Background. The outcomes associated with the acceptance or refusal of a recommendation from an antimicrobial stewardship program (ASP) on an individual level have not been studied yet. Our objective was to compare the clinical characteristics and mortality of patients for whom a recommendation from an ASP, based on prospective audit and feedback and triggered by a computerized decision support system, was accepted or refused.

Methods. We performed a retrospective cohort study of all hospitalized adult patients who received intravenous or oral antimicrobials in two tertiary care hospitals in Canada between 2014 and 2016, and for whom a recommendation was issued by an ASP.

Results. We identified 1,251 recommendations throughout the study period. Among the recommendations made by the pharmacist to prescribers, 1,144 (91.5%) were accepted. The most frequent interventions were immediate scheduling end of treatment (n = 364, 29%), dosing/frequency adjustments (n = 321, 26%), streamlining (n = 251, 20%), and switching from intravenous to oral therapy (n = 247, 20%). The antimicrobials most frequently targeted by recommendations were piperacillin/tazobactam (n = 273, 22%) and fluoroquinolones (n = 267, 21%). Overall, the length of the antimicrobial targeted by the recommendation was significantly shorter when a recommendation was accepted (0.37 days vs. 2.11 days; P < 0.001). In the multiple logistic regression analysis, the independent risk factors associated with in-hospital mortality were the Charlson score, issuance of a recommendation for a patient in the intensive care unit, the duration between admission and the recommendation, issuance of a recommendation in 2016 (compared with 2014), and age of the patient. A recommendation issued on a fluoroquinolone or oral penicillin/first generation cephalosporin was associated with lower odds of mortality. After adjustment, refusal of a recommendation by the attending physician was associated with a higher, albeit nonsignificant, risk of mortality (AOR, 1.81; 95% CI, 0.89–3.68; P = 0.10).

Conclusion. The duration of the antimicrobial treatment was significantly shorter when a recommendation triggered by an ASP program was accepted. This decrease in antimicrobial duration was not associated with increased mortality.

Disclosures. J. Perron, Lumed Inc., the company that commercializes APSS: Shareholder, Shareholder; V. Nault, Lumed Inc., the company that commercializes APSS: Shareholder, Shareholder; M. Beaudoin, Lumed Inc., the company that commercializes APSS: Shareholder, Shareholder; L. Valletta, Lumed Inc., the company that commercializes APSS: Shareholder, Shareholder

1542. Safety of Stopping Antibiotics Prescribed “Just in Case” – Comparison of Mortality, Readmissions and Clostridium difficile in Patients with Accepted Stewardship Interventions Compared with Declined

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Background. Antibiotics are often prescribed “just in case” when clinical conditions mimic an infection, such as the shortness of breath in heart failure, the erythema of various stasis dermatitis, the abdominal pain such as asymptomatic bacteriuria (ABU) and C difficile colonization. Through prospective audit and feedback (PAF), antimicrobial stewardship programs (ASP) may guide providers toward appropriate antibiotic use. However, the safety of stopping antibiotics needs to be assessed. We retrospectively reviewed clinical characteristics of patients with accepted ASP recommendations and compared these to patients in whom the primary team declined ASP recommendations.

Methods. The ASP database was used to identify patients receiving written PAF to stop antibiotics prescribed for noninfectious conditions from January 1, 2016 to December 31, 2016. The primary outcome of interest was antibiotic days of therapy (DOT), total length of therapy (LOT), hospital length of stay (LOS), 30-day mortality, and the incidence of C difficile within 6 months of the ASP intervention, occurring among patients whose primary treating team accepted vs. refused the ASP recommendation. We compared the two groups using Chi-square and student t test to determine statistical significance for categorical and continuous variables, respectively.

Results. There were 232 ASP recommendations to stop antibiotics for noninfectious conditions: 150 (65%) interventions were accepted. Baseline demographic characteristics, comorbidities, intensive care admission and surgery during their hospitalization were similar between the two groups. The most common noninfectious conditions were ABU (55%), followed by respiratory (19%) and intra-abdominal (17%). The median antibiotic DOT and LOT were significantly reduced in the accepted group, 3 (3–5) vs. 8 (5–12.25) days (P < 0.001) and 3 (2–4) vs. 7 (5–10) days (P < 0.001), respectively. There were no statistical differences in 30-day mortality, 30-day readmission, and C difficile within 6 months.

Conclusion. Our institutional ASP’s PAF to stop antibiotics for noninfectious conditions led to a significant reduction in antimicrobial exposure without negatively affecting mortality or hospital outcomes.

Disclosures. All authors: No reported disclosures.

1543. A Multi-Faceted Antimicrobial Stewardship Program (ASP) Intervention Using Clinical Pharmacists Reduces Antibiotic Use and Hospital-Aquired Clostridium difficile Infection (HA-CDI)

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Background. ASPs continue to investigate novel ways to improve appropriate antibiotic utilization. The impact of an ASP-led, multi-faceted coaching and real-time feedback model directed toward clinical pharmacists was evaluated.

Methods. A single-center, pre-post quasi-experimental study was conducted with a four-month historical control period (11/2016–2/2017) and four-month intervention period (4/2016–7/2016) to reduce the use of ceftriaxone, fluoroquinolones, and clindamycin. Clinical pharmacists were responsible for ensuring the appropriate use of these restricted antimicrobials with limited guidance by the ASP in the historical control period. The intervention was multi-faceted: ASP pharmacists provided daily coaching and feedback on use of targeted agents to the clinical pharmacists, clinical pharmacists made recommendations to optimize therapy, and in-person monthly sessions were held where a dashboard consisting of aggregated utilization data and HA-CDI rates was discussed by the ASP pharmacist. Segmented regression analysis was used to determine the significance of this intervention on the utilization of the antibiotic, measured by days of therapy (DOT) per 1000 patient-days (PD). Rates of HA-CDI were also compared between the groups.

Results. The use of fluoroquinolones (34.4 vs. 26.2 DOT/1000 PD; Δ -23.9%), ceftriaxone (17.7 vs. 13.6 DOT/1000 PD; Δ -23.2%), and clindamycin (187 vs. 13.3 DOT/1000 PD; Δ -28.9%) decreased during the intervention period. Using segmented regression analysis, a significant decreasing rate of antibiotic use of all three agents was observed during the intervention period (Table). A significant decreasing rate of HA-CDI was also seen (rate ratio (RR): 0.787, 95% CI: 0.743–0.833, P < 0.001).

Conclusion. A multi-faceted coaching and feedback intervention targeting clinical pharmacists with substantial ASP oversight can significantly reduce inappropriate antibiotic use and HA-CDI in a large hospital.

Table. Segmented Regression Analysis

| Drug          | Effect | Rate Ratio | 95% CI | P-value |
|---------------|--------|------------|--------|---------|
| Fluoroquinolones | Intervention*time | 0.971 | 0.949–0.995 | 0.016 |
| Ceftriaxone    | Intervention*time | 0.842 | 0.795–0.891 | <0.001 |
| Clindamycin    | Intervention*time | 0.931 | 0.904–0.958 | <0.001 |

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1544. Impact of System-wide Adoption of CDC Core Elements on Antimicrobial Use and Clostridium difficile Infection in a Large Health System

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Background. Inappropriate Antimicrobial use, its associated resistance and suboptimal patient outcomes are important quality and safety concerns. Antimicrobial stewardship programs (ASP) can help reduce the risk of development of multi-drug resistant organisms, and Clostridium difficile infections. The Centers for Disease Control and Prevention (CDC) recommended core elements for successful implementation of ASPs in 2014. We describe the adoption of the core elements and associated outcomes at a large health system in the United States.

Methods. We organized our program based on the seven core elements. We focused on 1) making antimicrobial stewardship a system priority with full leadership support, 2) creating an infrastructure to promote and disseminate best practices, 3) standardizing indications for use of the different antimicrobial classes promoting most narrow-spectrum agents, and 4) building capacity for hospitals to achieve their goals from local leadership buy-in to infrastructure to do the work.

Results. Local ASPs were established in 89 hospitals. 3.3 million defined days exposed (DDD) were used in FY16 compared with 2.9 million in FY16 and 2.8 million in FY 17. There was a drop in systemic antimicrobial use from 877 (FY15) to 809 (FY16) and 776 (FY17) DDDs/ 1000 patient-days (7.7% and 4.1% reduction in FY 16 and FY 17; P <0.001) (Figure 1 and 2). In addition, hospital onset C. difficile lab ID events standardized infection ratios (SIR) dropped from 0.89 (events/2292) in FY15 to 0.84 (events/2056) in FY16 (5.6% reduction) and 0.75 in FY 17 (events/1818), a 10.7% reduction compared with FY16.

Conclusion. Implementation of the CDC core elements in a very large system has led to both an improvement in total systemic and targeted antibiotic use and reduction in C. difficile infections.