717. An Antimicrobial Stewardship Initiative to Evaluate Penicillin Allergy Labels in Spinal Cord Injury and Long-Term Care Patients

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Background. Inaccurate penicillin (PCN) allergy labels force clinicians to choose less-preferred therapies. Implementation of an inpatient penicillin skin testing (PST) program is one way to assess allergy label validity, but outpatient PST may also play an important role. Within the Miami Veteran Affairs Healthcare System, the Allergy Service and Antimicrobial Stewardship Program (ASP) collaborated to identify and assess PCN allergic patients considered likely to need antibiotics in the future. The purpose of this project is to describe the process and outcomes of this collaboration, targeting Spinal Cord Injury (SCI) and another long-term care patient population.

Methods. From April 2016 to February 2017, the ASP pharmacist periodically generated a list of patients admitted to the SCI unit or nursing home with an active PCN allergy label. Patients were screened and an electronic consult was sent to an allergist for evaluation. Data for assessment of the intervention were obtained via a continuous quality improvement project overseen by the ASP and Allergy service.

Results. There were 53 patients identified for ASP pharmacist review. Of these, 24 (45%) were referred to the allergist. To date, 13 patients have been evaluated in the outpatient allergy clinic, 6 referrals cancelled and 5 are pending evaluation. Of the 13 patients evaluated, 11 had their allergy label removed and 2 did not. (One patient declined testing and the other was found to have skin anergy.) Eight of 11 negative patients (73%) received antibiotics after label removal and 5 of these patients (45%) received a β-lactam (totaling 153 days of therapy with 5 intravenous courses for complicated infections).

Conclusion. An ASP/Allergy Service collaboration to identify inaccurate penicillin allergy labels in special outpatient populations at risk for requiring antibiotics may have a positive impact on the subsequent rate of the use of first-line antimicrobials.

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718. Pre-implementation Assessment of An Antimicrobial Stewardship Program for Acute Respiratory Infections within Emergency and Urgent Care Settings

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Background. Inappropriate antibiotic use in emergency department (ED) and urgent care center (UCC) settings is a major public health concern, yet few antibiotic stewardship programs have been designed for these settings. We report a qualitative pre-implementation workflow analysis of five ED and UCC settings investigating the facilitators and barriers to incorporating an adapted CDC Get Smart antibiotic stewardship intervention for antibiotic-nonresponsive acute respiratory infections.

Methods. Seventeen semi-structured interviews were conducted at two academic medical centers using purposeful sampling of physicians, nurses, and administrators in adult and pediatric EDs and UCC. Interviews were recorded, transcribed, and analyzed independently by two researchers using NVivo 11. Grounded theory content analysis using the Evidence-Based Practice Implementation conceptual framework was performed for barriers and facilitators of implementation of antibiotic stewardship interventions in acute care settings and emergent themes.

Results. Facilitators to implementation included ability to display bilingual patient education materials while patients wait and within densely populated patient care areas, venues for provider education, the use of guidelines for antibiotic use, and willingness to use discharge tools like viral prescription pads. Barriers to implementation were communication deficiencies among providers, maintaining provider awareness, timing of interventions into the clinical workflow, and concern that long wait times may increase antibiotic prescribing. New ideas included incorporating stewardship education into the triage process. **Conclusion.** This study provides a framework for adaptation of existing antibiotic stewardship strategies to match the clinical workflow ED and UCC settings based on an analysis of the unique challenges inherent within these environments. It also provides a model for the development and pre-implementation assessment of antibiotic stewardship to account for, and adapt to, site-specific conditions.

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719. Comparing a Clinical Decision Tree vs. Standard of Care for Predicting ESBL+ Bacteremia in a VA Population

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Background. Appropriate empiric antibiotic selection is very important in severe infections. The rise of infection by multidrug-resistant Gram-negative organisms, especially those with the extended-spectrum β-lactamase phenotype (ESBL+), has led to increasing use of broad-spectrum antibiotics, which further selects for more antimicrobial resistance. Improving empiric antibiotic selection is an important goal to preserve the effectiveness of current antibiotics and slow the rise of antimicrobial resistance. A proposed clinical decision tree to predict ESBL+ bacteremia performed well at the developer's institution, but its external validity, such as in a VA population, is not known. We sought to compare an existing clinical decision tree with standard of care for predicting ESBL+ bacteremia in a VA population.

Methods. Patients with positive blood cultures that grew *E. coli* and *Klebsiella* spp. were included For each patient, the first episode of bacteremia with the specified organisms was examined. Electronic medical records were examined for clinical and microbiological data. Previously described clinical decision tree was used to predict whether the isolate to be ESBL+. Empiric antibiotic selection (prior to antibiotic susceptibility testing reporting) by the emergency department and the primary inpatient service were collected.

Results. The clinical decision tree correctly predicted the antimicrobial resistance status in 48/54 (88.9%) of episodes of bacteremia and identified 4/10 (40%) of ESBL+ isolates. Standard of care empiric antimicrobial prescribing by the emergency department (*n* = 23) was overly-broad in 39.1%, the targeted spectrum in 47.8%, and overly-narrow in 13.0%. Empiric antimicrobial prescribing by the primary inpatient service (*n* = 31) was overly-broad in 38.7%, the targeted spectrum in 48.4%, and overly-narrow in 12.9%. Transitioning from the emergency department to an inpatient service (*n* = 32), antimicrobials were empirically escalated in 34.4%, unchanged in 40.6%, laterally (similar antimicrobial spectrum) changed in 12.5%, and de-escalated in 9.4%.

Conclusion. In a VA population, the clinical decision tree correctly predicted many patients, but performed less well in those who had ESBL+ bacteremia. Empiric prescribing by standard of care were suboptimal.

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720. Implementation of an Antimicrobial Restriction Policy: Is the "Paper" More Persuasive?

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Background. Two core interventions recommended by the Infectious Diseases Society of America (IDSA) for antimicrobial stewardship are pre-authorization (PA) and prospective audit and feedback (PAF). The objective of this study is to examine the impact of implementation of a PA method in the form of a restrictive antimicrobial policy (effective January 1, 2016) compared with PAF alone.

Methods. IRB-approved, single-center, pre-post quasi-experiment including all inpatients at the University of Toledo Medical Center from September 1,2015–April 30, 2016 who received >/ = 1 dose of meropenem, linezolid, or micafungin. Patients readmitted in the study period and received additional doses of the same study drug were excluded. Primary endpoint: rate of meeting hospital-approved criteria for use at or before 72 hours. Secondary endpoints: length of therapy (LOT), incidence of *C. difficile*, in-hospital mortality, and 30-day all-cause mortality. All statistical analyses performed using SPSS V.21.

Results. 434 antibiotic courses screened, 366 included: 183 pre-, 183 post-policy, representing 319 unique hospitalizations for 307 unique patients; 55.4% male, median (IQR) age 62.8 (51.1–71.0) years and 41% ICU. Baseline characteristics were similar between groups, except diabetes, parenteral nutrition therapy, and The presence of an indwelling device prior to admission. Rate of meeting device criteria at 72 hours was 49.7% pre- vs. 56.8% post-policy (*P* = 0.174) and rate of discontinuation/de-escalation at 72 hours was 20.2% vs. 26.8% (*P* = 0.140). Length of therapy was not significantly different. Additional secondary endpoints are shown in Table 1.

Table 1. Clinically evaluable endpoints

	Pre-policy (*n* = 157)	Post-policy (*n* = 162)	*P*-value
C.difficile infection	13 (8.3)	8 (4.9)	0.229
In-hospital mortality	14 (8.9)	17 (10.5)	0.635
30-day, all-cause mortality	22 (14.0)	21 (13.0)	0.784

Values reported as *n* (%).

Conclusion. Although not statistically significant, implementation of a PA policy led to an increase in meeting hospital-approved criteria for use at 72 hours of therapy. The number of orders stopped or de-escalated at 72 hours increased as well. No additional harm was seen, evidenced by similar rates of mortality and *C. difficile*. Further study is warranted to determine whether the impact of the policy improves over time.

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