Legionnaires' disease outbreak linked to hospital's decorative fountain

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A 2010 outbreak of Legionnaires' disease in Wisconsin has been linked to a decorative fountain in a hospital lobby, according to a study published in the February issue of *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

When the outbreak of Legionnaires' disease was detected among eight people in southeast Wisconsin, state and local public health officials worked closely with hospital staff to launch an investigation to determine the source of the outbreak. Legionnaires' disease is a severe and potentially life-threatening form of pneumonia caused by the bacteria Legionella and is spread through inhalation contact with contaminated water sources.

Through detailed interviews with patients, officials identified one hospital as the site of the contamination. Subsequent environmental testing within the hospital detected notable amounts of Legionella in samples collected from the "water wall" decorative fountain located in the hospital's main lobby.

The investigation revealed that all eight patients had spent time in the main lobby where the fountain is located. This, along with the proximity of each patient's onset of illness and the degree of Legionella contamination in the fountain strongly support the conclusion that the decorative fountain was the source of the outbreak. Hospital officials quickly shut down the fountain when it was first suspected as a source,

and notified staff and approximately 4,000 potentially exposed patients and visitors. Prior to the investigation, the decorative fountain underwent routine cleaning and maintenance.

All eight patients in the Wisconsin outbreak recovered from the disease, and no cases occurred following the shutdown of the fountain.

The outbreak is notable since none of the patients with Legionnaires' disease was an inpatient at the hospital when exposed. And some patients reported only incidental exposure to the fountain, such as delivering a package or visiting the hospital pharmacy.

At the time of the outbreak there was no published information on the effectiveness of fountain disinfection and maintenance procedures to reduce the risks of Legionella contamination.

"Since our investigation, the Wisconsin Division of Public Health has developed interim guidelines advising healthcare facilities with decorative fountains to establish strict maintenance procedures and conduct periodic bacteriologic monitoring for Legionella," said Thomas E. Haupt, MS, an epidemiologist with the Wisconsin Division of Public Health and the study's lead author. "The guidelines stress that until additional data are available that demonstrate effective maintenance procedures for eliminating the risk of Legionella transmission from indoor decorative water fountains in healthcare settings, water fountains of any type should be considered at risk of becoming contaminated with Legionella bacteria."

Since this investigation, many healthcare facilities in Wisconsin shut down or removed decorative fountains in their facilities, while others enhanced their regular testing protocols to reduce the risk of Legionnaires' disease, the researchers report. Healthcare facility construction guidelines published after this outbreak stipulate that,

"fountains and other open decorative water features may represent a reservoir for opportunistic human pathogens; thus they are not recommended for installation within any enclosed spaces in healthcare facilities."

More information: Thomas E. Haupt, Richard T. Heffernan, James J. Kazmierczak, Henry Nehls-Lowe, Bruce Rheineck, Christine Powell, Kathryn K. Leonhardt, Amit S. Chitnis, and Jeffrey P. Davis, "An outbreak of Legionnaires disease associated with a decorative water wall fountain in a hospital." *Infection Control and Hospital Epidemiology* 33:2 (February 2012).

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