Melioidosis
*(Burkholderia pseudomallei)*

Frequently Asked Questions

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What is melioidosis?

Melioidosis, also called Whitmore’s disease, is an infectious disease caused by the bacterium *Burkholderia pseudomallei*. Melioidosis is clinically and pathologically similar to glanders disease, but the ecology and epidemiology of melioidosis are different from glanders. Melioidosis is predominately a disease of tropical climates, especially in Southeast Asia where it is endemic. The bacteria causing melioidosis are found in contaminated water and soil and are spread to humans and animals through direct contact with the contaminated source. Glanders is contracted by humans from infected domestic animals.

Why has melioidosis become a current issue?

*Burkholderia pseudomallei* is an organism that has been considered as a potential agent for biological warfare and biological terrorism.

How common is melioidosis and where is it found?

Melioidosis is endemic in Southeast Asia, with the greatest concentration of cases reported in Vietnam, Cambodia, Laos, Thailand, Malaysia, Myanmar (Burma),
and northern Australia. Additionally, it is seen in the South Pacific, Africa, India, and the Middle East. In many of these countries, *Burkholderia pseudomallei* is so prevalent that it is a common contaminate found on laboratory cultures. Moreover, it has been a common pathogen isolated from troops of all nationalities that have served in areas with endemic disease. A few isolated cases of melioidosis have occurred in the Western Hemisphere in Mexico, Panama, Ecuador, Haiti, Brazil, Peru, Guyana, and in the states of Hawaii and Georgia. In the United States, confirmed cases range from none to five each year and occur among travelers and immigrants.

**How is melioidosis transmitted and who can get it?**

Besides humans, many animal species are susceptible to melioidosis. These include sheep, goats, horses, swine, cattle, dogs, and cats. Transmission occurs by direct contact with contaminated soil and surface waters. In Southeast Asia, the organism has been repeatedly isolated from agriculture fields, with infection occurring primarily during the rainy season. Humans and animals are believed to acquire the infection by inhalation of dust, ingestion of contaminated water, and contact with contaminated soil especially through skin abrasions, and for military troops, by contamination of war wounds. Person-to-person transmission can occur. There is one report of transmission to a sister with diabetes who was the caretaker for her brother who had chronic melioidosis. Two cases of sexual transmission have been reported. Transmission in both cases was preceded by a clinical history of chronic prostatitis in the source patient.

**What are the symptoms of melioidosis?**

Illness from melioidosis can be categorized as acute or localized infection, acute pulmonary infection, acute bloodstream infection, and chronic suppurative infection. Inapparent infections are also possible. The incubation period (time between exposure and appearance of clinical symptoms) is not clearly defined, but may range from 2 days to many years.

*Acute, localized infection:* This form of infection is generally localized as a nodule and results from inoculation through a break in the skin. The acute form of melioidosis can produce fever and general muscle aches, and may progress rapidly to infect the bloodstream.

*Pulmonary infection:* This form of the disease can produce a clinical picture of mild bronchitis to severe pneumonia. The onset of pulmonary melioidosis is typically accompanied by a high fever, headache, anorexia, and general muscle soreness. Chest pain is common, but a nonproductive or productive cough with normal sputum is the hallmark of this form of melioidosis.

*Acute bloodstream infection:* Patients with underlying illness such as HIV, renal failure, and diabetes are affected by this type of the disease, which usually results
in septic shock. The symptoms of the bloodstream infection vary depending on
the site of original infection, but they generally include respiratory distress,
severe headache, fever, diarrhea, development of pus-filled lesions on the skin,
muscle tenderness, and disorientation. This is typically an infection of short
duration, and abscesses will be found throughout the body.

**Chronic suppurative infection:** Chronic melioidosis is an infection that involves
the organs of the body. These typically include the joints, viscera, lymph nodes,
skin, brain, liver, lung, bones, and spleen.

### How is melioidosis diagnosed?

Melioidosis is diagnosed by isolating *Burkholderia pseudomallei* from the blood,
urine, sputum, or skin lesions. Detecting and measuring antibodies to the bacteria
in the blood is another means of diagnosis.

### Can melioidosis be spread from person to person?

Melioidosis can spread from person to person by contact with the blood and body
fluids of an infected person. Two documented cases of male-to-female sexual
transmission involved males with chronic prostatic infection due to melioidosis.

### Is there a way to prevent infection?

There is no vaccine for melioidosis. Prevention of the infection in endemic-
disease areas can be difficult since contact with contaminated soil is so common.
Persons with diabetes and skin lesions should avoid contact with soil and
standing water in these areas. Wearing boots during agricultural work can prevent
infection through the feet and lower legs. In health care settings, using common
blood and body fluid precautions can prevent transmission.

### Is there a treatment for melioidosis?

Most cases of melioidosis can be treated with appropriate antibiotics. *Burkholderia
psuedomallei*, the organism that causes melioidosis, is usually sensitive to
imipenem, penicillin, doxycycline, amoxycillin-clavulanic acid, azlocillin,
ceftazidime, ticarcillin-vulanic acid, ceftriaxone, and aztreonam. Treatment
should be initiated early in the course of the disease. Although bloodstream
infection with melioidosis can be fatal, the other types of the disease are nonfatal.
The type of infection and the course of treatment can predict any long-term
sequelae.