

#### 2460. Hospital-Wide Outbreak of *Serratia marcescens* of Unclear Source: When Extensive Infection Control Measures Are Needed

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**Background.** Nosocomial outbreaks of *Serratia marcescens* have been widely reported and the source is identified in most cases. We report a *Serratia marcescens* outbreak in a community hospital with no obvious source.

**Methods.** An epidemiologic investigation was started after an outbreak was suspected. Clinical data were collected from charts of patients with positive culture for *Serratia marcescens*. Molecular relatedness of available isolates was determined by pulsed-field gel electrophoresis.

**Results.** Between December 2016 and August 2017, 13 non-pigmented *Serratia marcescens* isolates were identified from 11 patients. Bacteria were isolated from blood, abdominal and respiratory cultures. Susceptibility profiles showed variable resistance to ceftriaxone, ceftazidime, imipenem, tobramycin and aztreonam. Infection control measures: Isolates were identified from adult patients who underwent various cardiothoracic/vascular surgeries. Patients were traced back to a single floor of the new hospital building. To control this outbreak, the infection prevention team started with hand hygiene initiatives and observations, environmental sampling, and reviewing management of ventilator, dialysis equipment, and ECMO machines. Ice machine carbonless filters were installed, UV disinfection systems were used, and new TEE cleaning rooms were designated. In conjunction with recommendations of department of health, hospital was contracted with a water cleaning company; laminar flow aerators were installed, water sampling plan was implemented and ultimately the whole building's water system was hyper-chlorinated.

**Conclusion.** While water contamination was the most likely source, a specific cause could not be identified. An important lesson learnt is the quick implementation of infection control measures after identifying infected patients is key in controlling an outbreak.

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#### 2461. Community-Acquired in Name Only: A Cluster of Carbapenem-Resistant *Acinetobacter baumannii* in a Burn Intensive Care Unit

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**Background.** Detection of nosocomial outbreaks often relies on epidemiological definitions of community and nosocomial acquisition. We report a cluster of three carbapenem-resistant *Acinetobacter baumannii* (CRAB) infections linked to a single source patient with infections occurring within 2 days of admission to a burn intensive care unit (ICU). The epidemiological investigation was supplemented by whole-genome sequencing (WGS) of clinical and environmental isolates.

**Methods.** Study participants included burn ICU patients identified with infections caused by CRAB. A detailed review of patient demographic and clinical data was conducted. Clinical *A. baumannii* isolates were assessed by antimicrobial susceptibility testing and WGS. Review of infection control practices on the affected unit was followed by environmental sampling. *A. baumannii* isolates obtained through environmental sampling were assessed for carbapenem resistance and then underwent WGS for comparison to the clinical isolates.

**Results.** Three cases of CRAB infection in the affected unit spanning a period of 3 months were linked to a preceding source patient, with CRAB isolates from the four patients differing by 5–7 single nucleotide variations. All case patients had been admitted to the same room within 2 days before development of CRAB infection. Environmental sampling performed while the third case patient occupied the room identified highly contaminated areas, and environmental CRAB isolates linked the patient isolates. The contaminated areas were subsequently re-sampled after enhanced terminal cleaning of the room. No additional CRAB was isolated, but other pathogenic organisms were recovered.

**Conclusion.** We report a cluster of three infections caused by highly resistant *A. baumannii* that occurred in a burn intensive care unit over a period of 3 months, linked to a single source patient. Three case patients developed infections classified as community-acquired using standard epidemiological definitions, however, whole-genome sequencing revealed clonality. An extensive investigation identified the role of environmental reservoirs. Burn patients may be particularly vulnerable to early-onset nosocomial infection from environmental contamination.

Figure. Sites of CRAB contamination identified during pre-terminal clean sampling.



**Figure legend.** Contaminated sites included head of bed frame, top of mattress, right and left sides of mattress, mattress sleeve (where radiology films are inserted), bed side rails, bed push handles, EKG leads on the patient, and the overhead bed patient lift. Not shown is the sink bowl and drain from which CRAB was also isolated.

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#### 2462. Public Health Response to Contain the First Outbreak of New Delhi Metallo- $\beta$ -Lactamase-Producing *Klebsiella pneumoniae* in Minnesota

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**Background.** Carbapenem-resistant Enterobacteriaceae (CRE) producing the New Delhi-metallo- $\beta$ -lactamase (NDM) carbapenemase are uncommon in the United States but are a serious threat for untreatable antibiotic-resistant infections. In Minnesota (MN), NDM-CRE is typically associated with receipt of healthcare abroad. We describe the public health response to contain the first outbreak of NDM-CRE in MN.

**Methods.** CRE is reportable, with isolate submission to the MN Department of Health (MDH) for MALDI-TOF identification, phenotypic carbapenemase production testing, and PCR for carbapenemase genes. On December 24, 2018, MDH identified a case of NDM-*K. pneumoniae* in a long-term care facility (LTCF) without travel. MDH initiated an investigation. We defined a case as having NDM-*K. pneumoniae* matching the outbreak PFGE pattern from a clinical or surveillance culture. Cases were identified through surveillance, point prevalence survey (PPS) rectal swab colonization testing, and PFGE at MDH. MDH collected a healthcare exposure history for all cases. A containment response occurred in any facility where a case received healthcare in the 30 days prior.

**Results.** Nine cases of clonal NDM-*K. pneumoniae* with specimen collection dates between December 24, 2018 and March 26, 2019 were identified; 8 were residents of LTCF A and 1 was a roommate in LTCF B of a former LTCF A resident. PPS testing of 260 healthcare contacts occurred in 6 facilities, including LTCF A, LTCF B, and 4 acute care hospitals (ACH) that accepted LTCF A transfers; 7/9 cases were identified through PPS and 2/9 cases were identified through CRE surveillance. One case from LTCF A was identified in an ACH, but PPS did not identify transmission in ACHs. MDH conducted on-site infection control assessments in 2 LTCFs, identified numerous infection control (IC) lapses at LTCF A, and provided telephone IC consultation to 4 ACHs.

**Conclusion.** Surveillance and PPS uncovered an outbreak of NDM CRE in 2 LTCFs. Patient transfers led to a regional public health response lasting several months that included IC consultation and additional PPS. Intervention to coordinate containment responses among interconnected healthcare facilities is critical to containing the spread of novel resistance mechanisms in the United States.

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#### 2463. Increased Rates of *Candida* Bloodstream Infections Associated with Drug Use, United States 2012–2017

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