discharge. Using a repository of electronic health record data, we collected patient demographic, diagnosis, length of stay, and treatment duration data.

Results: Among 2,410 patients discharged to a NH on antibiotics, 1,483 (61.5%) received an IV antibiotic within 48 hours of discharge. IV to PO switch occurred in 46.7% of patients prior to discharge, and these patients had fewer baseline comorbidities (Table 1). Of those continuing IV antibiotics, 96.1% were prescribed a different PO medication at discharge indicating potential to take PO medications. Cephalosporins (45%) and penicillins (22%) were the most commonly prescribed IV antibiotics, with IV to PO conversion rates of 26% and 46%, respectively. The median (interquartile range) outpatient duration of therapy was 21 (12–33) days for IV antibiotics and 7 (4–10) days for PO antibiotics. Osteomyelitis diagnosis was more frequent among IV therapy patients; pneumonia and urinary tract infections were more frequent in IV to PO switch patients. IV to PO switch patients were less likely to experience a hospital stay > 7 days or receive an infectious disease consult ($p < 0.001$).

Table 1. Comparison of Patient and Treatment Characteristics among IV and Oral Antibiotic Prescriptions on Discharge

Variable	Discharge Antibiotic Route		P Value
	IV (n=791)	Oral (n=692)	
Patient Characteristics			
Charlson Comorbidity Index; Median (IQR)	2 (0-3)	2 (1-3)	0.07
Cancer	119 (15%)	141 (20%)	0.007
Cerebrovascular disease	115 (15%)	121 (18%)	0.12
Dementia	36 (5%)	85 (12%)	<0.001
COPD	191 (24%)	181 (26%)	0.37
Liver disease	137 (17%)	83 (12%)	0.004
Kidney disease	154 (19%)	150 (22%)	0.29
Treatment-related Characteristics			
Length of Hospital Stay > 7 days	576 (73%)	217 (32%)	<0.001
ID consult order	267 (34%)	46 (7%)	<0.001
Surgical DRG	542 (69%)	234 (34%)	<0.001
Prevalent Diagnoses			
Pneumonia	40 (5%)	90 (13%)	<0.001
Urinary tract infection	16 (2%)	77 (11%)	<0.001
Osteomyelitis	111 (14%)	28 (4%)	<0.001

Conclusion: The proportion of patients discharged to a NH on IV antibiotics remains high, even among patients able to tolerate PO medication. Continuing IV therapy was associated with longer treatment durations, hospital stays, and broad spectrum regimens, while patients with IV to PO switch had a higher comorbidity burden at baseline.

Disclosures: **All Authors**: No reported disclosures

201. Healthcare utilization outcomes of patients prescribed fluoroquinolones on discharge from the hospital to nursing homes

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Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Fluoroquinolones (FQs) are frequently prescribed in nursing homes (NHs) despite concerns regarding broad spectrum antibiotic selective pressure, increased risk of *Clostridioides difficile* infection, and other adverse events. NH antibiotics are also frequently initiated in hospitals prior to NH admission. We quantified the frequency and outcomes of patients prescribed FQs on discharge from the hospital to NHs.

Methods: This was a retrospective cohort study of adult (age ≥ 18 years) inpatients prescribed a FQ on discharge from Oregon Health & Science University Hospital (OHSU) to a NH between 1/1/2016 and 12/31/2018. Study data were collected from a repository of electronic health record data. The outcome of interest was a composite of 30-day hospital readmission or emergency department (ED) visit to OHSU. Associations were quantified using odds ratios (ORs) and 95% confidence intervals (CIs).

Results: Among 9,546 patients discharged to a NH, 2,410 (25%) were prescribed at least one antibiotic and 423 (17.6%) were prescribed a FQ. Of these patients, 36.9% were age ≤ 65, 53% were male, 11.6% received a specialty infectious diseases consultation, 34.8% had a surgical diagnosis, and 49.7% had a hospital length of stay > 7 days. The most prevalent comorbidities were cancer (30.5%), chronic obstructive pulmonary disease (29.6%), and renal disease (26%). The most prevalent FQs prescribed were ciprofloxacin (56.7%), levofloxacin (40.2%), and moxifloxacin (3.1%). Duration of NH therapy > 7 days occurred in 37.6% of patients. The most common infectious diagnoses were bloodstream infection and endocarditis (39%), pneumonia (17%), and urinary tract infection (14.2%). Of patients prescribed a FQ, 276 (65.3%) had an ED visit or hospital admission to index facility within 30 days of discharge. Patients who were ≤ 65 years old (OR 2.3, 95% CI 1.4–3.5), male (OR 1.6, 95% CI 1.1–2.5), had comorbid renal disease (OR 1.8, 95% CI 1.1–2.9), or osteomyelitis as infectious diagnosis (OR 2.4, 95% CI 1.0–5.7) were more likely to have a 30-day ED visit or hospital admission.

Conclusion: Patients prescribed FQs on discharge to NHs frequently returned to the hospital for an ED visit or inpatient admission within 30 days of discharge.

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202. Implementation of an Outpatient Parenteral Antimicrobial Therapy (OPAT) Collaborative for Patients with Staphylococcus aureus or Gram-Negative Bacilli Bacteremia Requiring Home Infusion: The PANTHIR Program

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Session: P-7. Antimicrobial Stewardship: Special Populations

Background: *Staphylococcus aureus* (SA) and Gram-negative bacilli (GNB) bacteremia often require prolonged treatment courses due to high morbidity and mortality risk. Outpatient parenteral antibiotic therapy (OPAT) has emerged as a preferred delivery method. Few data have been published regarding the follow-up and adverse event rates among OPAT patients. We describe outcomes in patients with SA or GNB bacteremia transitioning from an academic medical center to home infusion, prompting the implementation of the Parenteral ANtimicrobial therapy Transitions to Home Infusion Review (PANTHIR) program.

Methods: A retrospective chart review of adult patients with SA or GNB bacteremia at the University of Minnesota Medical Center requiring home infusion represent a 26-month period. Baseline outcomes, including 30-day hospital readmissions and adverse drug events (ADEs), were calculated. The PANTHIR program was launched as an interdisciplinary collaborative with an infectious diseases (ID) provider, pharmacists, and home infusion specialists. Core program elements include inpatient identification, ID pharmacist review, care plan documentation and communication, and OPAT program measures.

Results: The retrospective cohort included 69 patients. 23.2% experienced a hospitalization within 30 days of discharge and 26.1% experienced an ADE (Table 1). The mean duration of therapy was 22 days. No patient received aminoglycosides and one required vancomycin. A primary goal was to improve the continuity of care for potentially life-threatening bacteremia during the vulnerable inpatient to outpatient transition. Electronic health record functionality allowed for creation of an OPAT navigator for infectious diseases (ID) pharmacist transition plan documentation, electronic communication with designated provider and home infusion pharmacist, and retrieval of focal data points for ongoing program evaluation. 28 patients have been enrolled in the PANTHIR program with outcomes data collection underway.

Table 1. Retrospective data among University of Minnesota Medical Center patients hospitalized with SA or GNB bacteremia requiring home infusion on discharge.

30-day unplanned hospitalizations (n=69(		30-day ED visits (n=69)		Total (%) ADE (n=69)	Mild (%) ADE (n= 69)	Moderate (%) ADE (n=69)	Severe (%) ADE (n= 69)
Total (%)	OPAT-related (%)	Total (%)	OPAT-related (%)				
16 (23)	4 (5.8)	21 (30)	8 (12)	18 (26)	8 (12)	8 (12)	2 (3)

Conclusion: Hospital readmission rates and ADEs are frequent among patients with SA or GNB bacteremia requiring OPAT via home infusion. An ID pharmacist-directed program in collaboration with an ID provider is feasible for OPAT transitions and may serve as a roadmap for other institutions.

Disclosures: **Dana Simonson, PharmD, BCPS**, **Janssen** (Advisor or Review Panel member, Other Financial or Material Support, Webinar Series Speaker Fall 2019)

203. Opportunities for Antimicrobial Stewardship in Febrile Neutropenia

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Session: P-7. Antimicrobial Stewardship: Special Populations

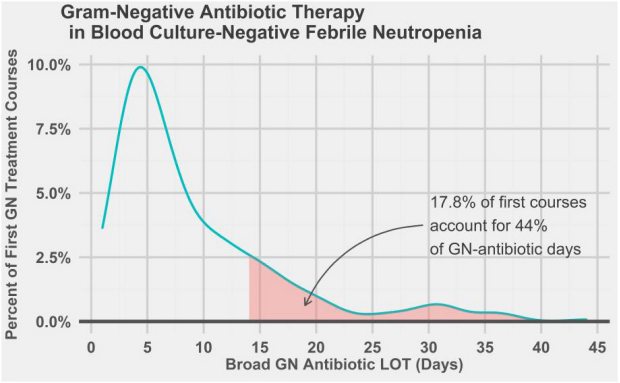
Background: Emerging evidence suggests antibiotics may be safely discontinued before neutropenia resolves in patients without identifiable infection. We estimated the volume of encounters and antibiotic use for future stewardship interventions shortening FN treatment duration.

Methods: This retrospective cohort study used electronic health records from inpatient encounters on the hematologic malignancies ward at Duke University Hospital from 5/21/2018 to 12/31/2019 where patients received at least one antibiotic for an indication of "neutropenic fever." The primary outcome was length of therapy (LOT) of broad Gram-negative (GN) agents, including cefepime, piperacillin-tazobactam, meropenem, or aztreonam. FN LOT was counted by calendar day, starting with the first day of administration of a broad GN agent and ending with antibiotic discontinuation or hospital discharge. Encounters with at least one positive blood culture (positive cohort) were compared to those with no positive blood cultures (negative cohort) to assess if culture positivity was associated with differences in FN LOT. We included the first FN LOT from each encounter in the negative cohort and the FN LOT associated with the first positive blood culture in the positive cohort. We used descriptive statistics and a Gaussian density function to calculate the percent of encounters exceeding FN LOT of 14 days and the percent of broad GN agent days.

Results: We evaluated 15,678 GN antibiotic administrations from 471 unique FN encounters. Blood culture results were available for 443 encounters— 122 (27.5%) in

the positive cohort, and 321 (72.5%) encounters in the negative cohort. Thirty percent of encounters (36/122) in the positive cohort received more than one GN treatment course, compared to 10% (32/321) of those in the negative cohort. FN LOT was significantly longer in the positive cohort (median 10.5, IQR 13 days vs. 6, IQR 8 days, $p < 0.001$). Among encounters with negative cultures, 57 (17.8%) had a first FN LOT greater than 14 days, accounting for 44% of broad GN agent days within that population (Figure 1).

Gram-Negative Antibiotic Therapy in Blood Culture-Negative Febrile Neutropenia



Conclusion: Nearly 20% of blood culture-negative encounters received initial GN treatment courses exceeding 14 days, representing a sizeable target for antimicrobial stewardship interventions focused on FN treatment duration.

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204. Post-Liver Transplant Antimicrobial Use after the Expansion of a Pharmacist-Lead Antimicrobial Stewardship Program

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Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Antimicrobial stewardship programs (ASPs) allow for infectious diseases (ID)-trained practitioners to focus on timely and appropriate antimicrobial use. In December 2016, the ASP at Indiana University (IU) Health expanded from one ID pharmacist to three. The purpose of this study was to assess the impact of an expanding ASP on broad-spectrum antimicrobial use within post-liver transplant patients.

Methods: This was a retrospective, cross-sectional study. Data were collected from patients aged at least 18 years old that received a liver transplant either before or after the ASP expansion. Patients were excluded if they survived less than 72 hours after transplant, if they received a multivisceral transplant, or if there was an active infection prior to transplantation. The hypothesis of this study was that an expanded ASP leads to a reduction in days of therapy (DOT) per 1000 patient-days for a composite of broad-spectrum antimicrobial agents within this patient population.

Results: A total of 268 patients were included in this study. Of the patients that received at least one dose of the studied antimicrobial agents, the median (IQR) DOT per 1000 patient-days in the pre- and post-ASP expansion cohort was 174.4 (117.6 – 333.3) and 142.9 (62.5 – 257.5), respectively. This was statistically significant (difference 48.6, 95% CI 7.5 – 83.3). Specifically, the post-ASP expansion cohort used less meropenem (difference 197.8, 95% CI 66.3 – 451.6) and vancomycin (difference 57.6, 95% CI 2.2 – 132.2). The post-ASP expansion cohort also consulted ID for more patients (2 vs. 12 consults in the pre- and post-expansion group, respectively; p=0.011). Patient and graft survival one year after transplantation were similar between the two cohorts (p=0.540 and p=0.255, respectively).

Conclusion: An expanded ASP contributed to a reduction in broad-spectrum antimicrobial use in post-liver transplant patients without negatively impacting patient and graft survival one year post-transplantation. These data provide further evidence of ASP benefits within immunocompromised populations.

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205. Rectal Stool Surveillance Cultures to Guide Empiric Antibiotic Therapy in Patients with Hematologic Malignancies with or without Hematopoietic Stem Cell Transplantation

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Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Patients with hematologic malignancies (HM) or hematopoietic stem cell transplant (HSCT) commonly receive broad-spectrum antimicrobials, often leading to the development of multidrug resistant organisms (MDRO). At our institution, rectal stool surveillance cultures (SSC) are done weekly on admitted adult patients with HMs or HSCT. The objective of this study is to determine the role of SSCs in predicting the development of a sterile site infection (StSI) with the same MDRO as identified in the SSC.

Methods: We retrospectively evaluated StSIs (blood, CSF, sputum/respiratory, pleural fluid, and urine) and SSC data from 242 adult patients admitted to the adult oncology ward at a large academic tertiary care center from 6/1/2017 to 2/28/2019. Demographics, SSC data, and StSIs in a 3-month period following the last SSC for each patient were collected from electronic medical records. SSCs were cultured on HardyCHROM ESBL™ media. MDRO similarity between SSC and StSI was determined by comparing susceptibility profiles. JMPO Pro 14.3.0 and RStudio were used for statistical analyses.

Results: Two hundred forty-two patients yielded 732 SSCs. We eliminated SSCs with incomplete (< 3 months of follow up) data. Thus, 579 SSCs were included in the analyses. 64% of patients were male. Leukemias (55.4%), lymphomas (21.9%), and multiple myeloma (10.3%) were the most common HMs. HSCT recipients comprised 50.4%. SSCs were positive for a MDRO in 251 cases (vancomycin-resistant enterococci, 52.2%; extended-spectrum beta-lactamase (ESBL) producing organisms, 22.2%; and carbapenamase producing organisms, 4.4%). There were 54 StSIs documented where the MDRO was the same as the SSC MDRO. The NPV of the SSC was 95.1% (95%CI 0.93,0.97). The positive likelihood ratio of the SSC was 2.5 (95%CI 2.07,3.02).

Conclusion: Our results suggest that a negative SSC is associated with a lower probability of identifying a StSI with an MDRO. Clinically, this can be useful in providing the opportunity to judiciously guide antimicrobial therapy, thereby avoiding the unnecessary usage of broad-spectrum antimicrobials when no MDRO is identified in the SSC.

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206. The Utility of Lactate as a Biomarker for Sepsis in Cancer Patients

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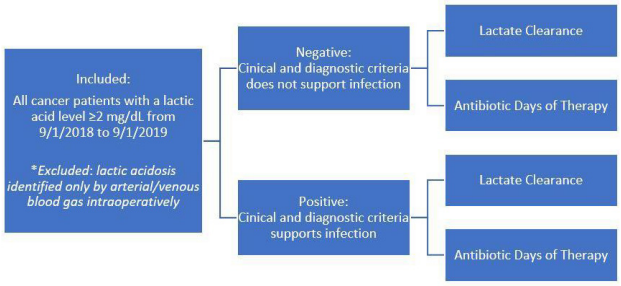
Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Serum lactate is included in the initial assessment of patients with sepsis. However, cancer patients develop lactic acidosis for a variety of reasons and are underrepresented in most studies. Therefore, elevated lactate levels may lead to overdiagnosis of sepsis and excessive antibiotic use. The purpose of this study is to evaluate the utility of lactate as a biomarker for sepsis in cancer patients. The primary endpoint is the rate of 24-hour lactate clearance between infectious and non-infectious causes of lactic acidosis in cancer patients. Secondary objectives explore the duration of antibiotic therapy (DOT), the impact of liver metastasis on serum lactate levels, and the role of procalcitonin in distinguishing between infectious and non-infectious causes of lactic acidosis.

Methods: Retrospective chart review by Antimicrobial Stewardship team

Figure 1: Study design



Results: Preliminary data from a random subset of our sample (45/150) suggests there is no difference in mean serum lactate levels between infectious and non-infectious groups (4.6 vs 6.4). However, a substantial difference exists in the rate of 24h lactate clearance, although the difference was not statistically significant (58.3% vs 33%; p=0.13) (Fig2). There was a significant difference in antibiotic DOT (12.6 vs 3.3; p< 0.0001) presumably due to robust antimicrobial stewardship practices. Consistent with previous studies, there was a significant difference in procalcitonin levels between groups (27.2 vs 1.5, p=0.04).

A sub-analysis of non-infectious patients with liver metastasis revealed a statistically significant difference in the rate of lactate clearance (21% vs 61.5%, p=0.03) (Fig3) suggesting that liver involvement impacts lactate clearance. Antibiotic DOT were also longer in non-infectious patients with liver metastasis (4.53 vs 1.38, p=0.02).