

A Melioidosis Case in Arizona

[Announcer] This program is presented by the Centers for Disease Control and Prevention.

[Karen Hunter] Hi, I'm Karen Hunter and today I'm talking with Dr. David Blaney, Medical Officer, Bacterial Special Pathogens Branch. Our conversation is based on his paper about an unusual melioidosis case in Arizona, which appears in CDC's journal, *Emerging Infectious Diseases*. Welcome Dr. Blaney.

[David Blaney] Thank you very much. Pleasure to be here.

[Karen Hunter] Dr. Blaney, what is melioidosis?

[David Blaney] Melioidosis is a disease that's caused by a bacterium that lives in soil or surface water. Anybody who comes into contact with soil or water that's contaminated with the bacteria is at risk for getting the disease. But people with underlying conditions may face an increased risk. These conditions include diabetes, liver disease, chronic lung disease, and chronic kidney disease.

In fact, it frequently leads to severe cases of pneumonia in Southeast Asia and Northern Australia. These are the areas where melioidosis is most commonly seen. However, it's also been identified in areas with tropical climates, such as India, Brazil, and some parts of Central America and the Caribbean.

There are many types of melioidosis infection. Each has its own specific type of symptoms. One of the indications that a person may have the disease is the appearance of abscesses; these are usually dark bumps on the skin where pus has collected. They can appear on the skin or in various soft tissues, such as the liver, kidney, or brain.

The bacterium is naturally resistant to a wide variety of antibiotics, and as a result, the disease may have high mortality, if not treated correctly. Severe disease, such as seen in septic shock, may still have mortality rates as high as 20 percent, even with proper treatment. Treatment normally consists of intravenous antibiotics for 10 to 14 days, followed by four to six months of oral antibiotics.

[Karen Hunter] Tell us about the case in Arizona.

[David Blaney] This case occurred in a 32-year-old male with Type-2 diabetes who lived in southern Arizona. He went to the emergency room with complaints of severe right knee pain. He reported that over the previous two to three months he had experienced weight loss and fatigue, nightly fevers, and intermittent right knee pain. Fluid drawn from the knee failed to grow bacteria, but a blood culture initially grew *E. coli*. He was admitted and given several antibiotics; however, after eight days of treatment, he still continued to have a fever and right knee pain. At

this point, he was transferred to a larger hospital. Blood culture performed at that hospital grew the bacteria that causes melioidosis, as did fluid from the knee. He was given appropriate intravenous antibiotics; despite this, he ultimately needed to be placed on a ventilator. He also experienced hypotension and acute renal failure. He eventually responded to treatment and was discharged from the hospital to a rehabilitation facility seven weeks after his initial hospital admission. He remained in rehabilitation for over a month and continued to experience weakness and fatigue six months after his initial hospitalization.

The case is interesting in several aspects. First of all, it shows the difficulty in diagnosis that can occur for a rare, emerging infection such as melioidosis, a disease for which most physicians are unfamiliar. In addition, it shows how this disease can progress to become quite severe, even after starting appropriate antibiotic treatment; this patient came very close to dying in the course of his disease. It also demonstrates the long course of disease that is seen even with correct treatment.

The thing that was most unusual about this case, however, was the fact that this individual had never traveled outside of the southwestern United States, and only once outside of Arizona. Therefore, he had no readily identifiable exposure risk.

[Karen Hunter] Tell us how this case was investigated.

[David Blaney] The case was investigated by epidemiologists. We are the people who investigate cases or outbreaks of disease. We try to determine how the individual or group of individuals became exposed to the disease. Generally, this helps to tell us what measures may be taken to prevent further transmission of the disease. We also try to identify risks to other individuals who may have been exposed to what causes the disease, as well as characterize the risk of transmission from one person to another. In this particular situation, the epidemiologist in Arizona attempted to determine how the patient was exposed and if other people were also at risk of acquiring melioidosis. As the disease is generally not transmitted from person-to-person, that particular aspect was not an important part of the investigation. As I already mentioned, no source for the patient's infection was ever identified.

[Karen Hunter] Are there lessons from this case that will be useful for quicker identification of the disease in the future?

[David Blaney] In general, improved awareness by physicians is what will lead to faster identification of this disease. As people travel more frequently to areas where the disease is commonly seen, the likelihood of seeing imported cases will continue to increase. About a half dozen cases are now reported to the CDC each year. Five years ago, there were two or three cases per year, so that's a significant increase. Interestingly, we've seen a number of cases in the past couple of years that acquired disease outside of areas where the disease is most commonly seen. This includes two who acquired disease in Aruba, one in Costa Rica, and one in Puerto Rico. They were likely identified due to improved laboratory methods, leading to increased identification of disease. As cases have been reported in the scientific literature over the last two

decades, the areas where melioidosis is widespread have expanded outside of Southeast Asia and Northern Australia, most likely due to increased laboratory capacity.

[Karen Hunter] What are the major public health concerns that resulted from this case?

[David Blaney] While melioidosis is rare, we always want to promptly respond when infection may have occurred. One way to do this is to help make physicians more aware of the disease. It's important that they consider melioidosis when a patient becomes ill after having traveled to an area where the disease is commonly seen.

[Karen Hunter] Are there precautions people can take to protect themselves when traveling to or living in Southeast Asia?

[David Blaney] Even though there is no vaccine to protect against melioidosis, there are several things people can do to help prevent getting sick. These apply to anybody traveling in Southeast Asia or in other areas where the disease is commonly seen. Be sure to thoroughly clean any cuts, abrasions, or burns that come into contact with soil or surface water with soap and water. Those who have underlying conditions, such as diabetes, should avoid soil or standing water, when possible. The same goes for those with traumatic wounds, such as cuts or abrasions. If you become ill when you return or shortly thereafter, be sure to see a doctor. That way you'll know whether or not you are sick with melioidosis or perhaps something with similar symptoms.

[Karen Hunter] Thanks, Dr. Blaney. I've been talking with Dr. David Blaney about a paper that appears in the July 2011 issue of CDC's journal, Emerging Infectious Diseases. You can see the entire article online at www.cdc.gov/eid.

If you'd like to comment on this podcast, send an email to eideditor@cdc.gov. That's e-i-d-editor - one word - at c-d-c-dot-gov. I'm Karen Hunter, for Emerging Infectious Diseases.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO.