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Poster Presentation

Burden and Trends of Hospital-Associated Community-Onset (HACO) Infections From Antibiotic Resistant and Nonresistant Bacteria

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Background: Studies on the effectiveness of hospital-based interventions often measure hospital-onset infections as the outcome of interest. However, hospital-associated infections may manifest after patient discharge (classified as hospital-associated community-onset, HACO), and the epidemiology may vary by antibiotic resistance (AR) profile. We examined the epidemiology and trends of HACO infections of AR and non–antibiotic-resistant (non-AR) bacteria. **Methods:** We included clinical community-onset (CO) cultures (obtained sooner than or on day 3 of hospitalization) yielding the bacterial species of interest among hospitalized patients in 260 hospitals in the Premier Healthcare Database from 2012 to 2017. HACO infections were defined as CO cultures in a patient who had a previous hospitalization in the same hospital within 30 days. We examined methicillin resistance among *Staphylococcus aureus* (MRSA), vancomycin resistance among *Enterococcus* spp (VRE), carbapenem resistance among *Enterobacteriaceae* (*E. coli*, *Klebsiella* spp, and *Enterobacter* spp) (CRE), extended-spectrum cephalosporin resistance suggestive of extended-spectrum β-lactamase (ESBL) production in *Enterobacteriaceae*, carbapenem resistance among *Acinetobacter* spp (CRAsp), and carbapenem resistance among *Pseudomonas aeruginosa (*CRPA). We described the proportion of CO infections that were HACO, the proportion of HACO infections from sterile sites, overall HACO rates, and annual trends for sensitive and resistant phenotypes. Generalized estimating equation regression models that accounted for hospital-level clustering were used to estimate annual trends controlling for hospital characteristics and month of discharge. **Results:** The rate of HACO infections by pathogen ranged from 0.78 to 38.76 per 10,000 hospitalizations; 7%–34% were sterile site infections (Table 1). For each bacterial pathogen, a significantly higher proportion of AR CO infections had a previous hospitalization compared to non-AR CO infections (all χ^2, $P < .05$). The annual trends for AR and non-AR HACO infections between 2012 and 2017 were significantly decreasing for most pathogens, except ESBL HACO infections. **Conclusions:** Even when using a definition limited to readmission to the same hospital, HACO infections occur commonly with differing rates by pathogen and antibiotic resistance profile. Although these rates are decreasing for most of the pathogens studied, improving surveillance and identifying prevention strategies for these infections are necessary to further reduce the burden of hospital-associated infections.

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***Candida auris* and Carbapenemase-Producing Organism Prevalence in an Extended Stay Pediatric Hospital, Chicago, Illinois, 2019**

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Antibiotic Resistant and Non-Antibiotic Resistant Hospital-Associated Community-Onset (HACO) infection rates and trends

Pathogen	% of all CO infections with prior hospitalization (i.e., HACO)	% of HACO infections from a sterile site	Overall Rates of HACO cases per 10,000 hospitalizations	Annual trends in HACO rates, 2012-2017
MRSA	16.4%	26.65%	15.63	-4.22% (-6.22, -2.17)
Methicillin-sensitive *S. aureus*	11.8%	34.42%	11.47	-3.39% (-5.38, -3.39)
VRE	42.9%	14.44%	6.80	-9.25% (-11.83, -9.25)
Vancomycin sensitive *Enterococcus*	21.2%	16.38%	18.48	-4.51% (-6.55, -4.51)
CRAsp	32.3%	11.57%	0.78	-7.97% (-12.66, -3.03)
Carbapenem non-resistant *Acinetobacter* spp	21.9%	28.18%	1.12	-5.44% (-9.94, -0.72)
CRPA	29.0%	7.47%	2.56	-0.24% (-4.26, 3.94)
Carbapenem non-resistant *P. aeruginosa*	21.2%	12.14%	11.01	-3.08% (-5.06, -1.07)
CRE	31.3%	13.29%	0.96	-4.78% (-10.87, 1.73)
ESBL	21.8%	14.13%	8.71	+4.90% (2.27, 7.59)
non-ESBL Enterobacteriaceae	11.6%	16.61%	38.76	-3.09% (-4.35, -1.81)