to lead to glove or gown contamination. **Methods:** Between January 2016 and August 2018, patients with a clinical or surveillance culture positive for CRE in the preceding 7 days were enrolled at 5 hospitals in California, Maryland, New York, and Pennsylvania. Ten HCP–patient interactions were observed for each patient and were recorded by research staff. Following patient care, but prior to doffing, the gloves and gown of each HCP were sampled for the presence of CRE. **Results:** We enrolled 313 CRE-colonized patients, and we observed 3,070 HCP interactions. CRE was transmitted to HCP gloves in 242 of 3,070 observations (7.9%) and to gowns in 132 of 3,070 observations (4.3%). Transmission to either gloves or gown occurred in 308 of 3,070 interactions observed (10%). The most frequently identified organism was *Klebsiella pneumoniae* (n = 171, 53.2%), followed by *Enterobacter cloacae* (n = 36, 11.2%), and *Escherichia coli* (n = 33, 10.3%). Patients in the intensive care unit (n = 177, 56.5%) were more likely to transmit CRE to HCP gloves or gown (OR, 1.65; 95% CI, 1.03–2.64) compared to those not in an ICU and adjusted for HCP type. The odds of CRE transmission increased with the number of different items touched near the patient (OR, 1.32; 95% CI, 1.21–1.44) and with the number of different items touched in the environment (OR, 1.13; 95% CI, 1.06–1.21). Respiratory therapists had the highest rates of transmission to gloves and gown (OR, 3.79; 95% CI, 1.61–8.94), followed by physical therapists and occupational therapists (OR, 2.82; 95% CI, 1.01–8.32) when compared to HCP in the "other" category. Manipulating the rectal tube (OR, 3.03; 95% CI, 1.53–6.04), providing wound care (OR, 2.81; 95% CI, 1.73–4.59), and touching the endotracheal tube (OR, 2.79; 95% CI, 1.86–4.19) were the interactions most strongly associated with CRE transmission compared to not touching these items and adjusted for HCP type. **Conclusions:** Transmission of CRE to HCP gloves and gowns occurs frequently. We identified interactions and HCP types that were particularly high risk for transmission. Infection control programs may wish to target infection prevention resources and education toward these high-risk professions and interactions.
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Hospital Microbiologic Culture Results to Predict the Use of Anti–methicillin-Resistant *Staphylococcus aureus* (MRSA)

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Background: To provide a standardized, risk-adjusted method for summarizing antimicrobial use (AU), the Centers for Disease Control and Prevention developed the standardized antimicrobial administration ratio, an observed-to-predicted use ratio in which predicted use is estimated from a statistical model accounting for patient locations and hospital characteristics. The infection burden, which could drive AU, was not available for assessment. To inform AU risk adjustment, we evaluated the relationship between the burden of drug-resistant gram-positive infections and the use of anti-MRSA agents. **Methods:** We analyzed data from acute-care hospitals that reported ≥10 months of hospital-wide AU and microbiologic data to the National Healthcare Safety Network (NHSN) from January 2018 through June 2019. Hospital infection burden was estimated using the prevalence of deduplicated positive cultures per 1,000 admissions. Eligible cultures included blood and lower respiratory specimens that yielded oxacillin/cefoxitin–resistant *Staphylococcus aureus* (SA) and ampicillin-nonsusceptible enterococci, and cerebrospinal fluid that yielded SA. The anti-MRSA use rate is the total antimicrobial days of ceftaroline, dalbavancin, daptomycin, linezolid, oritavancin, quinupristin/dalfopristin, tedizolid, telavancin, and intravenous vancomycin per 1,000 days patients were present. AU rates were modeled using negative binomial regression assessing its association with infection burden and hospital characteristics. **Results:** Among 182 hospitals, the median (interquartile range, IQR) of anti-MRSA use rate was 86.3 (59.9–105.0), and the median (IQR) prevalence of drug-resistant gram-positive infections was 3.4 (2.1–4.8). Higher prevalence of drug-resistant gram-positive infections was associated with higher use of anti-MRSA agents after adjusting for facility type and percentage of beds in intensive care units (Table 1). Number of hospital beds, average length of stay, and medical school affiliation were nonsignificant. **Conclusions:** Prevalence of drug-resistant gram-positive infections was independently associated with the use of anti-MRSA agents. Infection burden should be used for risk adjustment in predicting the use of anti-MRSA agents. To make this possible, we recommend that hospitals reporting to NHSN's AU Option also report microbiologic culture results.
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Table 1. Hospital Prevalence of Drug-Resistant Gram-Positive Infections Per 1,000 Admissions

Parameter	Prevalence Ratio	95% CI		*P* Value
≥3.97 ≤12.82	1.64	1.38	1.96	<.0001
≥1.84 <3.97	1.30	1.09	1.55	0.0037
<1.84	Reference	. . .	. . .	. . .
Facility type				
Oncology	30.81	11.04	85.95	<.0001
General acute, surgical, critical access	13.88	7.51	25.68	<.0001
Children's, women and children's	5.52	2.86	10.66	<.0001
Women's	Reference	. . .	. . .	. . .
Percentage of ICU beds				
≥7.86 ≤ 47.57	1.30	1.11	1.53	.001
<7.86	Reference	. . .	. . .	. . .