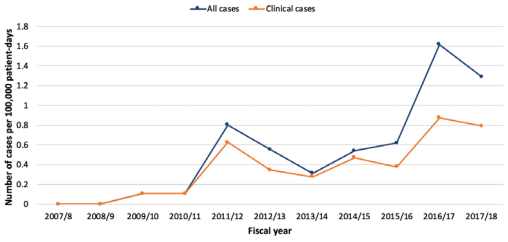
test (10/36 (28%) were on admission). The median incidence of HA CPE per 100,000 patient-days at each hospital was 0.44 (IQR 0.15–0.68) ($P < 0.0001$).

***Conclusion.*** A quarter of CPE cases in southern Ontario were HA and the incidence of HA cases is increasing. Most cases were admitted to >1 Ontario hospital. Strategies to control transmission are critical.

**Figure**. Incidence of nosocomial CPE (all and clinical cases) in southern Ontario hospitals.




***Disclosures.*** **All authors:** No reported disclosures.

**513. Transmission of Carbapenem-Resistant Enterobacteriaceae in a Community-Based, Residential Care Setting: Nevada, 2018**

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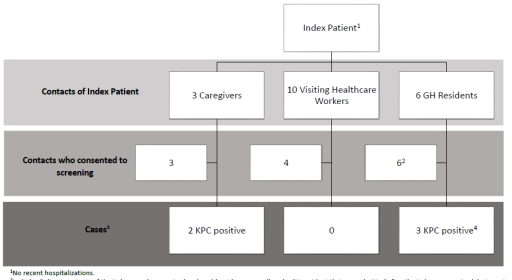
***Background.*** *Klebsiella pneumoniae* carbapenemase-producing organisms (KPCOs) are often multidrug-resistant, and the KPC resistance determinant can be transmitted between bacteria. KPCOs are associated with healthcare facility exposures; identification in community-based, residential care settings is uncommon. In September 2018, the Washoe County Health District was notified of a KPC-producing *Escherichia coli* from a group home (GH) resident. We investigated the source of this KPCO and evaluated transmission in the GH.

***Methods.*** A case was defined as detection of KPCO from a GH resident or staff from June 1 to November 30, 2018. Staff included caregivers who provided daily care (including toileting, bathing, feeding) and visiting healthcare workers. Residents and staff were offered KPCO screening to assess colonization status. Exposures were assessed by medical record review and interviews. Genetic relatedness of KPCOs was evaluated by whole-genome sequencing (WGS). Infection prevention and control (IPC) practices were reviewed.

***Results.*** Overall, six cases were identified, including the index, two of seven staff screened and three of six residents screened. Three residents with KPCOs had recent hospitalizations and shared a bathroom in the GH; one overlapped on the same hospital unit as a patient with KPC-producing *Klebsiella oxytoca*. Staff with KPCOs were caregivers who had extensive contact with residents and their environment and no IPC training. Gaps in hand hygiene and environmental cleaning were observed. Organism was recovered from 4 positive screening tests as well as from blood cultures from the index case; all were KPC-producing *E. coli*. WGS showed that the five *E. coli* isolates were closely related, consistent with transmission, and harbored the same KPC variant as the *K. oxytoca*. No new cases occurred after IPC was improved.

***Conclusion.*** A GH resident likely acquired KPCOs during a recent hospitalization, and extensive transmission among GH residents and staff occurred. Factors contributing to transmission included resident dependence on caregivers for daily care and minimal IPC knowledge among caregivers. Facilities with similar populations should increase IPC training to prevent transmission of resistant pathogens.

**FIGURE: Screening Assessments of Contacts and KPC Case Finding**




[1]No recent hospitalizations.
[2]Includes 5 direct contacts of the index case (one expired and could not be screened) and a GH resident that was admitted after the index case expired, but was in contact with other GH residents and caregivers with KPC-producing *E.coli*.
[3]Overall, 6 cases identified (including index case).
[4]All had recent hospitalization in previous 3 months; one overlapped on the same hospital unit as a patient with KPC-producing *Klebsiella oxytoca*.

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**514. Shedding of Multidrug-Resistant Gram-Negative Bacilli by Colonized Patients during Procedures and Patient Care Activities**

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***Background.*** Contaminated environmental surfaces contribute to transmission of healthcare-associated pathogens such as multidrug-resistant gram-negative bacilli. We hypothesized that medical procedures and patient care activities facilitate environmental dissemination of multidrug-resistant gram-negative bacilli in hospitalized patients.

***Methods.*** We conducted a cohort study of hospitalized patients in contact precautions for carriage of extended-spectrum β-lactamase (ESBL)-producing or carbapenem-resistant gram-negative bacilli (CR-GNB) to determine the frequency of environmental shedding during procedures and care activities. Perirectal, wound, and skin were cultured for the gram-negative bacilli of interest. Prior to each procedure or activity, surfaces in the room and portable equipment used for procedures were disinfected. After procedures, high-touch surfaces and portable equipment were cultured; negative control cultures were collected after 1 hour in the absence of a procedure.

***Results.*** Of 60 participants, 38 (63%) were in contact precautions for ESBL-producing gram-negative bacilli and 22 (37%) for CR-GNB. Thirty-four (57%) participants had positive perirectal, wound, or skin cultures. Contamination of surfaces with the colonizing multidrug-resistant gram-negative bacilli occurred frequently during procedures and activities such as wound care, assistance with meals, and urinary catheter or colostomy care (11% to 29% of procedures/activities), whereas contamination was rare in the absence of a procedure (1%). Contamination was recovered from 6 of 56 (10%) portable devices used for procedures.

***Conclusion.*** Environmental shedding of multidrug-resistant gram-negative bacilli occurs frequently during medical and non-medical procedures in hospitalized patients. Our results suggest that there is a need for effective strategies to disinfect surfaces and equipment after procedures.

***Disclosures.*** **All authors:** No reported disclosures.

**515. Acquisition of Antibiotic-Resistant Gram-Negative Bacteria in the Benefits of Universal Glove and Gown (BUGG) Cluster Randomized Trial**

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***Background.*** The Benefits of Universal Gloves and Gowns (BUGG) randomized trial found a decrease in MRSA acquisition, no effect on VRE acquisition and no increase in adverse events with the intervention of wearing gloves and gowns for all patient contact in the intensive care unit (ICU). The objective of the study was to assess whether wearing gloves and gowns for all patient contact in the ICU decreases the acquisition of antibiotic-resistant Gram-negative bacteria.

***Methods.*** *Design*: Secondary study of the BUGG cluster-randomized trial.
*Participants****: 20 medical and surgical ICUs in 20 US hospitals.***
*Intervention****: Healthcare workers were required to wear gloves and gowns when entering any patient room compared with standard care.*** *Main outcomes and measures*: The primary composite outcome was acquisition of any antibiotic-resistant Gram-negative bacteria based on surveillance cultures collected on admission and discharge. Secondary outcomes were acquisition of carbapenem-resistant *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Enterobacteriaceae*, or ESBL-producing *Enterobacteriaceae*.

***Results.*** For the primary outcome, the intervention had a RR of 0.90 (95% CI 0.71 to 1.12, $P = 0.34$). Effects on the secondary outcomes were: carbapenem-resistant *Enterobacteriaceae* [RR 0.86 (95% CI, 0.60 to 1.24), $P = 0.43$], carbapenem-resistant *Acinetobacter* [RR 0.81 (95% CI, 0.52 to 1.27) $P = 0.36$], carbapenem-resistant *Pseudomonas* [RR 0.88 (95% CI, 0.55 to 1.42) $P = 0.62$], ESBL producing bacteria [RR 0.94, (95% CI, 0.71 to 1.24) $P = 0.67$].

***Conclusion.*** The association of universal glove and gown use in the ICU with acquisition of antibiotic-resistant Gram-negative bacteria was inconclusive. The observed rate ratios for all five outcomes suggest that the intervention was protective, however, none were statistically significant. The study was likely underpowered to detect statistical significance for the effect sizes found. Individual hospitals should consider implementing the intervention based on the importance of these organisms at their hospital, effect sizes, confidence intervals, and cost.