

Commercial water purification system may have caused pathogen infection in four hospitalized patients

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A study of four cardiac surgery patients in one hospital found that they

developed *Mycobacterium abscessus* infections, a multidrug-resistant nontuberculous mycobacteria, potentially due to a commercial water purifier. The water purifier had been installed in the hospital to improve water palatability but was inadvertently removing chlorine from the supply lines feeding ice and water machines in the affected area of the hospital. The study is published in *Annals of Internal Medicine*.

Mycobacterium abscessus is a rare but well-described pathogen associated with hospital-acquired infections. Outbreaks have been attributed to contaminated water systems, including hospital plumbing, ice and water machines, humidifiers, medications, and disinfectants. *M. abscessus* can cause bloodstream infections, lung infections, and skin and soft tissue infections, mostly in patients with weak immune systems.

Researchers from Harvard Medical School and Brigham and Women's Hospital recounted a descriptive study of four [cardiac surgery patients](#) at Brigham and Women's Hospital who developed *M. abscessus* infections. Three of the four infected patients died. An investigation of the hospital's [water sources](#) revealed the presence of a genetically identical element in ice and water machines on the infected patients' hospital floor.

The water leading to the ice and water machines in this area of the hospital was passing through a commercial water purifier with charcoal filters and ultraviolet irradiation which the investigators found was depleting chlorine levels. This may have facilitated increased mycobacterial colonization of the ice and water machines. Mycobacteria were likely introduced into the hospital's water system via municipal water, which is often colonized with low levels of mycobacteria.

This study demonstrates the risk of unintended consequences associated with modifying water management systems in hospitals and the potential risk this can pose to patients. It also bespeaks the importance of

augmenting hospitals' water management programs to monitor and prevent mycobacteria in addition to Legionella as well as the potential value of initiatives to minimize vulnerable patients' exposure to tap ice and water during hospital care.

More information: Mycobacterium abscessus Cluster in Cardiac Surgery Patients Potentially Attributable to a Commercial Water Purification System, *Annals of Internal Medicine* (2023). [DOI: 10.7326/M22-3306](https://doi.org/10.7326/M22-3306)

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