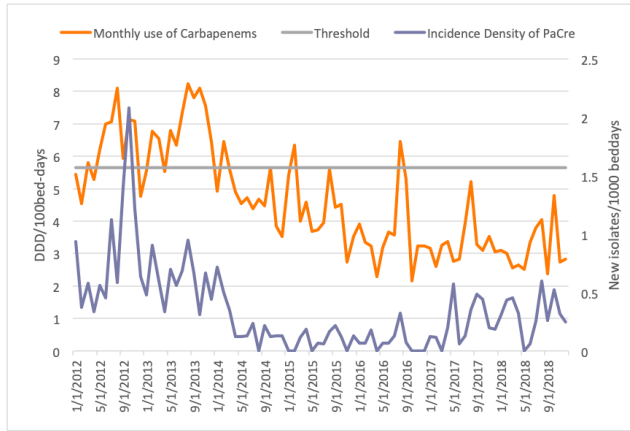


threshold was equivalent to a maximum number of 121 patients to be treated. Below this threshold, i.e. in 2018, CarbUse including 66 patients treated did not select antimicrobial resistance.

Conclusion. PaCRE could be controlled by reducing the use of carbapenems below minimum thresholds of 6.5 DDD/100 bed-days. In order to avoid the onset of resistance to carbapenems in *Pseudomonas aeruginosa*, less than 121 patients per month should receive this class of drug. This finding could provide innovative approach to guide antimicrobial stewardship strategy focused on limit the spread of PaCRE in hospital populations.



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2444. Infection Prevention in Home Healthcare: Results from a National Study of Home Health Agencies

Monika Pogorzelska-Maziarz, PhD, MPH, CIC¹; Jingjing Shang, PhD, RN²; Ashley Chastain, MPH²; Patricia Stone, PhD, FAAN²; ¹Thomas Jefferson University, Philadelphia, Pennsylvania; ²Columbia University School of Nursing, New York, New York,

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Background. As the population of older Americans with chronic conditions continues to grow, the role of home healthcare (HHC) services in improving care transitions between acute care and independent living has become a national priority. This has led to the development of value-based purchasing (VBP) initiatives, changes in the Centers for Medicare and Medicaid Services' Home Health Conditions of Participation, and the Joint Commission's national patient safety goals for HHC. We aimed to describe the infection prevention and control (IPC) infrastructure in US home health agencies (HHA).

Methods. From March to November 2018, we conducted in-depth, phone interviews with 41 staff from 13 HHAs across the United States, including administrators, IPC and quality improvement (QI) personnel, registered nurses and home health aides. In October 2018, we launched a nationwide survey to a random sample of 1,500 HHAs stratified by census region, ownership status and urban/rural location, and achieved a 40% response rate. Transcripts of the qualitative interviews were coded and themes were identified using content analysis. Survey data were analyzed using descriptive statistics.

Results. Themes from the interviews included: 1) Uniqueness of HHC setting, 2) Importance of staff and patient/caregiver education, (3) Care coordination challenges, and, (4) Keys to success and innovation. From the surveys, we found that, at the majority of HHAs, the staff member in charge of IPC had other responsibilities including QI (57%), clinical/administrative/managerial (49%), supervision of clinical services/patient coordination (48%), and education/training (45%). For those staff members in charge of IPC, over a third had received no specific IPC training, and only 5% were certified in IPC. For those staff who received training, the training was provided by external consultants (26%) or a professional society/health department (28%). Respondents cited the most challenging aspect of IPC as collecting/reporting infection data (24%), adherence to/monitoring bag technique (15%) and adequate staff coverage (13%).

Conclusion. This work represents a current snapshot of IPC infrastructure and challenges in US HHC agencies and identifies important barriers to IPC in these settings.

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2445. Risk for Readmission and Mortality Amongst LTACH Residents with New-Onset Healthcare-Associated Infections

Kyle D. Massey, PharmD¹; Melissa Murphy, PharmD²; Todd Miano, PharmD, MSCE³; Shawn Binkley, BS, PharmD⁴; Steven C. Morgan, PharmD, BCPS AQ-ID⁴; Jerry Jacob, MD, MS¹; ¹University of Pennsylvania, Veazie, Maine; ²Resident, Philadelphia, Pennsylvania; ³Perelman School of Medicine at the University of Pennsylvania, Philadelphia, Pennsylvania; ⁴Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania

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Background. Long-term acute care hospitals (LTACH) provide cost-effective alternatives for stable patients requiring ICU-level care. LTACH patients are at increased risk for adverse outcomes including healthcare-associated infections (HAI). There is a paucity of data describing outcomes associated with HAIs in LTACH patients.

Methods. This was a single-center, retrospective study of LTACH patients over a 3 year period. Patients with an HAI (bloodstream [BSI], pneumonia [PNA], urinary tract [UTI], and *Clostridioides difficile* [CDI] infections) as defined by NHSN criteria were matched by length of stay (LOS) at the time of inclusion to unexposed patients. Follow-up was 30 days from the date of inclusion. The primary outcome was a composite of unplanned readmission to an acute care hospital or death at the LTACH. Secondary outcomes included all-cause mortality. Patients with HAIs were further evaluated to determine risk factors associated with readmission Antibiotics and cultured organisms were collected. Outcomes were analyzed using Cox proportional hazards model. Variables found to have a $P < 0.1$ on univariate analysis and those of clinical interest were included in the models.

Results. 250 patients were included, 125 in each group. The distribution of HAIs was 40 BSI, 39 UTI, 26 PNA, and 20 CDI. The incidence of the primary outcome and mortality were 26.0% and 11.6% respectively. HAI was associated with increased risk of the primary outcome, but the effect varied over time: Risk increased seven-fold during the first 5 days (HR, 7.47 [95% CI, 2.86–19.42]) but was smaller and non-significant after day five (HR, 1.94 [95% CI, 0.85–4.43]). Mortality was not significantly different between groups (HR, 1.58 [95% CI, 0.74–3.38]). After adjustment, only hypotension (HR, 2.27 [95% CI 1.21–4.27]) and referral hospital LOS > 28 days (HR, 1.97 [95% CI 1.10–3.53]) were associated with readmission. 37% of cultured organisms were multi-drug-resistant. 17% of Enterobacteriaceae were carbapenem resistant. Empiric antibiotics failed to cover in 35% of infections.

Conclusion. HAI was associated with a significant increase in risk of readmission. Exploration of modifiable variables of infection, including hypotension and antibiotic selection, may help to reduce rates of readmission.

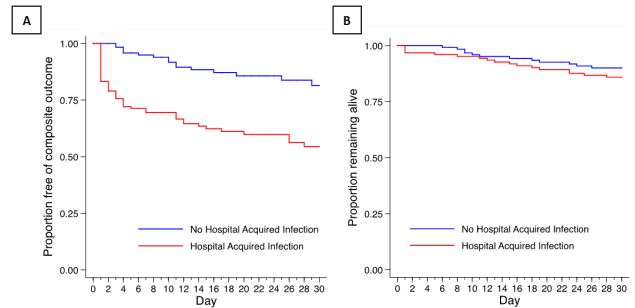


Figure 1: Cumulative incidence of the primary outcome (A) and 30-day all-cause mortality (B).

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2446. Longitudinal Results and Cost Savings Using a Bundle of *C. difficile* Infection Prevention Strategies in a Long-Term Care Facility

Bridget A. Olson, RPh¹; Michael L. Butera, MD FIDSA²; Noam Ship, PhD³; ¹Sharp Coronado Hospital, SAN DIEGO, California; ²Sharp Coronado Hospital, Alvarado Hospital, Sharp Grossmont Hospital, Scripps Mercy Hospital, San Diego, California; ³Bio-K Plus International Inc., Laval, QC, Canada

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Background. Long-term care patients are at high risk of *C. difficile* infections (CDI) due to advanced age, high comorbid illness burden, and frequent antibiotic use. Primary infection prevention of CDI is challenging and not frequently studied. Following a period of high CDI incidence, the Long-Term Care facility at Sharp Coronado Hospital implemented a bundle of strategies.

Methods. Patient census, the incidence of CDI (primary and recurrent cases), transfers to acute care and length-of-stay were collected from Jul 2008 through December 2018. In the first phase, 2010, a bundle of CDI prevention strategies was initiated, including an Antimicrobial Stewardship Program (ASP), reduction of acid suppression, and *L. acidophilus* and *S. boulardii* probiotics with antibiotic use. From 2012, there was further refinement of the ASP and the probiotic was changed to capsules of a 3-species combination of *Lactobacillus acidophilus* CL1285, *L. casei* LBC80R and *L. rhamnosus* CLR2, 100 Billion CFU daily. In October 2016, a protocol was put in place delegating authority to pharmacists to add probiotics to all antibiotic courses. The average CDI rates were calculated and compared for each time period. The net cost of CDI was calculated from the number of CDI cases, hospital length-of-stay and probiotic purchases.

Results. The incidence of facility-onset CDI cases decreased significantly with each policy change from 7.6 cases/10,000 patient-days (2008–09), to 2.8 (2010–11, $p = 0.028$), to 0.91 (2012-Q3 2016, $p = 0.0015$) and to the present incidence 0.24 (Q4 2016–2018, $p = 0.048$). The annual cost of facility-onset CDI was \$214k initially. The annual cost, including the purchase of probiotic, decreased to \$161k with introduction