

# *Elizabethkingia anophelis* Outbreak in Wisconsin: A Mystery for CDC Disease Detectives

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What causes a bacterium that is ubiquitous in soil, rivers, water reservoirs and the guts of mosquitoes to suddenly cause an outbreak of human infection? The bacterium is *Elizabethkingia anophelis*<sup>1</sup>, and the outbreak is affecting at least 12 Wisconsin counties. The common source of the outbreak remains a mystery at this time. According to the [World Health Organization](#), the current US outbreak (it also includes one case each in Illinois and Michigan) is the largest of *Elizabethkingia anophelis* on record.



## *A Very Rare Infection*

Although it is common in the environment, *Elizabethkingia anophelis* only rarely makes people sick, according to the [US Centers for Disease Control and Prevention \(CDC\)](#). In fact, most states typically report no more than five to ten *Elizabethkingia anophelis* infections per year. Currently, the [Wisconsin Department of Health Services website](#) notes 59 confirmed and four possible cases of infection, including 19 deaths. Symptoms of infection include fever, shortness of breath, chills or cellulitis (a potentially serious bacterial skin infection).

*Elizabethkingia anophelis* is known as an opportunistic bacterium, which means it normally does not cause disease, but can do so under the right circumstances, such as when a human host's immune system is compromised. Most *Elizabethkingia anophelis* infections occur in people over the age of 65 and are associated with healthcare environments. A few cases of infection with the bacterium in newborns were associated with meningitis. *Elizabethkingia anophelis* usually infects the bloodstream of adults but has also been isolated from respiratory systems or joints.

Though not considered a "superbug," the bacterium is resistant to many antibiotics. According to the Wisconsin Department of Health Services, it has "identified effective antibiotic treatment for *Elizabethkingia*, and has alerted health care providers, infection preventionists and laboratories statewide."

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<sup>1</sup>*Elizabethkingia anophelis* was named after its CDC bacteriologist discoverer, Elizabeth O. King.

Because victims usually have severe underlying health conditions, it may be unclear whether the bacterium caused death or was a contributing factor in death. To complicate matters, the CDC lab in Atlanta is the only lab that can distinguish *Elizabethkingia anophelis* from the closely related *Elizabethkingia meningoseptica*, another emerging pathogen associated with infections in immunocompromised individuals and meningitis in newborns. Therefore, it is possible that cases of *Elizabethkingia anophelis* are underreported.

### *Addressing the Outbreak*

CDC and Wisconsin Department of Health Services “disease detectives” are working diligently to identify a common source of *Elizabethkingia anophelis* infection. Potential sources include food, water, medications, personal care products and medical equipment. Given the population affected thus far, healthcare facilities, including hospitals, nursing homes and long-term care facilities are likely venues for investigation. Meanwhile, according to the [Wisconsin Department of Health Services website](#), guidance from health officials is promoting more rapid identification of cases, timely treatment and improved outcomes for patients.

While not a concern for most healthy people, the current outbreak of *Elizabethkingia anophelis* infection is an excellent example of an unfolding disease investigation that includes the essential elements of disease monitoring, reporting and communicating.

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