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Background. Hospitalists are critical partners in antimicrobial stewardship program (ASP) efforts to improve antimicrobial use, but limited data exists on the effectiveness of ASP-hospitalist collaboration. We performed a hospitalist-led quality improvement project with pharmacy collaboration to improve antimicrobial prescribing practices on general internal medicine teaching services at an urban academic medical center.

Methods. We conducted a 3-arm intervention study on internal medicine teaching services from September–December 2016. Three services received an educational (Ed) intervention consisting of an antibiotic rationale checklist, a templated progress note to promote trainee critical thinking about antibiotic management, and a pocket card with institutional guidelines. In addition, 1 team received twice weekly stewardship rounds with an infectious disease clinical pharmacist (Ed+ID-PharmDx2) while another team received 5x week stewardship rounds with a generalist clinical pharmacist (Ed+PharmDx5). The primary outcome was broad-spectrum antibiotic use calculated as days of therapy (DOT) per 1000 patient days compared with historical data from the corresponding months. Secondary outcomes included duration of inpatient therapy, antibiotic costs, length of stay, 30-day readmission, ICU transfer and in-hospital mortality.

Results. Broad-spectrum antibiotic use significantly decreased by 26% (415 vs. 306 DOT/1000 patient days) and 32% (425 vs. 287 DOT per 1000 patient days) on the Ed and Ed+PharmDx5 teams, respectively ($P < 0.01$). Broad-spectrum use on the ED+ID-PharmDx2 team decreased by 9% but was not statistically significant. There was a significant improvement in median length of stay among patients receiving antibiotics for Ed only (-1.5 days; $P < 0.001$) and Ed+PharmDx5 (-1 day; $P < 0.001$) and no significant change in 30 day readmissions, ICU transfer and in-hospital mortality for any team. Direct antibiotic costs were reduced by \$80,000 during the study period.

Conclusion. A hospitalist-led initiative to improve inpatient antimicrobial prescribing led to reductions in broad-spectrum antimicrobial use and reduced length of stay. ASPs should target hospitalists and pharmacists as partners in programmatic efforts to improve inpatient antimicrobial prescribing.

Disclosures. All authors: No reported disclosures.

763. Peripherally Inserted Central Venous Catheters (PICCs): An Opportunity for Antimicrobial Stewardship

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Background. PICCs are often used in hospitalized patients who require prolonged intravenous (IV) antibiotic therapy. PICCs offer the advantage of ease and safety of insertion over traditional central venous catheters (CVCs) but still carry the risks of venous occlusion, phlebitis, dislodgement and central line associated blood stream infection (CLABSI).

The objective of this analysis was to determine the impact of an ASP's prospective audit and feedback when PICCs are ordered for antibiotic therapy.

Methods. Pharmacists from the Antimicrobial Stewardship Program (ASP) and Nurses from the PICC team reviewed the electronic medical record of patients ordered a PICC for IV antibiotics to determine whether either antibiotic therapy could be changed to the oral route or if therapy was complete per current infectious disease treatment guidelines. If either alternative to the PICC was approved by the ASP physician, the medical team was contacted to discuss discontinuation of the PICC order as well as the antibiotic recommendation.

Results. From January 1, 2016 through March 30, 2017, placement of 35 PICCs was prevented through prospective Stewardship review of PICC orders indicated for antibiotic use. A total of 361 PICC days and 378 IV antibiotic days of therapy (DOT) were avoided. Antibiotic therapy was stopped for 6 patients; 27 patients were prescribed an oral antibiotic alternative including 9 patients who were receiving IV vancomycin.

For the 35 patients where a PICC was not placed, \$8,700.00 to \$10,380.00 was avoided in materials utilized for catheter placement and approximately 52 hours in IV nursing time was avoided for PICC placement. Additionally, approximately \$14,400.00 in antibiotic expenditures was also avoided.

Conclusion. The opportunity exists for ASPs to reduce IV antibiotic DOT, avoid patient risk for CLABSI and reduce the cost of hospitalization and PICC nurse workload through screening PICC orders for IV antibiotic therapy.

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764. Developing Surgical Antimicrobial Prophylaxis Interventions Using Theoretical Domains Framework

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Background. Surgical site infections are common causes of healthcare-associated infections. Using surgical antimicrobial prophylaxis (SAP) is a complex process that can reduce these rates if performed correctly. While antimicrobial stewardship programs have developed guidelines for SAP, there has been less focus on understanding and modifying the behavioral and contextual factors required to optimize prophylaxis use. We performed chart reviews and workflow analyses to develop interventions based on a theoretical framework to improve SAP use in two academic hospitals.

Methods. SAP use during a one month period (October 2016) was analyzed for orthopedic and general surgery procedures by chart review. The primary outcomes of interest included SAP choice, preoperative timing, intraoperative re-dosing, and postoperative continuation. Structured workflow analyses were performed to understand the processes involved in SAP ordering and administration. These findings were applied to the Theoretical Domains Framework (TDF) to develop theory-based interventions.

Results. We reviewed 88 orthopedic and 63 general surgery procedures. Adherence to institutional guidelines for prophylaxis choice was low in both orthopedic (55%) and general surgery (70%). For general surgery, preoperative timing was incorrect in 25% of cases, re-dosing for procedure duration was incorrect in 59% of cases, and re-dosing for blood loss was not routinely performed. Alternatively, for orthopedic surgery cefazolin was re-dosed too early, at a median of 93 minutes ($n = 42$), and postop antibiotic use was continued for 10 days in all 14 aseptic hip revisions. There was variation in practice patterns among orthopedic surgeons. Using TDF, we identified barriers among numerous theoretical domains for re-dosing (knowledge; memory, attention, and decision processes; environmental context and resources); choice of antibiotic and postoperative duration (knowledge; beliefs about consequences; emotion; social influences).

Conclusion. We identified suboptimal SAP use in two surgical services, each with distinct deficiencies. Performing in-depth chart reviews and workflow analyses characterized the specific behavioural and contextual barriers that require intervention.

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765. Partners in Stewardship: Collaboration Between a Tertiary Hospital and Local Skilled Nursing Facilities to Improve Management of Suspected Urinary Tract Infections

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Background. Opportunities exist for improving antimicrobial use in skilled nursing facilities (SNF). We evaluated the impact of a tertiary medical center partnering with local SNFs to improve appropriate diagnosis and antimicrobial utilization focused on management of suspected urinary tract infections (UTIs).

Methods. Using an existing collaboration between Cedars-Sinai Medical Center and 8 SNFs, we established a framework of antimicrobial stewardship principles related to UTI management as follows: Phase 1 (Jul-Dec 2015), baseline assessment; Phase 2 (January-Jun 2016), developed SNF-specific UTI treatment recommendations based on local resistance patterns; Phase 3 (Jul-Dec 2016), implemented tools to standardize UTI assessment, including SNF-specific treatment recommendations developed in Phase 2. Outcome assessments included antimicrobial utilization and prescribing consistent with treatment recommendations. Chi-squared and Student's t-test were used as appropriate.

Results. Aggregate data were available from 3 SNFs. Compared with baseline, implementation of the program was associated with a 20% reduction in monthly antimicrobial days of therapy (DOT) (181 to 144 DOT/1000 patient days, $P = 0.04$), including a 39% reduction in fluoroquinolone (FQ) DOT (37 to 22 DOT/1000 patient days, $P = 0.002$). Initiation of FQ orders declined by 41% (17 to 10 orders/month, $P = 0.02$). Following implementation, 60% of antimicrobial orders for UTI were consistent with SNF-specific UTI guideline recommendations. We continued to observe a high proportion of patients without UTI symptoms who received antimicrobials (72%).

Additional data were available from one facility. Initiation of antimicrobials at the SNF for UTIs decreased 29% (75 to 53 orders/month, $P < 0.001$), and SNF FQ orders for UTIs decreased 55% (11 to 5 orders/month, $P = 0.005$).

Conclusion. Hospitals and SNFs can partner to develop a successful antimicrobial stewardship program. Implementing facility-specific tools to guide appropriate management of suspected UTI was associated with a significant reduction in overall antimicrobial prescribing, particularly FQs. Opportunities to reduce overtreatment for asymptomatic bacteriuria remain.

Disclosures. All authors: No reported disclosures.

766. Posters that Contain Information About Antibiotic Related Harm Reduce Expectations for Antibiotic Treatment of Viral Upper Respiratory Tract Infections

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Background. Patient-directed education that aims to lower patients' expectations for antibiotics is a promising strategy to reduce antibiotic usage for viral upper respiratory tract infections (URTI). We aimed to test three posters on a patient population to see whether the messages were comparable in reducing expectations for antibiotics to treat URTI.

Methods. We developed three posters about antibiotic treatment of URTI (figure). The first indicated that antibiotics are not helpful (futility), the second indicated that antibiotics can cause personal harm (ADR), and the third indicated that antibiotic usage promotes the development of antimicrobial resistance (resistance). We surveyed hospital inpatients over the age of 15 years to measure their expectations to receive antibiotics if they had a hypothetical URTI. We then showed each participant one of the three posters selected randomly, and after 20–30 minutes completed a follow-up survey.

Results. 299 participants completed both surveys. There was a statistically significant association between participants' responses and highest education level ($P < 0.001$). Eighty-one/299 (27%) expected their doctor to prescribe antibiotics for a "bad cold or flu" and this reduced to 38/299 (13%) after viewing the posters ($P < 0.01$). This result did not vary between posters, but participants shown poster 2 (ADR, $n = 101$) and 3 (resistance, $n = 100$) were less likely to agree that "antibiotics are safe" compared with participants shown poster 1 (futility, $n = 98$) ($P < 0.001$). The majority of the participants thought the information would affect their future behaviour (192/299, 64%) and that they would be likely to discuss this information with their friends and families (232/299, 78%). The overall opinions of participants shown poster 2 (ADR) and poster 3 (resistance) were significantly different from the opinions of participants shown poster 1 (futility) ($P < 0.01$).

Conclusion. Our brief, inexpensive intervention reduced expectations to receive antibiotics for a hypothetical URTI. Information about personal harms (ADR) and public harm (resistance) might have more impact than information solely about futility. Further study is required to test the effect of this intervention at the time a person presents with URTI.

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767. The Development and Assessment of a Physician-Specific Antibiotic Usage and Spectrum Feedback Tool

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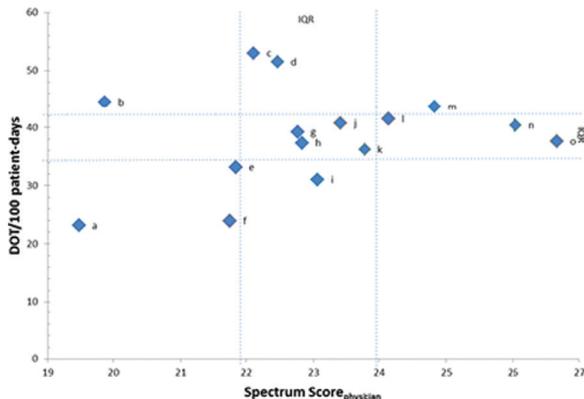
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Background. Measuring antimicrobial usage is a hallmark of antimicrobial stewardship programs. Service-level antimicrobial consumption data is easily obtained but offers limited value to individual clinicians. More specific data via spot audit is resource intensive to collect and may not reflect true practice. Additionally, though clinicians may prescribe antimicrobials with differing frequency, there may also be variability in the choice and spectrum of antimicrobials prescribed. We developed an individualized multidimensional tool using available prescribing and dispensing data to enhance peer comparison and feedback on antimicrobial prescribing.

Methods. Development was conducted in a 442-bed academic acute care hospital in the division of General Internal Medicine (GIM), in Toronto, Canada. Physician-specific antibiotic consumption data (DDD/100 patient days and DOT/100 patient days) was obtained between February 15th and August 24th, 2016. Summative spectrum of activity was calculated using a metric assigning a value from 0 to 60 to each antimicrobial and obtaining a weighted average of total antimicrobial prescribing by clinician (spectrum score_{physician}, modified from Madaras-Kelly et al 2014).

Results. Mean antimicrobial consumption was 39.1 ± 13.5 DDD/100 patient-days and 38.5 ± 8.4 DOT/100 patient-days. There was significant variability between the lowest and highest prescribers in both the DDD and DOT (3.3-fold difference DDD/100 patient days, 2.2-fold difference DOT/100 patient days). Mean spectrum score was 23.7 ± 1.8 (approximating Second generation cephalosporins). Variability was also pronounced in this group with the minimum prescriber being 19.5 (equivalent to cefazolin) and maximum being 26.7 (more broad than ceftriaxone). Feedback of this data were given individually to clinicians with other prescribers de-identified. Physicians found the data to be easy to understand and acceptable for further use.



Conclusion. Individualized feedback of summative antimicrobial consumption and spectrum provides insight to clinicians. This data can be considered to promote peer comparison and reflection of antimicrobial prescribing. This tool may also be helpful for benchmarking antibiotic usage within and between institutions.

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768. An Opt-out Approach to Antimicrobial Stewardship Utilizing Electronic Alert Recommendations at a Community Hospital

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Background. Prospective audit and feedback is a primary tool for antimicrobial stewardship, but inefficient communication and provider non-participation can limit the impact. To address these issues, a customizable electronic alert system was created to deliver antimicrobial stewardship recommendations to providers upon opening the electronic medical record. If no provider declined the recommendation after 24 hours, the recommendation was implemented by the antimicrobial stewardship program per protocol. This study describes the experience of an opt-out antimicrobial stewardship pilot at a community hospital.

Methods. This is a pragmatic, quasi-experimental, single center study describing the frequency of accepted recommendations delivered during a 12 week intervention period. Recommendation responses are categorized by intent of the recommendation, day of antibiotic therapy, prescribed antibiotics, responding provider specialty, and clinical reasoning. Secondary outcomes are target antimicrobial days of therapy (DOT) per 1000 patient days and healthcare facility-onset *Clostridium difficile* infections (HO-CDI) per 10,000 patient days for the three months before, during, and three months after the intervention period.

Results. In total, 804 of 1170 (69%) antibiotic recommendations were accepted yielding an average of 10 accepted recommendations per day. Of those accepted, 113 (14%) recommendations were implemented by the antimicrobial stewardship program per protocol. Antibiotic recommendations to de-escalate therapy were accepted more often than recommendations to discontinue therapy, 376/524 (72%) and 414/631 (66%), respectively. Target antibiotic DOT per 1000 patient days decreased from 775.2 in three months prior to 631 during the pilot ($P < 0.05$). HO-CDI per 10,000 patient days decreased from 16.24 to 11.70 ($P = 0.12$). After cessation of the intervention, antibiotic DOT and HO-CDI rates increased, 681 and 15.55, respectively.

Conclusion. The combination of opt-out antimicrobial stewardship with electronic delivery of recommendations demonstrated an efficient and effective approach to prospective audit and feedback. Future applications are broad including antimicrobial stewardship telepharmacy.

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769. Center-level variability in broad-spectrum antibiotic prescribing for children undergoing hematopoietic cell transplantation for acute leukemia.

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Background. Antibiotic exposure after allogeneic hematopoietic cell transplant (HCT) is common. Exposure to specific classes of antibiotics after HCT has been associated with mortality, relapse and graft-vs.-host disease. Exploring differences in antibiotic utilization across hospitals could provide opportunities for comparative effectiveness studies and quality improvement interventions.

Methods. We conducted a retrospective cohort study of patients undergoing HCT for acute leukemia using a dataset merged from two sources: the Pediatric Health Information System and the Center for International Blood and Marrow Transplant Research. Medication use data were obtained from the day of transplant through engraftment. Hospital antibiotic utilization rates were reported as antibiotic days/1000 neutropenic days. Adjusted rates were calculated using a poisson regression controlling for age, sex, race, graft characteristics and days of ICU-level care.

Results. After adjustment, hospital rates of anti-pseudomonal antibiotic use varied from 410 to 1037 antibiotic days/1000 neutropenic days (Figure 1A) and for Gram-positive antibiotic use from 109 to 771 antibiotic days/1000 neutropenic days (Figure 1B). As shown in Figure 1, within anti-pseudomonal antibiotics, there was variation by hospital in the use of Fourth and 5th generation cephalosporins, anti-pseudomonal penicillins and carbapenems; variation in Gram-positive exposure