the bundle during the patient's hospital stay, resulting in improved clinical care and prevention of infection. **Methods**: In 2019, 3 clinical initiatives were chartered that applied evidence-based bundles for early identification and treatment of sepsis, prevention of healthcare-associated pneumonia (HAP), and prevention of surgical site infection. The bundle included the following elements: assessment of sepsis, measurement of lactic acid, collection of blood culture, timely administration of antibiotics. The HAP bundle included the following elements: assessment of aspiration risk, elevation of the head of the bed, oral care twice daily and preoperatively, and incentive spirometry postoperatively. And the SSI bundle included the following elements: preoperative CHG bath, appropriate preoperative antibiotic, perioperative glucose control, and perioperative temperature control. A multidisciplinary team developed and implemented dashboards that extracted bundle elements from the electronic medical record (EMR) nightly. Bundle compliance was calculated at the individual element level as well as the aggregate. Bundle failure data were available at the patient level as well as in aggregate by care location and provider, allowing for real-time feedback to staff and creation of improvement plans. An unanticipated benefit was the identification and correction of charting inconsistencies. **Results:** Collection, aggregation, and analysis of bundle compliance data were displayed in a system dashboard, and data were refreshed nightly. This approach allowed us to display overall bundle compliance at the facility and system level, including a heat map showing each facility's compliance with the bundle and each associated element. Utilization of an EMR dashboard allowed for performance review on 100% of eligible patients rather than a sample, as occurs with manual review and abstraction processes. Routine review of performance via the dashboards with frontline staff, clinical leaders, medical staff, and executives has resulted in month-by-month improvement in bundle compliance. **Conclusions:** Direct data mining, data aggregation and analysis, followed by direct feedback to frontline staff, has resulted in steady improvement in overall bundle compliance, compliance with individual bundle components, and standardization of charting in the EMR. This approach has ultimately resulted in better outcomes for sepsis patients, reduction in healthcare-associated pneumonia, and reduction in surgical site infections.

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Oral Presentation

Effectiveness of Ultraviolet-C Room Disinfection on Preventing Healthcare-Associated *Clostridioides difficile* Infection

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Background: Enhanced terminal room cleaning with ultraviolet C (UVC) disinfection has become more commonly used as a strategy to reduce the transmission of important nosocomial pathogens, including *Clostridioides difficile*, but the real-world effectiveness remains unclear. **Objectives**: We aimed to assess the association of UVC disinfection during terminal cleaning with the incidence of healthcare-associated *C. difficile* infection and positive test results for *C. difficile* within the nationwide Veterans Health Administration (VHA) System. **Methods**: Using a nationwide survey of VHA system acute-care hospitals, information on UV-C system utilization and date of implementation was obtained. Hospital-level incidence rates of clinically confirmed hospital-onset *C. difficile* infection (HO-CDI) and positive test results with recent healthcare exposures (both hospital-onset [HO-LabID] and community-onset healthcare-associated [CO-HA-LabID]) at acute-care units between January 2010 and December 2018 were obtained through routine surveillance with bed days of care (BDOC) as the denominator. We analyzed the association of UVC disinfection with incidence rates of HO-CDI, HO-Lab-ID, and CO-HA-LabID using a nonrandomized, stepped-wedge design, using negative binomial regression model with hospital-specific random intercept, the presence or absence of UVC disinfection use for each month, with baseline trend and seasonality as explanatory variables. **Results**: Among 143 VHA acute-care hospitals, 129 hospitals (90.2%) responded to the survey and were included in the analysis. UVC use was reported from 42 hospitals with various implementation start dates (range, June 2010 through June 2017). We identified 23,021 positive *C. difficile* test results (HO-Lab ID: 5,014) with 16,213 HO-CDI and 24,083,252 BDOC from the 129 hospitals during the study period. There were declining baseline trends nationwide (mean, −0.6% per month) for HO-CDI. The use of UV-C had no statistically significant association with incidence rates of HO-CDI (incidence rate ratio [IRR], 1.032; 95% CI, 0.963–1.106; $P = .65$) or incidence rates of healthcare-associated positive *C. difficile* test results (HO-Lab). **Conclusions:** In this large quasi-experimental analysis within the VHA System, the enhanced terminal room cleaning with UVC disinfection was not associated with the change in incidence rates of clinically confirmed hospital-onset CDI or positive test results with recent healthcare exposure. Further research is needed to understand reasons for lack of effectiveness, such as understanding barriers to utilization.

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Effects of Susceptibility Result Suppression on National Healthcare Safety Network Antibiotic Resistance Option Data

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Background: The National Healthcare Safety Network's (NHSN) Antibiotic Resistance (AR) Option offers hospitals a way to report antibiotic resistance data from their facility's laboratory information system and create facility-specific antibiograms. Suppression of select antibiotic susceptibility results may be used by antibiotic stewardship teams to prevent unnecessary use of broad-spectrum therapies by not making those susceptibilities available to providers. To be of use, antibiograms should offer a complete picture of antibiotic resistance. We wanted to understand the impact of data suppression. **Methods:** A retrospective cross-sectional study was conducted including data from 2017 and 2018. The clinical susceptibility data

for cefotaxime, ceftriaxone, ceftazidime, ertapenem, imipenem, and meropenem against carbapenem-resistant Enterobacteriaceae (CRE), *Pseudomonas aeruginosa* (CRPA), *Acinetobacter baumannii* (CRAB), and extended-spectrum β-lactamase–producing Enterobacteriaceae (ESBL) were collected from commercial antimicrobial susceptibility testing instruments (cASTI) in 3 Tennessee healthcare networks that also report to the NHSN AR Option. These data were linked to the NHSN data using 4 keys: date of birth, isolate collection date, pathogen, and specimen source. An isolate was defined as suppressed when susceptibility results were observed from the cASTI but not in NHSN. The proportions of suppressed results were calculated and stratified by genus, facility, and antibiotic. **Results:** Overall, 1,009 isolates were matched between the NHSN AR data and the laboratory test results. Of these, 4.1% were CRAB, 23.3% were CRPA, and 72.6% were Enterobacteriaceae. In total, 4,948 susceptibility results were available from cASTIs. Suppressed results in NHSN data were observed in 918 isolates (91.0%) and accounted for 2,797 results (56.6%). Of the 817 isolates tested against imipenem, 18.7% were found to be suppressed. Moreover, 100%, 57.9%, and 8.6% of imipenem tests against CRAB, CRPA, and Enterobacteriaceae, respectively, were suppressed. Of the suppressed results, 38.3%, 3.6%, and 58.1% were susceptible, intermediate, and resistant respectively. Of the 363 isolates tested against meropenem, 48.2% were found to be suppressed. In addition, 12.2%, 53.0%, and 52.2% of meropenem tests against CRAB, CRPA, and Enterobacteriaceae, respectively, were suppressed. Of the suppressed results, 47.4%, 11.4%, and 41.1% were susceptible, intermediate, and resistant, respectively. **Conclusions:** A large proportion of isolates had at least 1 analyzed antibiotic suppressed within the NHSN AR Option. It will be important to develop and implement strategies to ensure that nonsuppressed data are available to be reported to the NHSN AR module.

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***Escherichia coli* Antibiotic Susceptibility Patterns for Infants Admitted to NICUs Across the United States from 2009 to 2017**

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Background: *Escherichia coli (E. coli)* is a leading cause of infections among term and preterm newborn infants. Continued surveillance of neonatal *E. coli* antibiotic susceptibility patterns is important to optimize empiric antibiotic prescription for infants at risk for infection, in light of evolving reports of multidrug-resistant gram-negative bacteria in all settings. Our objective was to determine *E. coli* epidemiology and antibiotic susceptibility patterns among a large sample of infants admitted to neonatal intensive care units (NICUs) across the United States from 2009 to 2017. **Methods:** Retrospective observational study using the Premier Database, including infants born from 2009 to 2017 and admitted to academic or community NICUs contributing microbiology data during the study period. We analyzed antibiotic susceptibilities for *E. coli* isolated from blood, cerebrospinal fluid, and urine. We focused on clinically relevant and priority susceptibility categories: (1) ampicillin nonsusceptible; (2) aminoglycoside nonsusceptible; (3) carbapenem nonsusceptible; and (4) extended-spectrum β-lactamase (ESBL; phenotypic definition). We determined the proportion of infants with nonsusceptible organisms in each category by year and tested for changes over time. Lastly, we assessed susceptibility patterns by specimen source, birthweight, and timing of infection. **Results:** Of the 117,484 included infants, 733 (0.6%) had at least 1 *E. coli* episode, of which 721 (98.4%) had available susceptibility results, from 69 centers. Patient and center characteristics of infants with *E. coli* are shown in Table 1. Most organisms were tested against ampicillin (99.9%), gentamicin (99.6%), and ceftriaxone (91.5%). Figure 1 shows nonsusceptibility rates for the categories of interest. Overall, ampicillin nonsusceptibility ranged from 63.3% to 68.6% per year (mean, 66.8%±1.5%); aminoglycoside nonsusceptibility ranged from 10.7% to 23.2% (mean, 16.8%±4.5%); carbapenem nonsusceptibility was 0% for all years; and ESBL ranged from 1.2% to 11.3% (mean, 5.1%±3.4%). We detected no statistically significant trends for any of the categories of interest over time (all $P > .05$), and susceptibility trends were consistent when repeated by specimen source, birthweight, and timing of infection. **Conclusions:** We found stable, yet concerning, patterns of *E. coli* antibiotic nonsusceptibility among infants admitted to NICUs across the United States from 2009 to 2017. Rates of ampicillin nonsusceptibility and aminoglycoside nonsusceptibility were higher than previous reports. ESBL *E. coli* rates were low but present among neonatal patients. No carbapenem nonsusceptible *E. coli* was identified. These findings can inform empiric antibiotic prescription for infants admitted to NICUs across the United States.

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Table 1: Patient-level and center-level characteristics of infants with *Escherichia coli* infection (N=721)

Birthweight Category (n, %)	
• <1,500 grams	437 (60.6)
• ≥1,5000 grams	284 (39.4)
Sex (n, %)	
• Male	434 (60.2)
• Female	287(39.8)
Race/ethnicity (n, %)	
• Black	206 (28.6)
• White	301 (41.8)
• Hispanic	7 (1.0)
• Other	191 (26.4)
• Unknown	17 (2.4)
Timing (for first episode) (n, %)	
• Early-onset (first 3 days)	220(30.5)
• Late-onset (>3 days)	501 (69.5)
Specimen source (for first episode) (n, %)	
• Blood	393 (54.5)
• Cerebrospinal fluid	6 (0.8)
• Urine	322 (44.7)
Number of episodes during admission (n, %)	
• 1 episode	694 (96.3)
• 2 episodes	24 (3.3)
• 3 episodes	3 (0.4)
Length of stay (days, median [IQR])	55.5 (26,94)
Disposition (n, %)	
• Home	583 (80.9)
• Died	61 (8.5)
• Other	77 (10.7)
Geographic region (n, %)	
• Midwest	124 (17.2)
• Northeast	77(10.7)
• South	389 (54.0)
• West	131 (18.2)
Geographic classification (n, %)	
• Urban setting	693 (96.1)
• Rural setting	28 (3.9)
Hospital academic classification (n, %)	
• Teaching hospital	486 (67.4)
• Non-teaching hospital	235 (32.6)
Hospital bed size (n, %)	
• ≥200 beds	681 (94.5)
• <200 beds	40 (5.6)