201. Outcomes of an Antibiotic Stewardship Team at an Academic Medical Center: 11 Years of Experience
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Background. The University of Minnesota Medical Center (UMMC) is a tertiary care facility, which has had a comprehensive antimicrobial stewardship program (ASP) for 11 years.

Methods. The antimicrobial stewardship team is comprised of a full-time PharmD and ID staff physicians who rotate on the service. Recommendations are placed in the electronic medical record as a progress note. Verbal recommendations may also be made.

Results. There was a downward trend in Hospital Acquired (HA) C. difficile diarrhea from 2007 to 2014 from 1.2 to 0.5/1,000 patient-days. Rates appear stable from 2014 to 2017 with adjustment for change to NHSN laboratory-based surveillance (Figure 1). From 2009 to 2017 a decrease was seen in VRE hospital-acquired infections (HAI) from 0.53 to 0.24/1,000 patient-days and in MRSA HAI from 0.2 to 0.04/1,000 patient-days. Newly acquired ESBL HAIs have remained relatively stable from 2009 to 2017 at 0.09 to 0.1/1,000 patient-days. CRE HAIs are an emerging problem with increasing rates (Figure 2). Cost savings continued from year to year. The greatest cost savings was observed at University of Minnesota, Minneapolis (2006–2008) in which antimicrobial doses/patient day declined by 7%, antibiotics costs declined by $7.40/patient day. In 2012, we observed our lowest antibiotic cost/pt day at $37.51. Through August 2017, we have observed a sustained average antibiotic cost per patient day of $39.45. In 2012, we observed our lowest antibiotic cost/pt day at $37.51. Through August 2017, we have observed a sustained average antibiotic cost per patient day of $39.45. In 2012, we observed our lowest antibiotic cost/pt day at $37.51. Through August 2017, we have observed a sustained average antibiotic cost per patient day of $39.45.

Conclusion. We observed a decrease in HAIs VRE and C. difficile infections after 3 years of operation, and MRSA after 5 years. ESBL HAIs remain relatively stable and CRE are emerging HAIs of concern. Therefore, we are now focusing efforts of limiting unneeded carbapenem use. Our antibiotic costs/patient day have leveled off in the last 3 years and remained low despite rising antibiotic costs due to market inflation and drug shortages. The ASP outcomes have continued to cost justify ongoing efforts. The effects of the program and the Infection Prevention Department appear to be synergistic.

202. Implementation and Three-Year Results of Antimicrobial Stewardship Program in a Three Hospital Community Health System
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Background. Antibiotic Stewardship Programs (ASPs) have been shown to reduce hospital-onset Clostridium difficile infection (HO-CDI) rates and antimicrobial utilization (AU). The purpose of this study was to evaluate the implementation of multidisciplinary ASP targeted toward finding a direct correlation between AU and HO-CDI.

Methods. This is a 3-year review of implementation of ASP in late 2014 Q4 in three hospital health system. Multidisciplinary ASP committee was established with representation from infectious diseases, clinical pharmacy, infection control, nursing, microbiology, and informatics. Each of the three hospital implemented targeted stewardship efforts with an initial focus on monthly advanced education, daily audit and feedback for targeted infectious, and infectious diseases approved restricted antibiotics. We created a monthly checklist of CDC Core Elements for committee review. The primary objective of this initiative was to evaluate changes in total and targeted AU and HO-CDI within a program over a 3-year period. Subgroup analysis evaluated annual antimicrobial cost/patient day. The secondary objective was to evaluate changes in overall AU and HO-CDI.

Results. Baseline overall AU analysis was based on 2014 and the intervention period included 2015, 2016, and 2017. Baseline overall AU in 2014 was 850 DOT/1,000PD. We observed a consistent decline in overall AU in 2015, 2016, and 2017 (740, 572, and 550 DOT/1,000PD, respectively). Targeted analysis revealed consistent decline from 2014 to 2017 in fluoroquinolones (FQ) (140 vs. 35 DOT/1,000PD) and ceftazidime (CTX) (85 vs. 65 DOT/1,000PD). Overall decline was also noted in rates of HO-CDI from 2014 to 2017 (15.75 vs. 3.38 per 10,000PD). Consistent decline in overall antimicrobial cost/patient day was noted from 2014 to 2017 ($13.76 vs. $13.41/patient day). Spearman’s rank correlation analysis showed positive correlation between decline in AU and HO-CDI in overall antibiotics (r = 0.58, P = 0.022), CTX (r = 0.61, P = 0.016), and FQ (r = 0.54, P = 0.038).

Conclusion. We present implementation of an effective health system-wide multidisciplinary ASP. With ASP efforts over 3 years, we were able to show decline and positive correlation in overall as well as targeted AU and HO-CDI. We also noticed a consistent decline in cost/patient day in this timeframe.

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203. Impact of an Infectious Diseases Fellow-Led Antimicrobial Stewardship Initiative in a Medical/Surgical ICU
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Background. Intensive care units carry the heaviest antibiotic burden within hospitals. Providing active and ongoing stewardship oversight in these areas is challenging for institutions with limited stewardship resources. The purpose of this study was to assess the impact of leveraging an infectious disease fellow, in implementing a stewardship initiative in an intensive care unit.

Methods. A single-center retrospective, quasi-experimental study assessed the impact of an infectious diseases fellow participating in daily medical rounds in a mixed medical and surgical ICU over a consecutive 4-month period. The fellow conducted physical examinations, reviewed antimicrobial therapy, and de-escalated or discontinued antimicrobials when appropriate. Monthly days of therapy (DOT) per 1,000 days at risk (DAR) for individual agents and total antimicrobial use were measured and compared for 4 months in the pre, during-, and postintervention phases.
Results. Median overall antimicrobial use was similar between the pre-, during- and postintervention periods at 1,089, 1,100, and 1,146 DOT/1,000 DAR, respectively. For the five most commonly used drugs, reductions in DOT/1,000 DAR were observed between the pre- and during-intervention groups for ampicillin/sulbactam (26%) and metronidazole (12%), while ceftiraxone, cefepime, and vancomycin use was unchanged.

Conclusion. While no change in median total antibiotic use was observed, a reduction in anti-anaerobic agent use noted, consistent with local efforts to reduce inappropriate antibiotic prescribing for aspiration pneumonitis. Actively involving medical residents and fellows in establishing evidenced-based approaches to antimicrobial stewardship is key to improving antibiotic utilization and minimizing the development of antimicrobial resistance.

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204. Impact of Education and Data Feedback Interventions on Outpatient Prescribing for Urinary Tract Infections

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Background. Urinary tract infections (UTIs) are the most common outpatient indication for antibiotics and an excellent target for outpatient antimicrobial stewardship (AS) interventions. This study evaluated the impact of education and data feedback on outpatient UTI diagnosis and prescribing.

Methods. A clinic-specific antibiogram, diagnosis and treatment guideline, and educational session were provided at one urgent care (UC) and one primary care (PC) clinic in Durham, NC in August and November of 2017. Educators reviewed the appropriate diagnosis, treatment, and duration of therapy for UTIs, including avoidance of treatment for asymptomatic bacteriuria and choice of first-line agents with lower collateral damage. Adult encounters with a UTI diagnosis code from November 2016 to November 2017 and from August 2016 to August 2017 were included in the postintervention cohort for UC and PC, respectively. The postintervention cohort included encounters following education intervention in April 2018. Summary data of UTI diagnoses and guideline concordant prescriptions were fed back to clinics February 2018. The primary endpoint was proportion of first- or second-line antibiotic choice for UTI according to clinic-specific guidelines. Pre- and postintervention phase and trend changes were assessed by an interrupted time series approach.

Results. Data were collected on 2,660 and 1,016 UTI encounters at UC and PC, respectively. Guideline concordant prescribing increased at UC from 29% at baseline to 47% in the 5 months after the education and at PC from 54% at baseline to 62% in the 8 months after the education (Figures 1 and 2). The mean number of UTI diagnoses per month decreased at UC from 142 at baseline to 102 and at PC from 32 at baseline to 25 after the education.

Conclusion. Clinicians increased guideline concordant prescribing and reduced diagnosis rates for UTIs. AS is effective at improving guideline-directed diagnosis and management of UTIs in outpatient settings.

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205. Reduction of Antibiotic Prescribing Within a Veterans Affairs Emergency Department Through Peer Comparison

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Background. Reduction in inappropriate antibiotic use in Emergency Departments can have a major impact on overall outpatient antibiotic use. Peer comparison has been used to successfully reduce antibiotic prescribing in primary care clinics at our hospitals and others.

Methods. An educational session was held for Emergency Department physicians (EDPs) at VA Pittsburgh. EDPs were then sent monthly comparison charts of their oral antibiotic prescribing rates as well as peer rates. An intervention period of January–March 2018 was compared with a seasonal baseline of the same months in 2017. A random sample of oral antibiotic prescriptions was reviewed in-depth for adherence to consensus guidelines.

Results. During the baseline period of January–March 2017, 427 oral antibiotic prescriptions were written by 16 EDPs during a total of 3,722 patient encounters, with an antibiotic prescription index of 114.1 per 1,000 patient encounters. In comparison, 301 prescriptions were written by the same 16 EDPs during 4,874 patient encounters in the postintervention period (January–March 2018), with an antibiotic prescription index of 61.7 per 1,000 patient encounters (45.9% decrease; P = 0.0001). Azithromycin and fluoroquinolone indices decreased from 29.6 to 16.6 (43.9%; P < 0.0001) and 10.5 to 8.0 (23.8%; P = 0.2) per 1,000 encounters, respectively. Among randomly reviewed prescriptions, there was a trend toward a decrease in inappropriate antibiotic prescribing from 47.6% (20/42) to 63.0% (30/48) (P = 0.15). Among the randomly reviewed prescriptions that were indicated, there were non-significant decreases in the percentages of guideline-discordant agents (22.7% (5/22) to 14.2% (3/21; P = 0.7)), and in the percentage of guideline-concordant agents given for a guideline-discordant duration (29.4% (5/17) to 22.2% (4/18; P = 0.7)). Likewise, there were non-significant decreases in inappropriate antibiotic prescribing for URIs (94.1% (16/17) to 75% (3/4; P = 0.35).

Conclusion. In an emergency department setting, initial education followed by monthly peer comparison of overall antibiotic prescribing rates significantly reduced overall antibiotic prescribing. Ongoing data review will reveal if trends toward reductions in inappropriate antibiotic prescribing are significant.

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206. Respiratory Viral Testing Is Associated with Lower Frequency of Antibiotic Prescribing for Acute Upper Respiratory Infections at a Large Ambulatory Cancer Center

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Background. Inappropriate outpatient antibiotic prescribing for acute upper respiratory infections (URIs) is a high priority target for antimicrobial stewardship and has not been described for cancer patients. The goal of this study was to characterize patterns of factors and factors associated with antibiotic prescribing among ambulatory oncology patients with URIs.

Methods. We selected outpatients >18 years old seen at an ambulatory cancer center with ICD-10 diagnosis code consistent with URI from October 1, 2015 to September 30, 2016 for chart review. Patients without documented URI symptoms or with lower tract infection at the first clinical encounter for the URI (day 0) were excluded. We obtained demographic, clinical, antimicrobial prescribing and