Presentation Type:
Top Poster Abstract
Subject Category: Antibiotic Stewardship
Antimicrobial Stewardship Opportunities in Peripartum Patients: An Administrative Data Review
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Background: There are ongoing significant increases in antimicrobial resistant infections in hospitalized patients in the United States, emphasizing the importance of antimicrobial stewardship initiatives like appropriate antimicrobial use and accurate laboratory detection of infections. The special population of obstetric patients has received relatively limited focus in prior reports about antimicrobial stewardship opportunities. **Methods:** A retrospective observational review was conducted through a single large healthcare system's electronic medical record to evaluate antimicrobial use in peripartum patients, defined as 30 days pre- or post-delivery. Our hypothesis was that most antibiotic use could be attributed to American College of Gynecology (ACOG) recommended therapy for common situations such as group B Streptococcus (GBS) prophylaxis, surgical site infection (SSI) prophylaxis, or intra-amniotic infections (IAI). Data regarding antimicrobial allergies were also collected. **Results:** Between April 2018 and July 2024, 77,062 mother-baby dyads were identified. 40,576 (52.6%) had antimicrobial utilization peripartum. Redundant antimicrobial coverage was common; most commonly cefazolin and penicillin (n=1402) and cefazolin and ampicillin (n=675). A subanalysis of 8528 (11% total deliveries) patients receiving the most common antimicrobials demonstrated 199 separate regimens utilized, 92 (46.2%) of which had duplicative spectrum of activity. The top three regimens were cefazolin and penicillin (n=126), cefazolin and ampicillin (n=51), and cefazolin and cefoxitin (n=47). 33 (16.6%) were in line with ACOG guidelines for GBS or SSI prophylaxis or IAI. 12 of the 33 (36.4%) were ACOG endorsed regimens with duplicative spectrum of activity. Allergies were common in the subanalysis cohort; 3957 (46%) patients had penicillin allergies and 816 (9.5%) patients had cephalosporin allergies. **Conclusions:** An administrative review of peripartum antimicrobials indicates significant opportunities for antimicrobial stewardship, particularly around antimicrobial coverage for conditions for which there is overlapping spectrum of activity, such as GBS prophylaxis with SSI prophylaxis. There are also significant opportunities in delabeling penicillin and cephalosporin allergies as there is the lead time of the pregnancy, usually with multiple touchpoints with obstetric care providers, to explore the accuracy of the allergy label. Steps to improve antimicrobial utilization around guideline-concordant antimicrobials with overlapping spectrum of activity as well as delabeling antimicrobial allergies will lead to decreased variability in antimicrobial prescribing in this population.

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Oral Presentation - Top Poster Abstract
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Implementation of Updated Febrile Neutropenia Guidelines Decreased Antibiotic Utilization in a Comprehensive Cancer Center
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Background: Empiric antibiotic therapy choices and de-escalation practices for the management of febrile neutropenia (FN) can vary. Facility-specific antimicrobial guidelines have an important role in influencing prescription practices for FN and is a foundation of antimicrobial stewardship activities. **Methods:** This pre-post quality improvement study at the University of Maryland Medical Center (UMMC) Greenebaum Comprehensive Cancer Center evaluated the impact of the implementation of updated institutional FN guidelines. The changes primarily included: 1) removal of meropenem as first-line agent for patients receiving levofloxacin prophylaxis without other risk factors (e.g. history of resistant organism) and 2) de-escalation protocol for low-risk patients (e.g. afebrile, hemodynamically stable). Education of oncology attendings, residents and pharmacists were carried out. We included patients receiving antipseudomonal antibiotics for FN or sepsis as indicated by prescriber (~70% concordance with antimicrobial stewardship review). Sepsis was included because of high rates of observed misclassification for patients with FN. Stem cell transplant patients were excluded. Pre-intervention (04/2021 – 12/2022) and post-intervention (01/2023 – 09/2024) groups were compared for total anti-pseudomonal antibiotic and meropenem-specific days of therapy (DOT) per 1000 days present (DP) and count of unique antibiotic order per 1000 DP. In addition, a sample of antibiotics reviewed by the UMMC antimicrobial stewardship team was assessed for guideline compliance. Means were calculated across quarters for each period and Willcoxon rank sum was used for comparisons (p Results: A total of 3,311 antibiotics were ordered for FN (79%) or sepsis (21%) during the study period. Longitudinal trends and antibiotic type distribution are illustrated in Figures 1 and 2, respectively. DOT per 1000 DP for all antipseudomonal antibiotics was 213 in the pre-intervention group compared to 191 in the post-intervention group (p=0.06). Meropenem DOT per 1000 DP decreased from 105 in the pre-intervention group to 87 in the

Figure 1a. Antibiotic use trends for all antipseudomonal antibiotics.

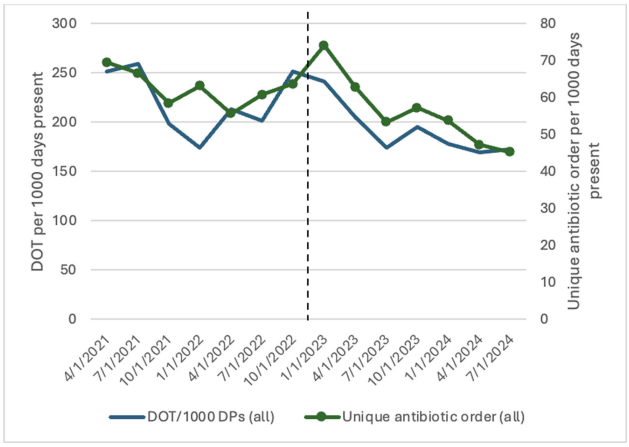


Figure 1b. Antibiotic use trends for meropenem only.

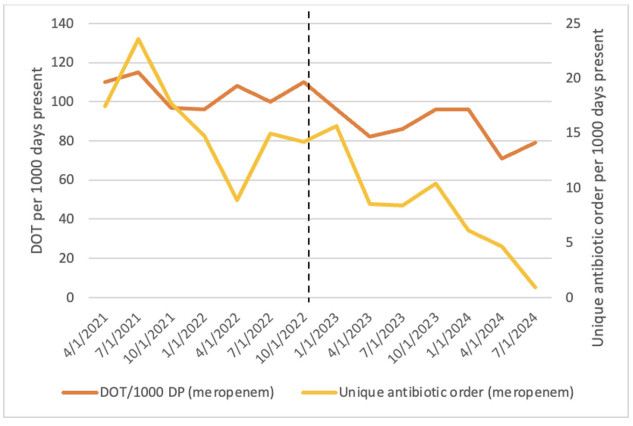
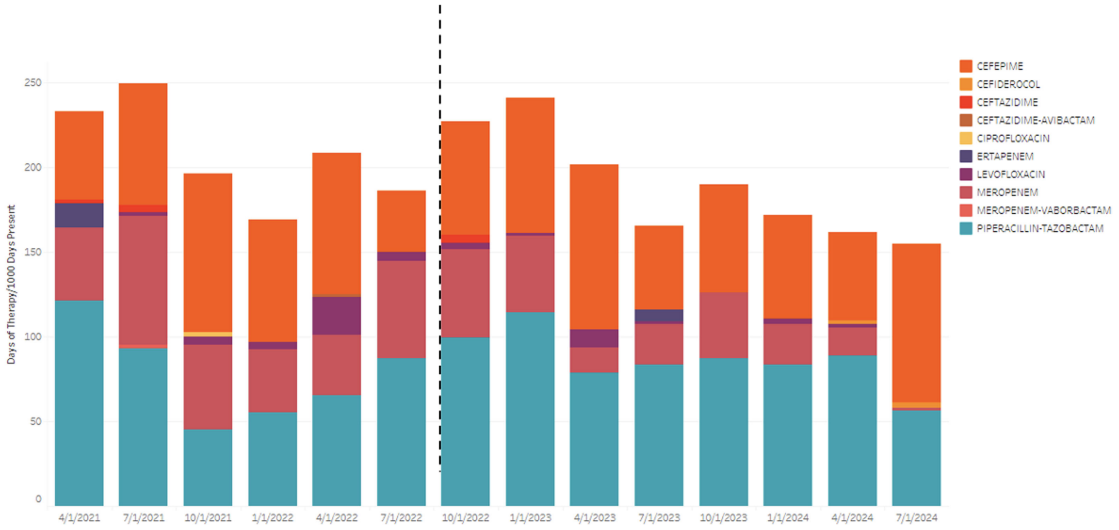


Figure 2. Antibiotic type and longitudinal trend.



post-intervention group (p=0.004). Unique antibiotic order per 1000 DP of all antipseudomonal antibiotics remained constant (62 vs. 56, p=0.1), while unique antibiotic order per 1000 DP for meropenem decreased (16 vs. 8, p =0.01). Of the 317 antibiotics reviewed, 130/169 (77%) were guideline compliant in the pre-intervention group and 113/148 (76%) in the post-intervention group. **Conclusion:** Changes in FN guidelines at the UMMC cancer center led to decreased meropenem use with a nonsignificant decline in all antipseudomonal antibiotics. Additional work is needed to identify barriers to guideline adherence.

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Impact of Clostridioides difficile Admission Screening in the Hematology-Oncology Unit on Infection Rates and Symptomatic Testing

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Background: Clostridioides difficile infection (CDI) disproportionately impacts hematology-oncology patients. In June 2022, our hospital implemented screening of asymptomatic patients admitted to the hematology-oncology unit to reduce CDI rates by early identification and isolation of C. difficile carriers. We evaluated the impact of admission screening on rates of CDI and compared incidence of diarrhea and subsequent symptomatic testing stratified by asymptomatic admission testing result. **Method:** During the intervention period (July 2022 – July 2024), asymptomatic patients admitted to the hematology-oncology unit were tested for C. difficile (perirectal swab, Cepheid GeneXpert®, Sunnyvale, CA). Guidelines for C. difficile symptomatic testing (unformed stool, Cepheid GeneXpert®) and treatment did not change between the baseline (May 2020 – May 2022) and intervention periods. Monthly CDI rates were calculated using CDC definitions based on clinical symptoms and positive C. difficile testing (community onset [CO] if positive in the first three hospital days, hospital-onset [HO] if day 4 or later). We performed an interrupted time-series analysis adjusted for repeated measures to compare CO-CDI and HO-CDI rates per 10,000 patient-days between baseline and intervention periods. The risk of developing diarrhea through hospital day 14 or being tested for symptomatic CDI during the intervention's first year (July 2022 – June 2023) was analyzed using a cohort of asymptomatic C. difficile carriers and non-carriers in a 1:2 ratio, matched on hospital length of stay and date of admission. **Result:** The incidence rate ratio was 0.45 (P=0.10) for HO-CDI (Figure 1) and 0.15 (P=0.049) for CO-CDI (Figure 2) after screening implementation. During the first year of the intervention, 25 individuals were identified as asymptomatic C. difficile carriers by positive admission screen and were matched to a cohort of 50 asymptomatic non-carriers. There were no significant differences in development of diarrhea during hospital days 1-3 or days 4-14 between carriers and non-carriers (Table). None of the carriers received symptomatic C. difficile testing during hospitalization, compared to 20% of matched non-carriers (P=0.03). **Conclusion:** There was no significant change in HO-CDI rates and a statistically significant reduction in CO-CDI rates after implementation of C. difficile admission screening. Patients identified as carriers at time of admission were less likely to be tested for CDI during hospitalization than non-carriers, despite similar rates of diarrhea. Admission screening for C. difficile may reduce CDI rates through a variety of mechanisms; changes in provider testing behavior for patients previously screened for C. difficile may play a role.

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