abscesses or ulcerations; chest pain, cough, and respiratory distress; disorientation, headache, and seizures; fever; localized pain and swelling; muscle or joint pain; and weight loss</li> <li>Patients generally present with acute illness, but ~9% present with ≥2 months of symptoms</li> </ul>
<b>Differential Diagnosis</b>	Mycobacterium tuberculosis, typhoid fever, pneumonia, sepsis, osteomyelitis, septic arthritis, necrotizing fasciitis, mumps (parotitis), malaria
<b>Radiography</b>	Pulmonary cavitation or empyema may be apparent
<b>Specimen Collection and Laboratory Testing</b>	<ul style="list-style-type: none"> <li><b>Alert lab if melioidosis is suspected so appropriate precautions are taken during testing</b></li> <li>If melioidosis is suspected, notify LHD immediately. If VDH approves public health testing, specimens may be sent to Division of Consolidated Laboratory Services (DCLS).</li> <li>For questions about collecting specimens, contact the DCLS Emergency Duty Officer available 24/7 at 804-335-4617</li> </ul>

<b>Treatment during a Public Health Emergency*</b>	<ul style="list-style-type: none"> <li>● <b>Initial Intensive-Phase Therapy:</b> Generally, 10–14 days, ≥4 weeks may be necessary if severe</li> <li>● Uncomplicated cases: Ceftazidime 50 mg/kg (up to 2 g) IV every 8 hours <u>or</u> 6 g/day by continuous infusion after a 2-g bolus</li> <li>● Persistent bacteremia or in the ICU: Meropenem 25mg/kg (up to 1g) IV every 8 hours</li> <li>● <b>Oral Eradication-Phase Therapy:</b> Following IV antibiotic treatment, prolonged (≥12 weeks) oral antibiotic treatment is recommended to ensure complete eradication of organism</li> <li>● TMP-SMX (agent of first choice) - 160 mg TMP/800 mg tablet <ul style="list-style-type: none"> <li>Adult, &gt;60 kg: 2 tablets every 12 hours</li> <li>Adult, 40–60 kg: 1.5 tablets every 12 hours</li> <li>Adult, &lt;40 kg: 1 tablet every 12 hours</li> <li>Child: 8 mg/40 mg/kg; maximum dose 2 tablets (320 mg/1,600 mg) every 12 hours</li> </ul> </li> <li style="text-align: center;"><u>or</u></li> <li>● Amoxicillin/clavulanic acid (co-amoxiclav) - 500 mg/125 mg tablet <ul style="list-style-type: none"> <li>Adult, ≥60 kg: 3 tablets every 8 hours</li> <li>Adult, &lt;60 kg: 2 tablets every 8 hours</li> <li>Child: 20 mg/5 mg/kg every 8 hours; maximum dose 2 tablets (1,000 mg/250 mg) every 8 hours</li> </ul> </li> <li>● For additional information on dosing, please consult the reference for treatment recommendations* and the package insert</li> </ul>
<b>Postexposure Prophylaxis during a Public Health Emergency and for Sporadic Exposures (e.g., Laboratory Exposures)*</b>	<ul style="list-style-type: none"> <li>● Trimethoprim-sulfamethoxazole for 21 days (agent of first choice) - 160 mg/800 mg tablet <ul style="list-style-type: none"> <li>Adult, &gt;60 kg: 2 tablets every 12 hours</li> <li>Adult, 40–60 kg: 1.5 tablets every 12 hours</li> <li>Adult, &lt;40 kg: 1 tablet every 12 hours</li> <li>Child: 8 mg/40 mg/kg; maximum dose 2 tablets (320 mg/1,600 mg) every 12 hours</li> </ul> </li> <li style="text-align: center;"><u>or</u></li> <li>● Amoxicillin/clavulanic acid (co-amoxiclav) for 21 days - 500 mg/125 mg tablets <ul style="list-style-type: none"> <li>Adult, ≥60 kg: 3 tablets every 8 hours</li> <li>Adult, &lt;60 kg: 2 tablets every 8 hours</li> <li>Child: 20 mg/5 mg/kg every 8 hours; maximum dose 2 tablets (1,000 mg/250 mg) every 8 hours</li> </ul> </li> <li>● For additional information on dosing, please consult the reference for PEP recommendations* and the package insert</li> </ul>
<b>Vaccine</b>	A vaccine for melioidosis is not commercially available in the United States
<b>Infection Control</b>	Use standard precautions when caring for a patient with melioidosis

\*Source of treatment and postexposure prophylaxis recommendations: Lipsitz, R, Garges, S, Aurigemma, R, et al. (2010). Workshop on Treatment of and Postexposure Prophylaxis for *Burkholderia pseudomallei* and *B. mallei* Infection, 2010. Emerging Infectious Diseases. 18(12): e2. Available at [https://wwwnc.cdc.gov/eid/article/18/12/12-0638\\_article](https://wwwnc.cdc.gov/eid/article/18/12/12-0638_article) (Accessed April 12, 2023).