

Narcotics diversion results in outbreak of *Serratia marcescens* bacteria

July 6 2017

An illegal diversion of opioids by a hospital nurse tampering with syringes was responsible for a cluster outbreak of *Serratia marcescens*, a gram-negative bacteria, according to research published online today in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America. Five patients admitted to five different hospital wards within University Hospital in Madison, Wisconsin developed identical bacteria strains. Upon investigation, hospital epidemiologists linked the cases with the tampered syringes, the nurse was immediately terminated, and no further *S. marcescens* cases were identified.

"This incident sadly adds to the handful of healthcare-associated bacterial outbreaks related to drug diversion by a healthcare professional," said Nasia Safdar, MD, PhD, senior author and [hospital epidemiologist](#) at the University Hospital in Madison, Wisconsin. "Our experience highlights the importance of active monitoring systems to prevent hospital-related drug diversion, and to consider this potential mechanism of infection when investigating healthcare-associated outbreaks related to [gram-negative bacteria](#)."

Hospital staff first identified four hydromorphone and six morphine syringes in an automated medication dispensing cabinet that had been tampered with. This discovery occurred almost immediately after detection of the *S. marcescens* [outbreak](#), prompting a controlled substance diversion investigation (CSDI) by key hospital staff.

Hospital epidemiologists conducted a review of blood cultures and molecular fingerprinting to identify the origin of the *S. marcescens* outbreak, concluding the possible connection between the cluster of infections and the narcotic diversion. Further analysis suggested four of the five exposed patients had contracted *S. marcescens* during a short-term post-operative stay in the Post-Anesthesia Care Unit, where the [nurse](#) worked. The fifth patient, who was the nurse's father, had been exposed to the bacteria prior to his admittance.

The investigation found that the suspected nurse had accessed the medication cabinets where the tampered medication was stored. Testing of the tampered syringes suggested the nurse had replaced the active medication within the syringes with a saline or other solution, likely causing the *S. marcescens* outbreak. Four of the five patients recovered, while one died from Serratia sepsis infection.

As a result of the outbreak, the hospital team implemented additional diversion detection and security enhancements including tamper-evident packaging and installation of security cameras.

More information: Leah M. Schuppener et al, Serratia marcescens Bacteremia: Nosocomial Cluster Following Narcotic Diversion, *Infection Control & Hospital Epidemiology* (2017). [DOI: 10.1017/ice.2017.137](https://doi.org/10.1017/ice.2017.137)

Provided by Society for Healthcare Epidemiology of America

Citation: Narcotics diversion results in outbreak of serratia marcescens bacteria (2017, July 6) retrieved 27 April 2024 from <https://medicalxpress.com/news/2017-07-narcotics-diversion-results-outbreak-serratia.html>

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