

**Background:** A prolonged outbreak of carbapenemase-producing *Serratia marcescens* (CPSM) was identified in our quaternary healthcare center over a 2-year period from 2015 through 2017. A reservoir of IMP-4-producing *S. marcescens* in sink drains of clinical hand basins (CHB) was implicated in propagating transmission, supported by evidence from whole-genome sequencing (WGS). We assessed the impact of manual bioburden reduction intervention on further transmission of CPSM. **Methods:** Environmental sampling of frequently touched wet and dry areas around CPSM clinical cases was undertaken to identify potential reservoirs and transmission pathways. After identifying CHB as a source of CPSM, a widespread annual CHB cleaning intervention involving manual scrubbing of sink drains and the proximal pipes was implemented. Pre- and postintervention point prevalence surveys (PPS) of CHB drains performed to assess for CPSM colonization. Surveillance for subsequent transmission was conducted through weekly screening of patients and annual screening of CHB in transmission areas, and 6-monthly whole-hospital PPS of patients. All CPSM isolates were assessed by WGS. **Results:** In total, 6 patients were newly identified with CPSM from 2015 to 2017 (4.3 transmission events per 100,000 surveillance bed days [SBD]; 95% CI, 1.6–9.4). All clinical CPSM isolates were linked to CHB isolates by WGS. The CHB cleaning intervention resulted in a reduction in CHB colonization with CPSM in transmission areas from 72% colonization to 28% (ARR, 0.44; 95% CI, 0.25–0.63). A single further clinical case of CPSM linked to the CHB isolates was detected over 2 years of surveillance from 2017 to 2019 following the implementation of the annual CHB cleaning program (0.7 transmissions per 100,000 SBD; 95% CI, 0.0–3.9). No transmissions were linked to undertaking the cleaning intervention. **Conclusions:** A simple intervention targeted at reducing the biological burden of CPSM in CHB drains at regular intervals was effective in preventing transmission of carbapenemase-producing Enterobacterales from the hospital environment to patients over a prolonged period of intensive surveillance. These findings highlight the importance of detailed cleaning for controlling the spread of multidrug-resistant organisms from healthcare environments.

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Poster Presentation

#### **A Single Case Outbreak of Nipah Encephalitis From India in May–June 2019**

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**Background:** Nipah encephalitis outbreaks mostly involve multiple patients. We report a case of Nipah virus encephalitis (NVE), which had no documented secondary cases in spite of many having prolonged and close contact with the patient. **Methods:** A 21-year-old male was admitted with NVE on May 30, 2019. Before the confirmatory report, there was close contact with multiple healthcare workers (HCWs), defined as exposure for >1 hour to the patient or his immediate environment and/or exposure to body fluids. We conducted extensive contact tracing of all HCWs who had come into close contact with the proven NVE case from the time of admission to the time of discharge. This contact tracing included those who had nursed him before the diagnosis with usual standard precautions and those who had nursed him after the diagnosis with full PPE. These HCWs were reviewed daily for fever and respiratory symptoms. All those who developed these symptoms within the 3

weeks of exposure where tested for NEV with a throat swab using RT-PCR. This testing was conducted twice over 3 days to confirm negative results. For the close family contacts that were asymptomatic, both throat swab and serum for Nipah IgM were tested. **Results:** In total, 169 HCW contacts were identified at our hospital. Of these, 94 were at high risk according the predetermined criteria and others were low-risk contacts. Moreover, 7 HCWs developed fever and respiratory symptoms within the defined surveillance period; 5 had symptoms before the diagnosis (using only standard precautions) and 2 were in contact with full PPE after the diagnosis. All of these symptomatic contacts were tested for NEV (throat swab and serology), and all were negative. The family members of the patient (his mother and aunt) who had cared for him throughout his illness period of 12 days before the diagnosis were also tested and were seronegative for NEV. **Conclusions:** This NEV case had very low transmission capability; even close family members who cared for him for 12 days without any precautions and had exposure to urine (which was positive for NEV) did not contract the disease. The absence of overt respiratory involvement and young age of the affected patient could have contributed to low transmissibility both prior to hospitalization and during the hospitalization.

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#### **A 6-Year Review of Carbapenemase-Producing Organisms in Alberta, Canada**

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**Background:** This review describes the epidemiology of carbapenemase-producing organisms (CPO) in both the community and hospitalized populations in the province of Alberta. **Methods:** Newly identified CPO-positive individuals from April 1, 2013, to March 31, 2018, were retrospectively reviewed from 3 data sources, which shared a common provincial CPO case definition: (1) positive CPO results from the Provincial Laboratory for Public Health, which provides all referral and confirmatory CPO testing, (2) CPO cases reported to Alberta Health, and (3) CPO surveillance from Alberta Health Services Infection Prevention and Control (IPC). The 3 data sources were collated, and initial CPO cases were classified according to their likely location of acquisition: hospital-acquired, hospital-identified, on admission, and community-identified. Risk factors and adverse outcomes were obtained from linkage to administrative data. **Results:** In total, 171 unique individuals were newly identified with a first-time CPO case. Also, 15% (25 of 171) were hospital-acquired (HA), 21% (36 of 171) were hospital-identified (HI), 33% (57 of 171) were on