



### Melioidosis ; the disease

Melioidosis, also called Whitmore's disease, is an infectious disease, caused by the gram negative bacterium *Burkholderia pseudomallei*.

Disease occurrence varies depending on location. Northeast Thailand and northern Australia are considered to be highly endemic.

### Transmission

For melioidosis, transmission usually occurs through contact with contaminated soil or water through overt or in apparent skin wounds, inhalation of soil dust and aspiration or ingestion of contaminated water.

Various animal species are susceptible to melioidosis, including: Sheep, Goats, Swine, Horses, Cats, Dogs, Cattle and Monkeys. The causative bacterium is an obligate mammalian zoonotic pathogen which can survive for only a short period in the environment. Direct zoonotic transmission from animals to humans is not known to occur.

### Person to person transmission

Person to person transmission is extremely rare but has occurred through direct or sexual contact in 3 reported cases.

### Risk groups

Up to 80 % of adult cases have a predisposing medical conditions such as diabetes, cirrhosis, alcoholism, chronic renal disease, chronic lung disease, thalassemia, malignancy and glucocorticoid treatment or other non-HIV – related immune suppression.

## Clinical features

Clinical manifestation of Melioidosis may be subclinical or present with a range of signs and symptoms. It can present as a localized acute or chronic cutaneous or visceral abscesses, necrotizing pneumonia or rapidly fatal septicemia.

Infection can become persistent and result in latent, recurrent and recrudescing infections.

Localized infection generally presents as an ulcer, nodule, or skin abscess and may result from inoculation through a break in the skin and may produce fever and general muscle aches. The infection may remain localized, or may progress rapidly through the bloodstream

Pulmonary infection is the most common form of presentation of the disease and can produce a clinical picture of mild bronchitis to severe pneumonia. The onset of pulmonary melioidosis typically is marked 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. Cavitory lesions may be seen on chest X-ray, similar to those seen in pulmonary tuberculosis.

Bloodstream infections are more likely to develop in patients with underlying risk factors such as diabetes and renal insufficiency this form of the disease, which usually results in septic shock. The symptoms of bloodstream infection may include fever, headache, respiratory distress, abdominal discomfort, joint pain, muscle tenderness, and disorientation. This is typically an infection with rapid onset, and abscesses may be found throughout the body, most notably in the liver, spleen, or prostate.

Disseminated melioidosis presents with abscess formation in various organs of the body, and may or may not be associated with sepsis. Organs involved typically include the liver, lung, spleen, and prostate; involvement of joints, bones, viscera, lymph nodes, skin, or brain may also occur. Disseminated infection may be seen in acute or chronic melioidosis. Signs and symptoms, in addition to fever, may include weight loss, stomach or chest pain, muscle or joint pain, and headache or seizure

## Diagnosis

Melioidosis is diagnosed by isolating *Burkholderia pseudomallei* from blood, urine, sputum, throat swabs, skin lesions, or abscesses; or by detecting an antibody response to the bacteria.

## **Incubation period**

It ranges from 1-21 days with a mean of 9 days and can be as short as few hours with high inoculums. However for Melioidosis , years may elapse between presumed exposure and appearance of clinical disease.

## **Treatment**

When a melioidosis infection is diagnosed, the disease can be treated with the use of appropriate medication.

The type of infection and the course of treatment will impact long-term outcome. Treatment generally starts with intravenous (within a vein) antimicrobial therapy for 10-14 days, followed by 3-6 months of oral antimicrobial therapy.

Antimicrobial agents that have been effective against melioidosis include:  
Intravenous therapy of Ceftazidime administered every 6-8 hours or Meropenem administered every 8 hours

Oral antimicrobial therapy consists of: Trimethoprim-sulfamethoxazole taken every 12 hours or Doxycycline taken every 12 hours.

Patients with penicillin allergies should notify their doctor, who can prescribe an alternative treatment course.

## **Prevention**

In areas where the disease is widespread, contact with contaminated soil or water can put people at risk for melioidosis.

However, in these areas, there are things that certain groups of people can do to help minimize the risk of exposure:

- Persons with open skin wounds and those with diabetes or chronic renal disease are at increased risk for melioidosis and should avoid contact with soil and standing water.
- In endemic areas , skin lacerations, abrasions or burns that have been contaminated with soil or surface water should be immediately and thoroughly cleaned.