1100. Facility Factors Are a Stronger Driver of Peri-Operative Vancomycin Use Than Patient Risk Factors
Westyn Branch-Elliman, MD, MSc; William O'Brien, MA; Judith Strymish, MD; Kamal Itani, MD; Kalpana Gupta, MD, MPH; VA Boston Healthcare System, West Roxbury, Massachusetts; VA Boston Healthcare System and Boston University School of Medicine, West Roxbury, Massachusetts
Session: 135. Antibiotic stewardship: Surgical Prophylaxis
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Background. Prior reports suggest that the use of vancomycin for surgical prophylaxis is common and increasing. However, rates of administration and reasons for choosing vancomycin are unknown. Thus, we sought to quantify the frequency of vancomycin as a surgical prophylaxis agent and to determine drivers of use.
Methods. All Veteran patients undergoing major cardiac, orthopedic total joint, vascular, or colorectal procedures and entered into the VA External Peer Review Program (EPRP) database during the period from October 1, 2008 to September 30, 2013 were included. EPRP includes a manual review of surgical cases to measure type of prophylaxis, and, in the case of vancomycin, clinician-documented reasons for vancomycin use (β-lactam allergy, patient at high risk of methicillin-resistant Staphylococcus aureus (MRSA), facility high rate of MRSA). Descriptive statistics were used to evaluate findings.
Results. Among 79,058 surgical procedures at 109 different medical centers, 20,349 (25.7%) received vancomycin either alone or in combination with another agent for prophylaxis. Rates of vancomycin use were the highest for cardiac surgeries (10,455/21,396, 48.9%), followed by orthopedic total joint replacement surgeries (8,044/38,675, 20.8%), vascular surgeries (1,504/8,177, 18.4%) and colorectal surgeries (346/10,810, 3.2%). The most common reason for vancomycin use was a perceived high facility rate of MRSA (7,367, 36.2%) followed by β-lactam allergy (4,855, 23.9%) and high-risk patient (1,420/20,349, 7.0%). There was no reason documented in 5,194 (25.5%). The most common reason for vancomycin use differed by surgical type. Among cardiac and orthopedic cases, high facility rate was the most commonly reported reason, but β-lactam allergy was the most common driver among vascular and colorectal procedures.
Conclusion. Facility factors are a major driver of peri-operative vancomycin use, more so than β-lactam allergy or patient-level factors, particularly in cardiac and orthopedic surgery. These data suggest that facility-level interventions, such as implementation of specific guidelines, may be helpful for limiting vancomycin use in this population.
Disclosures. All authors: No reported disclosures.

1101. What Do Electrophysiologists Think about Peri-Procedural Antibiotics? A Qualitative Assessment of Factors Driving Use and Facilitators for Implementing Change
Westyn Branch-Elliman, MD, MSc; Rani Elvey, PhD; Kalpana Gupta, MD, MPH; VA Boston Healthcare System, West Roxbury, Massachusetts; Albert Medical School of Brown University, Providence, Rhode Island; VA Boston Healthcare System and Boston University School of Medicine, West Roxbury, Massachusetts
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Background. Prolonged courses of antimicrobials are common following cardiac device procedures, but there are little data to explain drivers of this practice and factors that may facilitate change.
Methods. We conducted formative evaluations consisting of semi-structured, qualitative interviews with electrophysiologists (EP) to identify perceived barriers to discontinuing post-procedure antimicrobial prophylaxis and factors that may facilitate improvements. A directed content analysis approach was used to map qualitative responses to key factors in the Proctor Implementation Outcomes Framework, with flexibility to allow for new themes to emerge. Interviews ceased after data saturation was reached.
Results. 13 interviews were conducted with EPs representing diverse US regions (Northeast, Midwest, South, West) and diverse settings of care (academic, community, VA). Responses to questions about antimicrobial use and willingness (or lack thereof) to stop post-procedural antimicrobials most commonly mapped to the acceptability domain; feasibility, fidelity, cost and appropriateness were also frequently identified factors (see figure for exemplary quotes). Themes that emerged during the interview process associated with prolonged antimicrobial prescribing included beliefs and knowledge of local culture and normative behaviors. There was a strong "cultural inertia" to conform to normative practices within an institution. Reasons for this ranged from reports of streamlining processes for clinical staff to ensure standardized care across all patients and concerns about being perceived as an "outlier." Infectious diseases staff were important influencers of practice and potential facilitators of improvement.
Conclusion. Formative evaluations of stakeholders are essential for designing successful implementation interventions to facilitate behavioral change. Local culture appeared to be a major driver of antimicrobial use. The desire to conform to normative behaviors and to promote institutional standardization suggests that strategies to facilitate implementation of antimicrobial stewardship guidelines must include facility-level changes, rather than individual-provider-level interventions.
Figure. Exemplary Quotes from Interviews with Frontline Electrophysiologists
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1102. Ertapenem vs. Nonertapenem Antibiotics in Colorectal Surgery: A Stewardship Opportunity
Tiffany LaDow, PharmD; Karen B. Brust, MD; Kiumars Zolfaghari, MS; John Miduri, DO; Baylor Scott and White Medical Center - Temple, Georgetown, Texas
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Background. The optimal regimen for antibiotic prophylaxis in colorectal surgery is not well defined. The aim of this study was to determine whether nonertapenem antibiotic prophylaxis in colorectal surgery is associated with increased rates of surgical site infections (SSI), defined by both deep and incisional infections, compared with ertapenem prophylaxis. Secondary aims were to identify differences in C. difficile infection rates at 60 days between the two groups.
Methods. This was a single-center retrospective study from November 2016 to December 2018 at a 600-bed teaching hospital equipped with a Level I Trauma Center in Central Texas. National Healthcare Safety Network (NHSN) criteria for colorectal surgical site infection (SSI) were used to identify eligible patients. Patients under 18 years or lacking pre-operative antibiotic documentation were excluded. SSI and C. difficile rates between the two prophylactic strategies were compared using Chi-squared and Fisher's exact tests as appropriate.
Results. A total of 761 patients were included in the analysis. There were 87 patients in the ertapenem group and 674 patients in the nonertapenem group. Antibiotics included in the nonertapenem group were cefazolin (32%), ceftriaxone (22%), or ciprofloxacin (15%) plus metronidazole, and other antibiotics (31%). Baseline characteristics including age, American Society of Anesthesiologists (ASA) score, body mass index (BMI), and number of surgical procedures were similar for both groups. The overall SSI rate was 4.7% and the 60-day C. difficile rate was 3.9%. No significant differences were found between ertapenem and nonertapenem groups in SSI rates (5.8% vs. 4.6%, P = 0.6) or 60-day incidence of C. difficile (6.9% vs. 3.6%, P = 0.1).
Conclusion. Our study, with a large sample size and a low overall incidence of SSI, did not find a significant difference in either SSI rates or 60-day C. difficile rates between ertapenem and nonertapenem prophylaxis in colorectal surgery. Given the rise of Gram-negative resistance, this study highlights an important opportunity for carbapenem stewardship.
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1103. Improving Perioperative Prophylactic Antimicrobial Guideline Concordance in Liver and Lung Transplant Recipients
Cynthia T. Nguyen, PharmD; Rachel Marrs, DNP, RN; Jennifer Pisano, MD; Natasha N. Pettit, PharmD; Lisa Potter, PharmD; University of
Background. Surgical site infection (SSI) is a common complication among patients undergoing solid-organ transplantation. Administration of perioperative antimicrobials is one modifiable factor that may reduce the risk of SSIs. We sought to evaluate antimicrobial stewardship efforts to improve concordance of perioperative antimicrobial selection (AS) and dose timing (DT) with the institution’s perioperative antimicrobial guidelines among liver (LVR) and lung transplant recipients (LNG).

Methods. This was a single-center, observational study of LVR and LNG between January 1, 2017 and December 31, 2018. Patients receiving antimicrobials for the treatment of infection immediately prior to transplant were excluded. Throughout the study period, several interventions were performed, including: updating AS and DT protocols (2017 Q2) and preoperative order sets (2017 Q4), improving availability of antibiotics in the operating room (2018 Q1), and most recently developing a guideline and providing education for intraoperative redosing based on renal function (2018 Q3). The primary outcome was overall guideline concordance (GC). This was a composite endpoint including preoperative and intraoperative AS and DT, based on the institution’s guideline. Secondary outcomes included SSI rates based on the CDC National Healthcare Safety Network definition and rate of new C. difficile or vancomycin-resistant Enterococci infection or colonization.

Results. Among 112 patient screened, 79 patients were included (45 LNG and 34 LVR). The median age was 60 years and BMI was 26.5 kg/m². The median procedure length was 7.8 hours for LNG and 6.9 hours for LVR. Results are shown in Table 1, Figure 1 and Figure 2. All GC rates demonstrate improvements over time, except for intraoperative DT for LNG.

Conclusion. Limited by a small sample size, our study demonstrates that noninvasive antimicrobial stewardship strategies can yield improvements in GC.

**Table 1: Overall Rates of Perioperative Antibiotic Prophylaxis Guideline Concordance**

| Patient Group | Overall Conformance |
|---------------|---------------------|
| **All** (N=78) | Antimicrobial | 35 (0.40) | 33 (0.40) | 38 (0.48) |
| **Liver** (N=34) | Preoperative AS | 68 (0.84) | 71 (0.90) | 62 (0.86) |
| **Lung** (N=44) | Preoperative DT | 75 (0.87) | 85 (0.94) | 83 (0.99) |
| Intraperative AS | 82 (0.85) | 69 (0.78) | 100 (1.00) |
| Intraperative DT | 56 (0.67) | 40 (0.50) | 60 (0.78) |
| SSIs | 13 (0.31) | 13 (0.40) | 21 (0.60) |

*Data are shown as percent across study period (quarterly range).*

**Figure 1: Lung Transplant Guideline Concordance**

**Figure 2: Liver Transplant Guideline Concordance**

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1104. Antibiotic Prophylaxis for the Endoscopic Endonasal Approach
Alaina DeKerlegand, PharmD; Jason Vilar, PharmD, BCCCP; Rosemary Persaud, PharmD, BCPS; Rhonda Washington, MD; Phillip Li, MD; Barnes-Jewish Hospital, Lafayette, Louisiana; Charleston Medical Center, Gaithersburg, Maryland; AdventHealth Orlando, Orlando, Florida; Orlando Health, Orlando, Florida

**Session:** 135. Antibiotic stewardship: Surgical Prophylaxis
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**Background.** Evidence available to guide perioperative antibiotic prophylaxis for endoscopic endonasal (EEN) procedures remains limited. The primary objective of this study was to characterize the impact of antibiotic prophylaxis on the incidence of post-operative central nervous system (CNS) or sinonasal infections in patients undergoing EEN procedures.

**Methods.** This was an IRB-approved descriptive analysis including patients >18 years of age who underwent EEN surgery at AdventHealth Orlando over a 3-year period. Patients were excluded if they had an infection present prior to surgery, ongoing antibiotic treatment (other than surgical prophylaxis) at the time of surgery, or a basic sinonasal surgery which lacked CNS penetration. The primary endpoint assessed was the rate of CNS or sinonasal infection within 30 days of EEN procedure.

**Results.** After screening 160 patient encounters, a total of 118 patients were included. The most common antibiotic prophylaxis utilized was ceftriaxone, followed by ceftazolin, or alternative/combination therapy (72.8% vs. 13.6% vs. 13.6% of cases, respectively). There were 4 total patients who met the primary endpoint, and all 4 cases were due to a diagnosis of meningitis (overall rate 3.4%). Infection rate by antibiotic prophylaxis was 2.4% for ceftriaxone, 0% for ceftazolin, and 14.3% for alternative/combination therapy. Based upon the retrospective nature of this study, we were unable to account for provider preference in selection of surgical prophylaxis or other surgeon-specific factors.

**Conclusion.** In this retrospective descriptive analysis, rates of CNS or sinonasal infections occurred at a rate similar to previously published literature. Larger, prospective studies are warranted to evaluate the impact of antibiotic selection on the rate of CNS or sinonasal infections post-EEN procedures.

**Table 1: Cases of Infection Post-EEN Surgery**

| Patient Age | Gender | Surgical Site | Antimicrobial | Complication | Organism Isolated* | Time to Infection (days) |
|-------------|--------|--------------|---------------|--------------|--------------------|-------------------------|
| 1 51 Female | A      | Cefazolin + ceftriaxone | Meningitis | none | 11 |
| 2 30 Male | C      | ceftriaxone | Meningitis | Sphingomonas epidermidis | 4 |
| 3 40 Female | B      | Ceftriaxone | Meningitis | none | 26 |
| 4 56 Male | C      | ceftriaxone | Meningitis | none | 10 |

*Patients without an organism identified were included if they had a clinical diagnosis of meningitis at the time of their CSF culture, as well as receipt of broad-spectrum antibiotics prior to CSF culture.

**Figure 1: Infection Distribution by Antibiotic**

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1105. Statewide, Retrospective, Cohort Study of Medicare Part B Quinolone Prescribing for Cystitis in 2016–2017
Joyce Yu, PharmD; Valerie McKenna, MPH, LMSW; Gihwua Dumuyti, MD; Theresa Lubowski, PharmD, BSc; Joseph Carreno, PharmD, BSc; University of Maryland Medical Center, Gaithersburg, Maryland; IPRO, Albany, New York; New York Rochester Emerging Infections Program at the University of Rochester Medical Center, Rochester, New York; Albany College of Pharmacy and Health Sciences, Albany, New York.

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**Background.** Quinolones (FQ) are no longer recommended as first-line therapy for cystitis. In 2016, the FDA released a safety communication advising FQ restriction in the treatment of uncomplicated urinary tract infection unless no other options are available. However, little is known about the frequency of FQ (FFQ) prescribing in older adults (OA) receiving antibiotics for cystitis in New York State (NYS). This study compared the FFQ prescribing in OA receiving antibiotics for a diagnosis of cystitis in NYS between 2016 and 2017.

**Methods.** Retrospective, cohort study of (NYS) Part B Medicare fee-for-service beneficiaries in 2016 and 2017 with diagnosis codes for cystitis. All antibiotics prescribed ≤ 3 days after visit were analyzed. FFQ were defined as ciprofloxacin, gatifloxacin, levofloxacin, moxifloxacin, norfloxacin, ofloxacin. County-wide data were aggregated into regional data per NYS Department of Health Population Health.