

# Foreign multidrug resistant bacteria contained in Toronto hospital

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As the prevalence of antibiotic-resistant infections continue to rise around the world, a hospital in Canada detected the presence of New Delhi Metallo- $\beta$ -lactamase-1-Producing *Klebsiella pneumoniae* (NDM1-Kp), a multidrug resistant bacteria that is resistant to carbapenems, one of the last lines of antibiotics. The retrospective report, featured in the January issue of *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America, analyzes risk factors and infection control strategies taken to prevent the spread of NDM1-Kp.

NDM1-Kp is common in other parts of the world such as the Indian subcontinent, but rare in North America except for imported cases from patients previously hospitalized in endemic regions.

Between January 2011 and March 2012, seven patients at a tertiary care teaching [hospital](#) in Toronto acquired NDM1-Kp from two index patients. Risk factors for acquisition were a history of prior use of certain antibiotics, and transmission likely occurred through direct contact. Four of the seven were roommates with an affected patient, two were on the same ward, and one was admitted to a room immediately following the discharge of an infected patient. The environmental sources of transmission highlight the importance of maintaining meticulous cleaning, [hand hygiene](#), and disinfection standards in prevention and containment.

"The spread of the NDM1-Kp is an emerging [public health threat](#), as

increased globalization may result in a higher burden of these bacteria in Canada and other countries than previously recognized," said lead researcher Christopher F. Lowe, MD. "Preventing the spread of this organism in hospitals is critical given the lack of effective antibiotics against NDM1-Kp."

When a patient was identified with NDM1-Kp at the hospital, they were placed on contact precautions for the duration of their admission, as recommended by the CDC and [Public Health Agency](#) of Canada. At the Toronto hospital, contacts such as roommates or ward mates were screened 3 times over a 2 week period to see if transmission had occurred. During the screening period, the patients were also placed into contact precautions and private rooms until all three screenings were negative. Unfortunately, staff discovered that several contacts with negative screens subsequently became positive for NDM1-Kp weeks later.

Challenges in fighting the spread of NDM1-Kp include contacts who acquire the bacteria, but may initially have a low concentration of organisms and avoid detection, as well as the lack of an established gold standard to detect carbapenem-resistant organisms, which may have contributed to the negative screens. Although the isolation of NDM1-producing bacteria is currently a rare occurrence in healthcare settings, this cluster indicates the prevalence of these organisms is increasing in nonendemic regions, and prompt initiation of infection prevention and control practices is essential to prevent transmission.

**More information:** Christopher F. Lowe, Julianne V. Kus, Natasha Salt, Sandra Callery, Lisa Louie, Mohammed A. Khan, Mary Vearncombe and Andrew E. Simor." *Infection Control and Hospital Epidemiology* 34:1 (January 2013).

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