

## **Melioidosis Fact Sheet**

1. **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 disease. 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.

2. **Why has Melioidosis become a current issue?** – The *B. pseudomallei* bacterium has been designated as a potential agent for bioterrorism.

3. **How common is Melioidosis and where is it found?** - Southeast Asia and northern Australia are the main endemic foci for Melioidosis; recent publications report that it is now considered endemic in Papua New Guinea, most of the Indian subcontinent and southern China, Hong Kong, and Taiwan. The greatest numbers of cases each year are reported in Thailand, Malaysia, Singapore, and northern Australia. Though rarely reported, cases are thought to frequently occur in Vietnam, Indonesia, Cambodia, Laos and Myanmar (Burma). Additionally, cases have been reported from the South Pacific (New Caledonia), India and Sri Lanka, Africa and the Middle East. In many of these countries, *B. 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, El Salvador, Panama, Ecuador, Peru, Guyana, Puerto Rico, Martinique, Guadeloupe, and most frequently, Brazil. In the United States, confirmed cases reported in previous years have ranged from none to five and have occurred among travelers and immigrants coming from places where the disease is endemic.

4. **How is Melioidosis transmitted and who can get it?** - Transmission generally occurs through direct contact with contaminated soil and surface waters. In Southeast Asia, the organism has been repeatedly isolated from agricultural fields, with infections occurring primarily during the rainy season. Humans and animals are believed to acquire the infection by inhalation of contaminated dust or

water droplets, ingestion of contaminated water, and contact with contaminated soil especially through skin abrasions (inoculation), and for military troops, by contamination of war wounds.

- a. Person-to-person transmission of Melioidosis is very rare, with one report of transmission from a brother who had chronic Melioidosis to a sister with diabetes who was his caretaker, and two reports of sexual transmission; transmission in both of these latter cases was preceded by a clinical history of chronic prostatitis in the source patient.
- b. Vertical transmission may occur, with one documented instance of transplacental transmission from an infected mother to her neonate.
- c. Nosocomial transmission through contaminated blood-drawing equipment has also been documented.
- d. Besides humans, many animal species are susceptible to Melioidosis. Susceptible animals include sheep, goats, horses, swine, cattle, dogs, and cats.

**5. 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. Unapparent infections are also possible. The time between exposure and appearance of clinical symptoms may range from two days to many years.

- a. 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.
- b. 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.
- c. 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.
- d. Disseminated infection - Disseminated Melioidosis is an infection that 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.

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

**7. 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 standard contact precautions (mask, gloves, and gown) can prevent transmission.

**8. Is there a treatment for Melioidosis?** - *B. pseudomallei* is usually susceptible to antibiotic treatment with ceftazidime, imipenem, meropenem, doxycycline, trimethoprim/ sulfamethoxazole, piperacillin, amoxicillin-clavulanic acid, azlocillin, ticarcillin-clavulanate, ceftriaxone, and aztreonam. Treatment should be initiated early in the course of the disease, as possible, since Melioidosis may progress to a more severe form and become fatal, depending on risk factors which affect the ability of the patient to fight the infection. The type of infection and the course of treatment will impact long-term outcome. Treatment generally starts with intravenous antimicrobial therapy for 10-14 days, followed by 3-6 months of oral antimicrobial therapy.

**9. For more information about Melioidosis:**

<http://www.cdc.gov/nczved/divisions/dfbmd/diseases/melioidosis/>

This fact sheet provides general information. Please contact your physician and/or veterinarian for specific clinical information related to you or your animal.

February 16, 2013