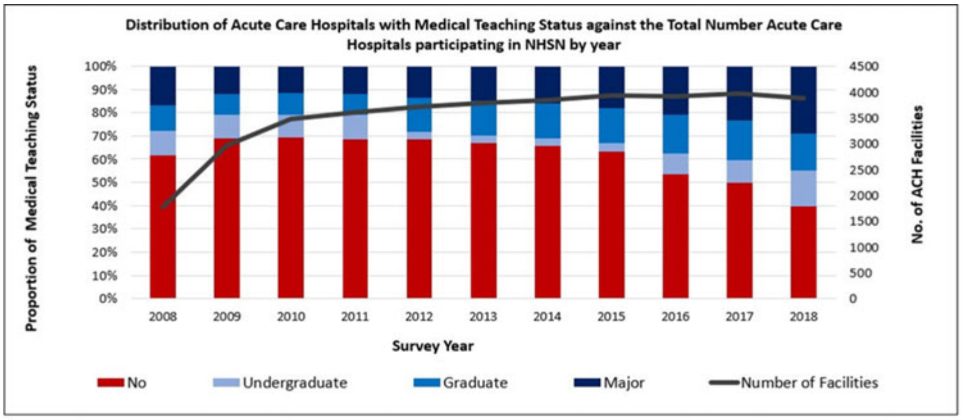

Figure 1: Distribution of Acute Care Hospitals with Medical Teaching Status against the Total Number Acute Care Hospitals participating in NHSN by year

Fig. 1.

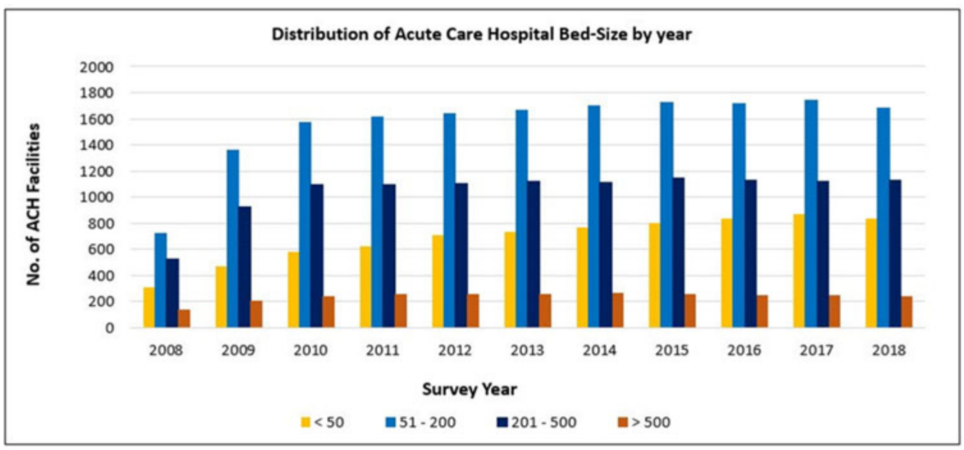

Figure 2: Distribution of Acute Care Hospital Bed-Size by year

Fig. 2.

trains medical school students, (2) graduate facility that trains residents or fellows, and (3) major facility that trains both medical and residents or fellows. We used univariate analyses to assess characteristics of acute-care hospitals (ACHs). **Results:** Overall, the number of ACHs enrolled in the NHSN increased by 119%, from 1,772 in 2008 to 3,883 in 2018. More general acute-care hospitals (89%) were enrolled than all other facility types, with women's and children's hospitals were the least frequently enrolled (0.34%). Hospitals with any level of medical teaching status, increased from 38.5% in 2008 to 60% in 2018 (Fig. 1). We observed a modest reduction in the median hospital bed size of 20 beds. When reviewing hospital bed size by category, ACHs with 51–200 beds made up the largest proportion of hospitals and the number of hospitals within this bed size category has remained above 1,500 since 2010. **Conclusions:** Among all ACHs, the proportion of hospitals affiliated with a medical school increased over the 10-year period. Although hospitals with a major teaching status had been steadily increasing, there were more hospitals using this designation after 2013. Despite the increase in the number of hospitals reporting to NHSN, since 2011, the proportion of hospitals within each bed size category has seen minimal change.

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Presentation Type:
Poster Presentation

Changes in the Prevalence of Methicillin Resistance Among Healthcare-Associated *Staphylococcus aureus* Infections, 2009–2018

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Background: *Staphylococcus aureus* has long been an important cause of healthcare-associated infections (HAIs) and remains the second most common HAI pathogen in the United States. Often resistant to several antibiotics, *S. aureus* infections are difficult to treat and can leave patients at risk for serious complications such as pneumonia and sepsis. HAI pathogens and their antimicrobial susceptibility testing (AST) results have been reported to NHSN since its inception in 2005. Previous NHSN surveillance reports have presented national annual benchmarks for antimicrobial resistance phenotypes, such as methicillin-resistant *S. aureus* (MRSA). Whether there have been any significant changes over time in the prevalence of methicillin resistance among *S. aureus*

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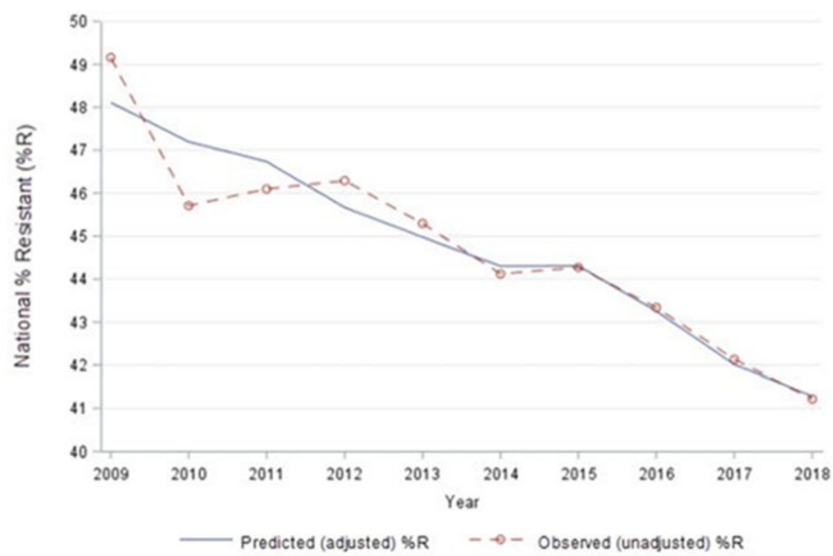
Table 1. Percent of *Staphylococcus aureus* Resistant to Oxacillin, Cefoxitin, or Methicillin (MRSA): 2009-2018

Year	No. Acute Care Hospitals[1]	No. of MRSA	No. of *S. aureus* Tested for Susceptibility	% Resistant
2009	831	2,282	4,642	49.2
2010	1,109	2,435	5,327	45.7
2011	1,595	3,485	7,560	46.1
2012	2,116	5,034	10,875	46.3
2013	2,137	5,154	11,379	45.3
2014	2,189	4,971	11,267	44.1
2015	2,323	5,651	12,765	44.3
2016	2,294	5,428	12,526	43.3
2017	2,277	5,136	12,190	42.1
2018	2,235	4,820	11,694	41.2

[1] Reported at least 1 *S. aureus* healthcare-associated infection

Table. 1.

Figure 1. Summary of Changes in *Staphylococcus aureus* Resistance (MRSA), 2009-2018



Results from Generalized Linear Mixed Model (Adjusted %R):

Parameter	Parameter Estimate	Standard Error	P-value	Odds Ratio (95%CI)	% Decrease Per Year[2] (95%CI)
Year[1]	-0.030	0.003	<0.0001	0.970 (0.964 - 0.976)	3.0% (2.4% - 3.6%)

[1] Adjusted for the following variables: patient age, patient gender, hospital type, infection type, number of ICU beds in the hospital, medical school affiliation, and average length of patient stay. Hospital-level characteristics were reported on the NHSN annual survey or specified during NHSN enrollment.

[2] Percent decrease = (1-Odds Ratio) * 100

Fig. 1.

infections reported to NHSN has not been previously assessed. **Methods:** *S. aureus* AST data from central-line–associated bloodstream infections, catheter-associated urinary tract infections, and inpatient surgical site infections reported from acute-care hospitals between 2009 and 2018 were analyzed. *S. aureus* was defined as MRSA if it was reported as resistant to oxacillin, cefoxitin, or methicillin. A national percentage resistant (%R) was calculated for each year as the number of resistant pathogens divided by the number of pathogens tested for susceptibility multiplied by 100. A generalized linear mixed model with logistic function was created to evaluate annual changes in the percentage resistant. Several patient-level and hospital-level characteristics were assessed as potential covariates. To account for differential baseline %R values between individual hospitals, specification of random intercept and slope were used during model creation. Differences in the trend of %R between HAI types were assessed using interaction terms. Data were analyzed using SAS v 9.3 software, and $P < .05$ was considered significant. **Results:** Overall, 3,317 hospitals reported at least 1 *S. aureus* pathogen tested for susceptibility between 2009 and 2018. The national unadjusted %R decreased from 49.2% (2009) to 41.2% (2018), with similar decreases seen in each HAI type (Table 1). After adjusting for significant covariates, a statistically significant annual 3% decrease in the prevalence of resistance was observed (Fig. 1). Significant differences between HAI types did not exist. **Conclusions:** The percentage of healthcare-associated *S. aureus* resistant to oxacillin,

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cefoxitin, or methicillin has declined consistently over the past 10 years. Continued efforts in infection prevention and antimicrobial stewardship are vital to sustaining this decline.

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Changing the Culture of Ordering Urine Cultures

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Background: Inappropriate ordering of urine cultures and the resulting unnecessary use of antibiotics can lead to complications of antimicrobial therapy including resistance, adverse effects (eg, disruption of microbiome and *C. difficile* infection), and increased healthcare costs, as well as the erroneous determination of CAUTI in patients with Foley catheters. A retrospective analysis of patients with CAUTI revealed frequent ordering of urine cultures for conditions and symptoms not supported by current IDSA guidelines. As a result, we created an action plan to reverse the trend of inappropriate urine culture ordering. **Methods:** Our urine culture reduction campaign was developed with input from the infectious disease service, antibiotic stewardship team (AST), infection prevention, pharmacy, and the microbiology service. The following educational efforts were included: (1) distribution of outpatient pocket cards with communication to providers about appropriate ordering of urine cultures; (2) creation of an evidence-based order set for urinalysis and urine cultures distributed electronically as emails and screensavers on computer stations and in person via didactic sessions with physicians and nursing staff; (3) a practice pointer for staff nurses that included recommended changes to urine culture ordering and encouraged open dialogue with physicians regarding the appropriateness of urine cultures; (4) didactic and personal communications to counter long-standing myths, such as "Urine cultures always for change in mental status"; (5) a peer-review process to evaluate and justify deviations from the testing algorithm.
Results: The first and second months after the introduction of the campaign, the microbiology laboratory reported 23% and 37% reductions in urine cultures ordered, respectively. During the same period, a 48% reduction in CAUTIs was reported for the entire health system. **Conclusions:** Reducing the number of inappropriate urine cultures is achievable with intense communication utilizing a multifaceted approach. With continued educational activities, we expect to sustain and even improve our successful reduction of inappropriate urine culture orders, ultimately improving patient outcomes.

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Disclosures: None
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Presentation Type:
Poster Presentation

Characteristics of *Candida auris* Patients at a Tertiary-Care Hospital, 2017–2019, Nairobi, Kenya

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Background: *Candida auris* is of global concern due to its increasing frequency in intensive care units (ICUs), reported resistance to antifungal agents, propensity to cause outbreaks, and persistence in clinical environments. We investigated an increase in *C. auris* cases in an ICU in Kenya to determine the source of transmission and to control the spread of the disease. **Methods:** To identify cases, we reviewed laboratory records of patients with blood cultures yielding *C. auris* and organisms for which it is commonly misidentified by Vitek 2 v 8.01 software (ie, *C. haemulonii, C. duobushaemulonii and C. famata*) during January 2018–May 2019. We retrospectively reviewed medical charts of *C. auris* patients to extract information on demographics, underlying conditions, hospital procedures, treatments, and outcomes. We also enhanced infection control efforts by implementing contact precautions, equipment, and environmental disinfection, and hand hygiene training and compliance observations. **Results:** We identified 32 *C. auris* patients (Fig. 1). Median patient age was 55 years (IQR, 43–65), and 57% were male. Length of hospitalization before *C. auris* isolation was 30 days (IQR, 14–36). All had been admitted to the ICU. The most common reasons for admission were sepsis (50%), pneumonia (34%), surgery (25%), and stroke or other neurologic diagnosis (25%). Underlying comorbidities included hypertension (38%), diabetes mellitus (25%), and malignancy (29%). Two patients had HIV. Moreover, 61% of cultures yielded multidrug-resistant bacteria. Also, 33% of the patients had been admitted to this hospital in the preceding 3 months; 21% had been admitted to a hospital outside of Kenya; and 10% had been admitted to another hospital in Kenya in the previous year. Almost all (97%) had a central venous catheter, 45% had an acute dialysis catheter, 66% had an endotracheal tube, and 34% had a tracheostomy, with 69% receiving mechanical ventilation before *C. auris* isolation. Most (94%) had urinary catheters, 84% had nasogastric tubes, 91% had received total parenteral nutrition, and 75% had received blood products. All patients received broad-spectrum antibiotics and 49% received an antifungal before *C. auris* isolation. All-cause in-hospital mortality was 64% for the 28 patients whose outcomes were available. Following implementation of a hand

Figure 1: Epidemic curve of *Candida auris* cases at a tertiary care hospital during 2017-2019, Nairobi, Kenya

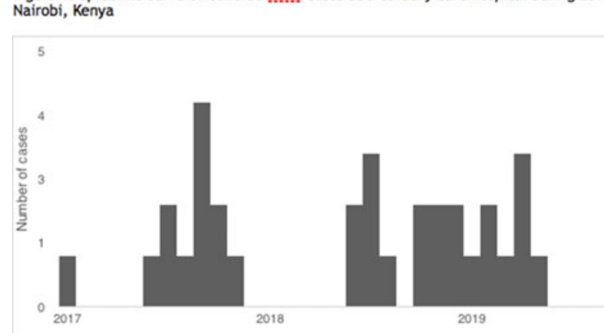

Fig. 1.