

Study IDs significant infection control gaps at small rural hospitals

Critical access hospitals struggle with infection prevention and control, especially when it comes to injection safety and preventing certain infections, according to recently presented findings.

“Lack of competency-based training programs and failure to perform audits and feedback appear to be recurrent themes in several domains,” **Margaret Drake, MT(ASCP), CIC**, health care-associated infection preventionist in the Nebraska Department of Health and Human Services, said in a news release.

According to Drake and colleagues, not much is known about infection control and prevention in critical access hospitals (CAHs), rural facilities with no more than 25 beds that are located at least 35 miles from other hospitals.

Using the CDC’s Infection Prevention and Control Assessment Tool, Drake and colleagues performed on-site assessments of 36 CAHs in Nebraska. To identify gaps, they compiled 80 core questions representing best practice recommendations in 11 infection control domains. They looked at factors including median number of beds, presence of infection control-trained infection preventionist, and

how much time was spent on infection control activities.

The biggest gaps were seen in injection safety, central line-associated bloodstream infection prevention and catheter-associated urinary tract infection prevention, Drake and colleagues reported. However, they noted that there were important gaps in all infection control domains. After dividing CAHs based on gaps, they observed that top-performing CAHs implemented a median of 54 best practice recommendations compared with CAHs in the bottom quartile, which implemented a median of 29. Although the differences were not statistically significant, top-performing CAHs had a higher median number of beds (21 vs. 16), a higher median amount of time spent on infection control activities per 25 beds and a higher probability of having a trained infection preventionist (100% vs. 88.8%) compared with bottom quartile CAHs.

They observed significant differences when gaps were individually analyzed. CAHs with a competency-based training program for the reprocessing of semi-critical equipment were more likely (96% vs. 69%; $P < .05$) to have a trained infection

preventionist than CAHs without the program. These CAHs also had a higher median number of beds (23 vs. 16). CAHs where the needs of patients with central venous catheters were assessed daily reported a higher median for full-time equivalent infection preventionist time per 25 beds (0.8 vs. 0.4, $P < .05$).

Drake and colleagues concluded that infection control practices at CAHs need improvement. They suggested that gaps in infection control and prevention can be reduced if infection preventionists are allotted more time for infection control activities. Education and training are important to rectifying these gaps, Drake noted.

“Small hospitals generally have few patients with urinary catheters or central lines due to a low patient volume and they are not prioritizing competency for these devices,” Drake told *Infectious Disease News*. “[Infection control practices are] important to practice so when there is a need, they are competent.” – *by Marley Ghizzone* ■

Reference:

Drake M, et al. Abstract 1503. Presented at: APIC 2018; June 13-15, 2018; Minneapolis.

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Resistance genes shared among unrelated bacteria in CRE outbreak

Researchers found that antimicrobial resistance genes were shared among unrelated bacteria during an outbreak of carbapenem-resistant Enterobacteriaceae in a Kentucky hospital.

“Clinicians should be aware that infections due to rare resistance genes in unrelated bacteria may indicate a single antimicrobial resistance plasmid-mediated outbreak,” **Richard Stanton, PhD**, health scientist in the CDC’s Division of Healthcare Quality Promotion, told *Infectious Disease News*. “Rapid identification of antibiotic-resistant threats is critical for aggressive response and control through colonization screening and implementation of appropriate infection control measures, such as contact precautions.”

Stanton and colleagues investigated an outbreak of CRE that occurred during a 6-month period in 2016 and 2017 at an acute care hospital in Kentucky. They sequenced 18 clinical isolates — 16 *Klebsiella pneumoniae* and two *Escherichia coli* isolates — and determined that the infections were caused by bacteria carrying one of two different antimicrobial resistance plasmids with different carbapenemases that were circulating among unrelated bacteria.

“These findings show that horizontal transfer of antimicrobial resistance genes can occur between otherwise unrelated strains and species of CRE,” he said.

Stanton and colleagues noted that CRE is responsible for more than 9,000 health care-associated infections and 600 deaths per year.

“Although a reservoir was not identified, this investigation highlights that environmental cleaning is a critical component in infection control efforts, as plasmid exchange can occur in areas of dense bacterial growth, such as in biofilms,” Stanton said.

He said the findings have impacted how health care-associated outbreaks are investigated.

“With the development of long-read next generation sequencing technology, we now have the ability to detect plasmid-mediated outbreaks spanning multiple bacterial species. Traditional laboratory methods would not identify these outbreaks,” Stanton said. “Due to these advances and our outbreak response experiences, we now recognize two types of health care-associated outbreaks: those due to a single pathogen and those due to mobile antimicrobial resistance plasmids spreading antibiotic resistance across pathogens.” – *by Bruce Thiel* ■

See references online at Healio.com/ID.

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Asymptomatic *C. difficile* carriers significant source of nosocomial transmission

Approximately 19% of health care-related *Clostridium difficile* cases at a Veterans Affairs hospital and affiliated long-term care facility, or LTCF, were linked to residents with LTCF-associated *C. difficile* infection or asymptomatic *C. difficile* carriage, according to study findings. Most came from asymptomatic carriers, underscoring their important role in transmission, researchers said.

The findings build on previous research conducted by **Curtis J. Donskey, MD**, professor of medicine at Case Western Reserve University and an infectious disease physician at the Louis Stokes Cleveland VA Medical Center, and colleagues, which showed that LTCF residents often harbor *C. difficile*.

“In previous studies, we demonstrated that asymptomatic carriage of toxigenic *C. difficile* is common in the LTCF affiliated with the Cleveland VA hospital,” Donskey and colleagues wrote in *Infection Control & Hospital Epidemiology*. “Carriers with high burden of *C. difficile* in stool were more likely to have skin and/or environmen-

tal shedding, suggesting that this subset of carriers might pose a relatively high risk for transmission.”

For the current study, Donskey and colleagues tested their hypothesis that LTCF residents with *C. difficile* infection (CDI) or asymptomatic carriage of toxigenic strains contribute substantially to transmission in the LTCF and hospital during acute-care admissions. They assessed transmission events over a 6-month period by tracking patient movement and analyzing *C. difficile* isolates.

During the study, Donskey and colleagues identified 29 LTCF residents as asymptomatic carriers. Among them, 37.9% were transferred to the hospital at least once.

Overall, 37 health care-associated CDI cases were reported, including 26 that were acquired in the hospital and 11 that were acquired in the LTCF. Seven CDI cases, or 18.9%, were linked to LTCF residents with LTCF-associated CDI or asymptomatic carriage, including three hospital-acquired cases (11.5%) and four LTCF-acquired

cases (36.4%). Five of the seven transmission events (71.4%) were linked to four asymptomatic carriers compared with two transmission events that were linked to CDI cases.

All four asymptomatic carriers associated with transmission events had a relatively high burden of carriage, as well as groin, skin and/or environmental shedding, “suggesting that such carriers may present the greatest risk for transmission,” Donskey and colleagues wrote.

“These findings have broad implications for control of *C. difficile* because interfacility transfer of CDI patients occurs frequently among LTCFs and hospitals,” they concluded. “Greater emphasis on infection control measures and antimicrobial stewardship in LTCFs is needed, and these efforts should focus on LTCF residents during hospital admissions.” – *by Stephanie Viguers* ■

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