initial adopters were part of large healthcare systems. These findings suggest that internal organizational factors contribute substantially to hospitals’ voluntary participation in AUR surveillance.

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1862. The Role of Infection Preventionists in Antimicrobial Stewardship Programs in Acute Care Hospitals
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Session: 222. Antimicrobial Stewardship: Potpourri
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Background. Healthcare-associated infections due to multiply-resistant organisms cause significant morbidity and mortality in acute care settings. Antimicrobial stewardship programs (ASP) are one practice used to limit resistance and are especially crucial given the lack of new antimicrobials in development. The aim of this study was to describe the presence of ASP in a national sample of acute care hospitals and examine the engagement of Infection Preventionists (IPs) in antimicrobial stewardship activities.

Methods. In winter of 2018, we conducted an electronic survey of IPs working in acute care hospitals who are members of the Association of Professionals in Infection Control and Epidemiology (APIC). An initial invitation email was sent out directly by APIC and reminders were included in a weekly e-blast over a period of 6 weeks. Descriptive statistics were computed to describe the ASP in place, as well as IP engagement in these programs.

Results. Overall, 255 IPs participated in the survey. Of these, the majority (79%) reported the presence of an established ASP; another 13% reported that ASP activities are conducted without a formalized ASP. The presence of specific ASP policies and activities are presented in the Figure. The majority (88%) reported that an IP was a member of the core ASP team. Few IPs reported budgeted financial support and specific risk management in the IP job description for ASP activities (14% and 9%, respectively). The majority of respondents agreed with the statement that ASP cannot be successful without a strong infection prevention and control (IPC) program (87%), although, only half agreed that the IP role in ASP is well defined (46%) and that IPs have adequate AS knowledge to participate in ASP activities (59%). The most frequently reported barriers for IP participation in ASP included: time (41%), no allocated FTE (23%), and lack of knowledge (18%).

Conclusion. This survey represents a current snapshot of the implementation of ASP policies in US acute care hospitals and identifies important barriers to IP engagement in ASP activities. Future work should focus how best to facilitate IP participation and engagement in ASP activities.

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1863. Antibiotic Prescribing Before and After an FDA Boxed Warning on Fluoroquinolones in 2016
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Background. In July 2016, the FDA updated its boxed warning for fluoroquinolones (FQ) in light of ongoing safety concerns. Our objective was to examine trends in FQ and other antibiotic prescribing before and after the warning.

Methods. We analyzed electronic health records for inpatient, outpatient, and emergency department encounters during April 2014–August 2017 in the University of North Carolina Health Care System (N = 14,524,758 encounters). Patients under age 2 years were excluded. We estimated FQ prescribing rates per 1,000 encounters (henceforth, “/1,000”). Using an interrupted time series approach, we fit segmented linear regression models to assess trends before and after the FDA warning, accounting for seasonality and autocorrelated errors. We evaluated trends by gender, age, and point of care, and explored potential replacement of FQs by other antibiotics after the warning.

Results. The average FQ prescribing rate was 9.2/1,000 (95% CI 3.8, 14.7). Before the warning (April 2014–July 2016), the FQ prescribing rate decreased by 0.6/1,000/year (95% CI 0.3, 0.9) (figure). At the time of the warning, the slope for the FQ prescribing rate steepened by 0.8/1,000/year (95% CI −0.1, 1.7); as a result, after the warning (July 2016–August 2017), the rate decreased by 1.4/1,000/year (95% CI 0.7, 2.1). FQ prescribing was most common among adults age ≥65 (mean rate 12.2/1,000), but relative trends were similar across age and gender. Average FQ prescribing rates were highest in the inpatient setting (48.5/1,000) compared with emergency (18.3/1,000) and outpatient (6.2/1,000) encounters; relative trends were similar across settings. Rates for other common antibiotics did not increase after the warning, either overall (figure) or in any subgroup. Results were robust to sensitivity analysis for lagged effects. Additionally, the interpretation of results is anchored by trends for inhaled corticosteroids, which we analyzed as a negative control (figure).

Conclusion. The July 2016 FDA warning on FQs was associated with a decrease in FQ prescribing rates. There was no evidence of replacement by antibiotics with similar indications. We observed no evidence of heterogeneity across subgroups defined by gender, age, and point of care. Future research should assess the potential impact of the warning in clinically defined subgroups in various settings.

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1864. Implementation of the National Healthcare Safety Network’s (NHSN) Antimicrobial Use Option in the US Veterans Affairs (VA) Medical Facilities
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Background. Inappropriate or unnecessary use of antibiotics exacerbates antimicrobial resistance and can lead to adverse clinical outcomes. To address this issue, NHSN created the Antimicrobial Use (AU) Option to report antimicrobial use within acute care facilities. A pilot program was started to implement AU reporting in VA in 2013.

Methods. With support from VA Antimicrobial Stewardship Task Force and NHSN, we deployed one team to focus on implementation and another on technical aspects. We used an iterative recruitment approach with four cohorts to date (Tiers), starting with highly engaged facilities with strong stewardship infrastructure. Our implementation approach (Figure 1) was based on the Promoting Action on Research Implementation (PARiHS) framework for successful implementation of evidence into clinical practice. We evaluated our implementation with focus groups conducted using Skype chat to collect feedback from participants about the implementation process. Group 1 contained six participants from Tiers 1 and 2. Group 2 had three participants from Tiers 3 and 4. Questions were constructed using the PARiHS framework (Table 1). An implementation team member conducted interviews, monitored the discussion, then coded major themes of responses.

Results. To date, there are over 90 facilities reporting AU to NHSN. Major themes to responses are summarized in Table 1. Overall, focus group participants were supportive of the program, but there were differences between early and later adopters.

Conclusion. A coordinated, centralized approach to facilitating implementation of NHSN AU reporting has been successful so far. Major themes from focus group responses did differ in some categories depending on tier in a way that was concordant with the theory diffusion of innovation, e.g., early tiers were enthusiastic despite a lack of institutional support while later tiers reported being motivated by regulatory requirements and had solid institutional support. More research would further inform how to efficiently implement complex programs in large systems.
### Table 1: Major themes emerging from the focus groups with corresponding PARISH category.

| Question                                                                 | PARISH Framework Category | Major Themes                                                                 |
|-------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------|
| How did you get involved with attributing your site to NHIS AU option?   | Recruitment               | Educational tools                                                               |
| What made you decide to get your site included?                         | Enrollment                | Sharepoint tools                                                               |
| Were there any barriers to getting your site included?                  | Data extraction           | Communication                                                                 |
| Were you already doing any kind of AU reporting with another system (e.g.  | Data submission           | - previously poor systems of collecting and tracking data                     |
| How did the NHIS AU option with implementation team support compare?   | Validation                | - recognized value of centralized repository for reporting                     |
| To what extent was the enrollment process burdensome on your workflow?  | Evidence Context         | - to verify barriers and to set barriers for future projects                    |
| How would you characterize the support you received?                   | Evidence Context         | - to evaluate the strengths and weaknesses of the current system             |
| What do you remember as most difficult? What was an easy task?          | Evidence Context         | - to communicate with other sites for resource sharing                        |
| When participating in enrollment, location mapping, and data submission processes, what problems, processes, or tools did you find particularly helpful? | Evidence Context | - tracking sheet was especially helpful (available only to NCV and F)            |
| Have any of your patient care processes changed as a result of AU reporting? How? | Evidence Context | - FAQ system could be better                                                     |
| Since going through the process of the AU option with NHIS, do you think it will help or how has it helped with hospital acquired infection (HAI) and antimicrobial resistance (AI) reporting? | Evidence Context | - felt like data was less overlap since different groups are responsible for HAI and AI data |
| Is there anything you haven’t asked that you would like to tell us about? | Evidence Context | - comments about how NHIS determined different definitions, hopes for future collaboration with different facilities using AU data |
| - Group 1: data provided to address questions with clinicians, on time early for outcomes assessment  |
| - Group 2: still getting acquainted with the data                        |

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### 1865. Antibiotic Susceptibilities of Organisms Isolated from Urine Cultures of Patients Diagnosed with a Urinary Tract Infection (UTI) and Discharged from the Emergency Department (ED)

Patricia Favela, PharmD; Rosanna Li, PharmD; Sam Simon, PharmD; Nechama Rollberger, PharmD; and Suri Mayer, PharmD.

Background. Urinary tract infections (UTIs) are among the most commonly treated infections in the Emergency Department (ED). Treatment is largely empiric and based on an institution-wide antibiotic comprised of isolates from all infection sites, which may overestimate antibiotic resistance of urinary pathogens of nonadmitted ED patients. The primary goal of this study was to determine the antibiotic susceptibilities of urinary pathogens isolated from adult patients with a UTI and discharged from the ED.

Methods. This was a single-center, retrospective chart review of adult patients discharged from the ED with a UTI from August to December 2017. Descriptive statistics were used to compare the antibiotic susceptibilities of pathogens isolated from urinary tract infections at our institution and local Brooklyn-area hospital.

Results. Two hundred forty-six patients were included with 267 isolates identified. 61% (151) of patients were between 18 and 65 years old and 73% (180) were female.

The most common organism isolated was *Escherichia coli* (164, 62%). *E. coli* urine isolates were most susceptible to nitrofurantoin (98%) followed by cefazolin (81%), ciprofloxacin (84%), and sulfamethoxazole/trimethoprim (64%). There was no difference in susceptibility rates of *E. coli* to cefazolin or sulfamethoxazole/trimethoprim, but isolates were more susceptible to ciprofloxacin in the ED compared with the institutional antibiogram (84% vs. 70%). Twenty-six (10.6%) patients grew an ESBL organism and of these, 42% (11/26) had no identifiable healthcare exposure within the last 90 days.

Conclusion. Despite limitations in sample size, this study supports using separate antibiotics and pathways for the treatment of UTI in the ED, especially in a community with high rates of local antibiotic resistance.

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### 1866. Adverse Outcomes Associated With Potentially Inappropriate Antibiotic Use in Heart Failure Admissions

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Background. Hospital admissions due to acute decompensated heart failure (ADHF) are common, and the clinical presentation can be confused with other conditions such as pneumonia. Hospitalized ADHF patients often receive antibiotic therapy even when the clinical suspicion for pneumonia is low, and intravenous (IV) antibiotics are commonly used. We hypothesized the additional fluid and sodium content of potentially unnecessary antibiotic therapy could worsen outcomes and complicate management of ADHF patients.

Methods. We conducted a retrospective cohort analysis of adult patients with a diagnosis of ADHF. Patients were excluded if chest radiography suggested pneumonia, if they were continuing a prior antibiotic regimen, or if they were diagnosed with a proven infection (e.g., urinary, BNP level not elevated). Patients who received antibiotics were compared with those who did not with respect to diuretic requirements, length of stay, sodium and fluid load attributable to antibiotic treatment, and readmission rate.

Results. Three hundred thirty-seven patients were screened for inclusion of which 153 were enrolled, 89 in the nonantibiotic arm compared with 64 in the antibiotic arm. Median length of stay in the antibiotic arm was 6.5 days as opposed to 3.25 days in the nonantibiotic arm (P < 0.001). The antibiotic group received a median dosage of 1.2 mg of furosemide compared with 400 mg of furosemide (P < 0.001). Patients who received antibiotics were 2.51 times more likely to be readmitted compared with patients who did not receive antibiotics (P = 0.04). On average, each patient in the antibiotic arm received approximately 970 mg of sodium daily and 1.6 L of volume attributed to antibiotic infusion.

Conclusions. Patients who received IV antibiotics during treatment for ADHF without evidence of infection had significantly longer lengths of stay, received significantly higher doses of furosemide, and were more likely to be readmitted compared with patients with the same diagnosis who were not exposed to intravenous antibiotics. Additional analyses are needed to determine factors contributing to potential overprescribing in this population, and ADHF patients are a promising target of antibiotic stewardship interventions.

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### 1867. A Regional Collaboration to Share Antimicrobial Stewardship Resources in Three Geographically Related Veterans Affairs Medical Centers

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Background. Geographically related medical centers may share patients and similar environments, and could benefit from working collaboratively to share knowledge and resources. Geographically related medical centers may share patients and similar environments, and could benefit from working collaboratively to share knowledge and resources.

Methods. Three Geographically Related Veterans Affairs Medical Centers (VAMCs) in three neighboring states (DC, MD, and WV) over 2016 and 2017. The AS programs cover 350 acute care beds and 422 long-term care (LTC)/rehab beds. Each AS team has one infectious disease physician and one pharmacist. A SharePoint Document Storage System Incorporated, Juno Beach, Florida, was used to develop a regional antimicrobial stewardship program.

Results. The AS programs in these VAMCs shared 138 distinct cases with other VAMCs, including 94 ADHF patients with an initial indication for antibiotic treatment. Despite limitations in sample size, this study supports using separate antibiotics and pathways for the treatment of UTI in this population, and ADHF patients are a promising target of antibiotic stewardship interventions.

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