

Fig. 1.

on the day of surgery were acceptable for patients, and this protocol significantly reduced *S. aureus* concentration in nares of patients. Future large clinical trials should evaluate whether this 2-application regimen of povidone-iodine significantly decreases rates of SSI among orthopedic trauma surgery patients.

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Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: SSI

Implementation of surgical site infection surveillance in 16 health facilities in Sierra Leone

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Background: Surgical site infections (SSIs) are associated with increased healthcare costs, antibiotic resistance, morbidity, and mortality. In low- and middle-income countries (LMICs), SSIs account for most healthcare-acquired infections (HAIs). In Africa, up to 20% of women who undergo a caesarean section develop a wound infection. Surveillance has been shown to be an essential component in the overall strategy to reduce SSIs. **Methods:** Surgical site infection surveillance is being implemented in 16 health facilities in Sierra Leone, with at least 1 from each of the 5 US Census regions: Eastern, Western, Northern, Northwestern, and Southern. These health facilities were selected based on the availability of a dedicated infection prevention and control (IPC) focal person. Women were observed for 30 days after caesarean section. A standardized surgical safety and surveillance checklist including case definitions and observable criteria (eg, purulent drainage, wound abscess, or intentional reopening) was used. Clinical staff were trained to collect data and to conduct in-person and phone interviews with patients on days 3, 7, and 30 after caesarean section. **Results:** From March 2021 to July 2021, a total of 2,529 women had caesarean sections in 15 health facilities; most occurred in the Northern region (785 of 2,529). Among these 2,529 women, 1,522 (60%) had an SSI surveillance checklist started, and of those 1,522, 632 (42%) had a completed checklist. Health facilities in most of the rural regions, (Eastern, Northwestern, and Southern) had no completed checklists. The overall SSI rate for the 15 health facilities was 3% (70 of 2,529). The Southern region had the highest SSI rate at 50% (35 of 70), but the Western region did not report any SSIs. Of the 70 cases, 49 (70%) were identified through active inpatient surveillance and 21 (30%) were identified through postdischarge surveillance. **Conclusions:** One of the priorities of Sierra Leone’s National IPC Action Plan is to

establish HAI surveillance. Surgical site surveillance is an essential component of HAI surveillance and leads to timely identification so infections can be treated quickly. This study was limited by inadequate data collection and patients lost to follow-up after discharge. However, this study illustrates that surveillance leads to the diagnosis of most SSI cases after caesarean section while patients are still hospitalized. Simple yet effective SSI surveillance can be conducted in LMICs to identify and ultimately treat SSI after caesarean section. More support is needed in rural and smaller facilities for better implementation of SSI surveillance in Sierra Leone.

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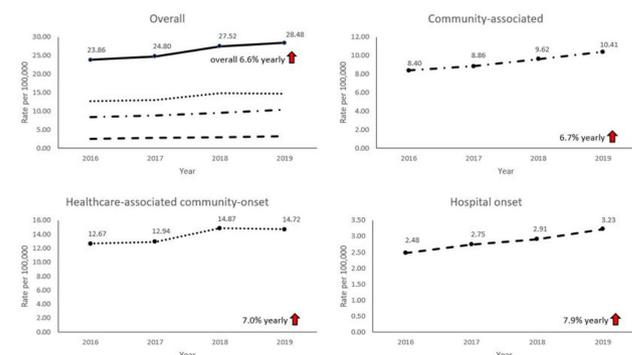
Subject Category: Surveillance/Public Health

Increases in methicillin-sensitive *Staphylococcus aureus* bloodstream infection incidence, 2016–2019

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Background: Incidence of methicillin-sensitive *Staphylococcus aureus* (MSSA) bloodstream infections (BSIs) in the United States during 2012–2017 has been reported to have been stable for hospital-onset BSIs and to have increased 3.9% per year for community-onset BSIs. We sought to determine whether these trends continued in more recent years and whether there were further differences within subgroups of community-onset BSIs. **Methods:** We analyzed CDC Emerging Infections Program active, population- and laboratory-based surveillance data during 2016–2019 for MSSA BSIs from 8 counties in 5 states. BSI cases were defined as isolation of MSSA from blood in a surveillance area resident. Cases were considered hospital onset (HO) if culture was obtained >3 days after hospital admission and healthcare-associated community-onset (HACO) if culture was obtained on or after day 3 of hospitalization and was associated with dialysis, hospitalization, surgery, or long-term care facility residence within 1 year prior or if a central venous catheter was present ≤2 days prior. Cases were otherwise considered community-associated (CA). Annual rates per 100,000 census population were calculated for each epidemiologic classification; rates of HACO cases among chronic dialysis patients per 100,000 dialysis patients were calculated using US Renal Data System data. Annual increases were modeled using negative binomial or Poisson regression and accounting for changes in the overall population age group, and sex. Descriptive analyses were performed. **Results:** Overall, 8,344 MSSA BSI cases were reported. From 2016–2019 total MSSA BSI rates increased from 23.9 per 100,000 to 28.5 per 100,000 (6.6% per year; $P < .01$). MSSA BSI rates also increased significantly among all epidemiologic classes. HO cases increased from 2.5 per 100,000 to 3.2 per 100,000 (7.9% per year; $P = .01$). HACO cases increased from 12.7 per 100,000 to 14.7 per 100,000 (7.0% per year; $P = .01$). CA cases

Figure. Rate of methicillin-sensitive *Staphylococcus aureus* bloodstream infections by year – overall and by epidemiologic class, 2016–2019 (graphs with different y-axis scales).



increased from 8.4 per 100,000 to 10.4 per 100,000 (6.7% per year; $P < .01$) (Fig. 1). Significant increases in MSSA BSI rates were also observed for nondialysis HACO cases (9.3 per 100,000 to 11.1 per 100,000; 7.8% per year; $P < .01$) but not dialysis HACO cases (1,823.2 per 100,000 to 1,857.4 per 100,000; 1.4% per year; $P = .59$). Healthcare risk factors for HACO cases were hospitalization in the previous year (82%), surgery (31%), dialysis (27%), and long-term care facility residence (19%). **Conclusions:** MSSA BSI rates increased from 2016–2019 overall, among all epidemiologic classes, and among nondialysis HACO cases. Efforts to prevent MSSA BSIs among individuals with healthcare risk factors, particularly those related to hospitalization, might have an impact on MSSA BSI rates.

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Subject Category: Surveillance/Public Health

Reduction in outpatient antibiotic utilization: An unintended benefit of the COVID-19 pandemic?

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Background: The COVID-19 pandemic heavily affected healthcare delivery systems in the United States. However, little is known about its impact on overall antimicrobial consumption, especially in outpatient settings. We assessed the impact of the COVID-19 pandemic on antimicrobial consumption in both outpatient and inpatient (acute-care, long-term care, and mental health) settings in the Veterans' Health Administration (VHA) during the 2 years before and after the start of the pandemic. **Methods:** We conducted a retrospective study for all patients who received care within the VHA from January 2018 to December 2021. We used antibiotic days as the primary outcome measure (days of therapy for inpatient

settings and dispensed days supply for outpatient settings), and we obtained data for antimicrobial consumption from the VHA Corporate Data Warehouse. Antibiotics were categorized into classes by the NHSN protocol and included only systemic agents (oral and parenteral). We defined 2018–2019 as the pre-pandemic period and 2020–2021 as the pandemic period. We compared the relative and absolute difference in antibiotic consumption between the 2 periods. **Results:** Across all periods, 8.3 million patients received care in the VHA, and an average of 28,709,680 antibiotic days were prescribed per year. Overall, 92.9% of all antibiotic days were outpatient and 7.1% were inpatient. Total antibiotic days during the pandemic period decreased by 12.4% compared to the pre-pandemic period (pandemic period: 53,613,840 and pre-pandemic period: 61,224,878). This reduction was primarily driven by reductions in outpatient settings (relative reduction: 12.7% and absolute reduction: 7,254,880 antibiotic days over 2 years), but antibiotic days in inpatient settings decreased more modestly (relative reduction: 8.4% and absolute reduction: 356,158 antibiotic days over 2 years) (Fig. 1). When frequently prescribed antimicrobials were categorized by classes, fluoroquinolones and lincosamides showed the largest decreases (fluoroquinolones: 29.2% reduction and lincosamides: 27.2% reduction). Tetracyclines and sulfamethoxazole–trimethoprim had the smallest reductions (5.2% and 11.2%, respectively). **Conclusions:** Compared to the pre-pandemic period, the pandemic was associated with a substantial reduction in overall antibiotic consumption, especially in outpatient settings, which accounted for 95% of the overall reduction despite being outside the domain of most traditional antibiotic stewardship programs. The impact of the pandemic was most modest in the use of tetracyclines and trimethoprim–sulfamethoxazole and was most prominent in the use of fluoroquinolones and lincosamides. Further studies are required to improve the causal inference between the COVID-19 pandemic and this reduction in antibiotic consumption, as well as its impact on patient outcomes.

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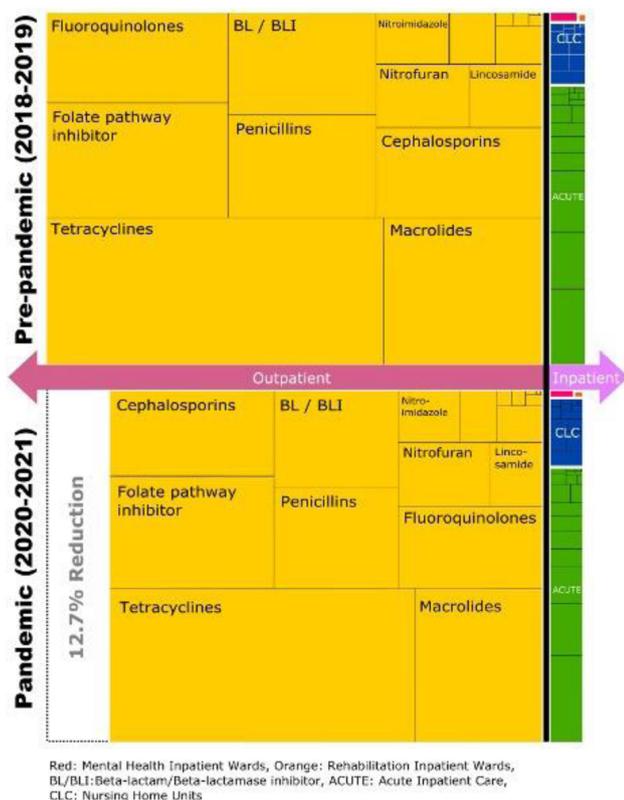


Fig. 1.

Presentation Type:

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Subject Category: Surveillance/Public Health

Mortality rates among non-Hispanic Black and White persons in carbapenemase-producing Enterobacteriales, Tennessee, 2015–2019

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Background: Carbapenem-resistant Enterobacteriales (CRE) are an urgent public health threat, particularly those that produce carbapenemase (CP-CRE). Certain risk factors associated with CRE acquisition have been well described, such as older age, indwelling devices, prior hospitalizations, and underlying conditions. However, data are limited regarding the association of CRE and health disparities, such as race and ethnicity. Published literature has consistently shown that minority groups, including but not limited to Non-Hispanic Black persons, have higher risks of developing adverse health outcomes. To better understand the impact of race and ethnicity in CP-CRE cases, we compared 1-year mortality rates among Non-Hispanic Blacks and Non-Hispanic Whites. **Methods:** CRE are reportable in Tennessee; isolates must be sent to the State Public Health Laboratory for carbapenemase detection and resistance mechanism testing. We linked 2015–2019 CP-CRE surveillance cases and laboratory data from our statewide surveillance system, the National Disease Surveillance System (NEDDS)-Base System, with the Tennessee Hospital Discharge Data System (HDDS) and vital records databases. Database linkage and data analyses were performed using SAS version 9.4 software. **Results:** Among 615 CP-CRE cases, the mean age was lower among non-Hispanic Blacks (59 years; SD, 16.6) compared to non-Hispanic Whites (mean, 65 years; SD, 15.7). Among 156 non-Hispanic Blacks with CP-CRE, 101 (64.7%) were nursing home residents, whereas 281 (71.1%) among the 395 non-Hispanic Whites were nursing home residents.