



Fig. 2.

culture rates from US hospitals participating in the Premier Healthcare Database during 2012–2017. We included all discharges from months where a hospital reported at least 1 blood culture with microbiology and antimicrobial susceptibility results. Blood cultures drawn on or before day 3 were defined as admission cultures (ACs); blood cultures collected after day 3 were defined as a postadmission cultures (PACs). The AC rate was defined as the proportion of all hospitalizations with an AC. The PAC rate was defined as the number of days with a PAC among all patient days. Generalized estimating equation regression models that accounted for hospital-level clustering with an exchangeable correlation matrix were used to measure associations of monthly rates with hospital bed size, teaching status, urban–rural designation, region, month, and year. The AC rates were modeled using logistic regression, and the PAC rates were modeled using a Poisson distribution. Results: We included 11.7 million hospitalizations from 259 hospitals, accounting for nearly 52 million patient days. The median annual hospital-level AC rate was 27.1%, with interhospital variability ranging from 21.1% (quartile 1) to 35.2% (quartile 3) (Fig. 1). Multivariable models revealed no significant trends over time ( $P = .74$ ), but statistically significant associations between AC rates with month ( $P < .001$ ) and region ( $P = .003$ ), associations with teaching status ( $P = .063$ ), and urban–rural designation ( $P = .083$ ) approached statistical significance. There was no association with bed size ( $P = .38$ ). The median annual hospital-level PAC rate was 11.1 per 1,000 patient days, and interhospital variability ranged from 7.6 (quartile 1) to 15.2 (quartile 3) (Fig. 2). Multivariable models of PAC rates showed no significant trends over time ( $P = .12$ ). We found associations between PAC rates with month ( $P = .016$ ), bed size ( $P = .030$ ), and teaching status ( $P = .040$ ). PAC rates were not associated with urban–rural designation ( $P = .52$ ) or region ( $P = .29$ ). Conclusions: Blood culture utilization rates in this large cohort of hospitals were unchanged between 2012 and 2017, though substantial interhospital variability was detected. Although both AC and PAC rates vary by time of year and potentially by teaching status, AC rates vary by geographic characteristics whereas PAC rates vary by bed size. These factors are

important to consider when comparing rates of bloodstream infections by hospital.

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Poster Presentation

**Verification of Healthcare Personnel Immunity as a Strategy for Measles Preparedness**

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**Background:** Immunization resistance is fueling a resurgence of vaccine-preventable diseases in the United States, where several large measles outbreaks and 1,282 measles cases were reported in 2019. Concern about these measles outbreaks prompted a large healthcare organization to develop a preparedness plan to limit healthcare-associated transmission. Verification of employee rubeola immunity and immunization when necessary was prioritized because of transmission risk to nonimmune employees and role of the healthcare personnel in responding to measles cases. **Methods:** The organization employs ~31,000 people in diverse settings. A multidisciplinary team was formed by infection prevention, infectious diseases, occupational health, and nursing departments to develop the preparedness plan. Immunity was monitored using a centralized database. Employees without evidence of immunity were asked to provide proof of vaccination, defined by the CDC as 2 appropriately timed doses of rubeola-containing vaccine, or laboratory confirmation of immunity. Employees were given 30 days to provide documentation or to obtain a titer at the organization's expense. Staff with negative titers were given 2 weeks to coordinate with the occupational health department for vaccination. Requests for medical or religious accommodations were evaluated by occupational health staff, the occupational health medical director, and the human resources department. All employees were included, though patient-

**Table 1.**

	Positive Rubella Titer	Negative Rubella Titer	No Rubella Titer Performed	Total
<b>Employee Rubella Titers</b>	<b>2,856</b>	<b>770</b>	<b>383</b>	<b>4,009</b>
Provided Proof Previous Rubella Vaccination		93	176	269
Vaccinated by Organization Task Force		531	53	584
Immunity Not Yet Documented		146	154	300

interfacing employees in departments considered higher risk were prioritized. These areas were the emergency, dermatology, infectious diseases, labor and delivery, obstetrics, and pediatrics departments. **Results:** At the onset of the initiative in June 2019, 4,009 employees lacked evidence of immunity. As of November 2019, evidence of immunity had been obtained for 3,709 employees (92.5%); serological evidence of immunity was obtained for 2,856 (71.2%), vaccine was administered to 584 (14.6%), and evidence of previous vaccination was provided by 269 (6.7%). Evidence of immunity has not been documented for 300 (7.5%). The organization administered 3,626 serological tests and provided 997 vaccines, costing ~\$132,000. Disposition by serological testing is summarized in Table 1. **Conclusions:** A measles preparedness strategy should include proactive assessment of employees' immune status. It is possible to expediently assess a large number of employees using a multidisciplinary team with access to a centralized database. Consideration may be given to prioritization of high-risk departments and patient-interfacing roles to manage workload.

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#### **VIM-CRPA in West Texas: Developing a Regional Multidrug-Resistant Organism Containment Strategy for a Novel Bug**

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**Background:** The Texas Department of State Health Services Healthcare Safety (HCS) Investigation Team began investigating a cluster of positive carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) results in August 2017. These CRPA isolates contained the novel carbapenemase Verona integron-encoded metallo- $\beta$ -lactamase (VIM). This cluster became an outbreak that spanned >2 years and involved multiple healthcare facilities in and around northern Texas. In response to positive results, infection control assessments were conducted, which exposed common infection control gaps including inadequate hand hygiene performance, environmental cleaning issues, and poor communication

during interfacility patient transfers. As part of the ongoing investigation efforts, a regional containment strategy was developed to prevent the spread of multidrug-resistant organisms. **Methods:** Beginning in October 2018, the HCS Investigation Team made site visits to participating facilities every 6 months to provide targeted infection control support and hand hygiene performance and environmental cleaning observations. An initial kick-off meeting was held in February 2019 for facilities to begin collaboration on the containment strategy. This strategy became known as BOOT, an acronym meaning: Being prompt in response to positive cases, Obtaining isolates for testing, Optimizing infection prevention, and Transferring patients using a designated form. An interfacility transfer form to reduce the risk of transmission of multidrug-resistant organisms when patients are transferred between healthcare facilities was developed by a work group that consisted of the local health department, the Public Health Region healthcare-associated infections epidemiologist, and multiple healthcare facilities. **Results:** Facilities have increased communication with other facilities and with the health departments since the implementation of the BOOT strategy. The local health department is contacted when facilities do not receive a transfer form, and follow-up is initiated to ensure appropriate understanding and compliance. Facility hand-washing rates and environmental cleaning results have improved with each visit, and access to alcohol-based hand sanitizing dispensers has increased in select facilities. **Conclusions:** The regional containment strategy is dynamic and ongoing, and changes are implemented as obstacles are encountered. Implementation has resulted in a successful decrease of positive VIM results in the local area by ~50% since the first half of 2019. This program has led to greater collaboration among healthcare facilities, health departments, and a neighboring state. This investigation and its products have been used as a model for the implementation of containment strategies in other regions of Texas. The HCS Investigation Team hopes to create and implement an interfacility transfer form that can be used in healthcare facilities statewide.

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#### **VIM-Positive *Pseudomonas aeruginosa* Sink Colonization Dynamics in Patient Rooms of a Dutch Tertiary-Care Hospital**

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