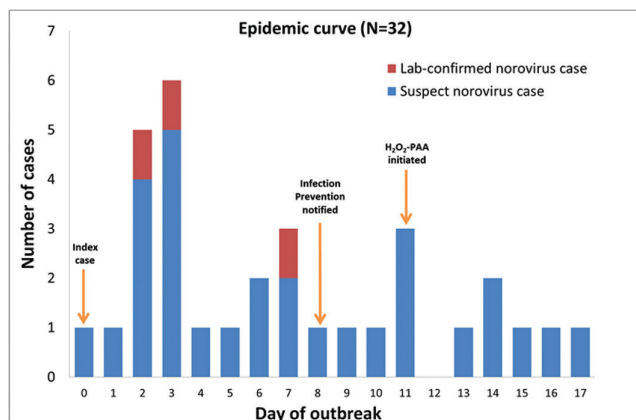


**Methods.** A retrospective cohort study of PICU healthcare workers (HCW) was conducted to determine the source of the norovirus outbreak and potential modes of transmission. A case was identified as a PICU HCW without prior community exposure to norovirus-like illness who, following admission of the suspect patient index case, either (1) was lab-confirmed for Norovirus G.II or (2) had acute onset of vomiting or diarrhea. During the outbreak, control measures included the use of H<sub>2</sub>O<sub>2</sub>-PAA disinfectant, restriction of ill HCWs from work, elimination of shared food, and screening of staff and visitors for gastroenteritis symptoms prior to unit entry. Notification of PICU staff regarding the ongoing outbreak occurred via work email. Prospective surveillance was conducted for 4 weeks afterwards to detect recrudescence.

**Results.** Within a 17-day period, 32 PICU HCW developed gastroenteritis. The epidemic curve suggested a point-source outbreak and continuous person-to-person transmission. Email notification without receipt verification failed to exclude symptomatic HCW from work. Following implementation of control measures, the outbreak resolved in 6 days, with no transmission to patients.

**Conclusion.** Patient-to-HCW transmission of norovirus led to an outbreak among PICU HCWs. Elimination of shared food in patient care areas, early reporting of HCW illnesses with work exclusion, and standard use of virucidal disinfectant may limit the spread of norovirus in acute care settings. Lessons learned include the need for closed-loop communication in HCW notification of possible exposure, and for anonymous HCW syndromic surveillance. This is the first report of H<sub>2</sub>O<sub>2</sub>-PAA disinfectant used in control of a hospital-associated norovirus outbreak, which limited the outbreak's scope, duration, and transmission.



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

**453. The Comparison of Risk Factors of CRE Colonization Between Hospitals**  
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**Session:** 56. HAI: Outbreaks  
**Thursday, October 5, 2017: 12:30 PM**

**Background.** Carbapenem-resistant Enterobacteriaceae (CRE) represents an increasing public health threat. Asymptomatic carriers among patients are important because they may serve as a potential reservoir for transmission. Our team was aware of the factors associated with CRE carriers, but we were not sure if these factors were identical between hospitals.

**Methods.** We carried out a regional surveillance of CRE colonization in 46 hospitals in December 2015 and January 2016. Among 1,507 convalescent patients, 184 (12.2%) carried CRE. We chose three hospitals (Hospital A, B, and C) where the CRE carrier was highly prevalent, and risk factors were analyzed, respectively, using shrinkage and logistic regression and compared them between those hospitals.

**Results.** Overall, longer hospital stays (odds ratio [OR] = 2.59; 95% confidence interval [CI] = 1.87–3.60), enteral feeding (OR = 3.03; CI = 2.08–4.42), and antibiotic exposure (OR = 2.00; CI = 1.40–2.87) were associated with CRE carriage. Meanwhile the factors significantly associated with CRE carriage differed between hospitals; enteral feeding (OR = 4.68; CI = 1.87–11.7) and urinary catheterization (OR = 2.37; CI = 1.22–4.59) in Hospital A, longer hospital stays (OR = 3.01; CI = 1.20–7.53) in hospital B, and no factors in Hospital C.

**Conclusion.** The results obtained from overall analysis were consistent with previous reports. However, the factors recognized in each hospital was not identical. It will be important to analyze risk factors individually and take proper measures that are suitable for each hospital.

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

**454. Carbapenemase-Producing Carbapenem-Resistant Enterobacteriaceae Among Patients Without Usual Risk Factors—Kentucky, 2016**  
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**Session:** 56. HAI: Outbreaks  
**Thursday, October 5, 2017: 12:30 PM**

**Background.** On August 11, 2016, Hospital A notified Kentucky Department for Public Health of 2 carbapenemase-producing (CP) carbapenem-resistant Enterobacteriaceae (CRE) identified from clinical cultures from patients without CRE risk factors, including limited prior health care exposure and short hospitalizations. This hospital had no previously reported CRE infections. We investigated to identify and provide recommendations on patient exposures, additional cases, and environmental reservoirs.

**Methods.** A case was defined as any CRE culture collected at Hospital A January 1–December 12, 2016. Case finding was conducted by using laboratory records and screening cultures of patients. Patient exposures were identified through medical chart abstraction, patient interviews, and environmental sampling.

**Results.** In addition to 2 initial cases, 21 additional cases were identified. Three Enterobacteriaceae genera (*Klebsiella pneumoniae* [17], *Escherichia coli* [5], and *Enterobacter cloacae* [1]) and 2 carbapenemases were identified. Sixteen of 21 admitted patients (76%) were CRE positive <7 days after admission; 11 (69%) were pulsed-field gel electrophoresis matched to another CRE, had prior negative screening culture, or no health care exposure during the past year. Thirteen patients were interviewed; 5 (38%) had traveled regionally outside Kentucky or to large Kentucky cities for health care. Environmental sampling identified evidence of carbapenemase on an environmental services (EVS) cart and in an EVS drain.

**Conclusion.** The CP-CRE outbreak was likely attributable to both importation and rapid in-facility transmission. Carbapenemase presence on EVS equipment indicates a role in health care CRE transmission. Additionally, regional travel for health care was identified as a potential CRE exposure in low-prevalence areas. Recommendations included routine disinfection of EVS equipment and addition of regional travel for health care to the facility's patients at high-risk surveillance questionnaire.

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

**455. Detection of NDM-7-Producing *Escherichia coli* by Surveillance Culture of Healthcare Workers in an Outbreak Setting**

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**Session:** 56. HAI: Outbreaks  
**Thursday, October 5, 2017: 12:30 PM**

**Background.** In outbreak settings of carbapenemase-producing Enterobacteriaceae (CPE), screening of CPE-contacts is useful for identifying unrecognized CPE colonizers and transmission links. Although intestinal carriage of healthcare workers (HCWs) can promote transmission of CPE, data of healthcare worker (HCW) screening for CPE in outbreak settings are lacking. In September 2016, *Escherichia coli* with NDM-7 was isolated from two patients at a tertiary hospital in Korea. This outbreak was investigated.

**Methods.** Carbapenem resistance was examined by disk diffusion and carbapenemase activity was screened by modified Hodge test (MHT). A real-time PCR assay was performed to detect five carbapenemase genes (NDM, KPC, VIM, IMP, OXA). Molecular subtyping of *bla*<sub>NDM</sub> was performed by conventional PCR and direct sequencing. The genetic backgrounds of *E. coli* isolates were determined by multilocus sequence typing (MLST). Epidemiological investigations of CPE contacts including HCWs were done. Surveillance cultures of rectal swabs were performed by CDC methods.

**Results.** Patient 1 was admitted to an intensive care unit (ICU) due to soft-tissue infection of legs. At admission, no organisms were isolated from the legs. The status of wound worsened and carbapenem-resistant *E. coli* was isolated. The isolate was MHT-positive and typed as NDM-7. Patient 2 was admitted to the same ICU due to respiratory failure, and carbapenem-resistant *E. coli* with NDM-7 was isolated from urine culture. Upon recognition of the outbreak, surveillance cultures of rectal swabs on 141 patient contacts including 114 HCWs were done. NDM-positive *E. coli* was isolated from one HCW. All three *E. coli* isolates belonged to ST167 by MLST. Three follow-up cultures of the HCW were negative. The surveillance cultures of four family members of the HCW were all negative.

**Conclusion.** Epidemiologic investigation, combined with molecular methods, revealed the outbreak of NDM-7 *E. coli*. HCWs with epidemiologic links could be colonized by CPE, therefore, HCW screening might be needed in outbreak setting.

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

**456. Endoscopic Retrograde Cholangiopancreatography Associated with Ceftriaxone-Resistant *Escherichia coli* Bloodstream Infections: Looking for Hay in a Haystack**

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