Comparing end points between cancer patients with and witthout infection.

	Infection	No Infection	P-value
Mean Peak Lactate	4.59 (2.45)	6.42 (4.60)	
24h lactate clearance	58.3%	33.0%	
DOT	12.58 (8.85)	3.25 (3.95)	<0.0001
Mean Peak PCT	27.22 (36.88)	1.53 (0.87)	0.041

Liver involvement affecting Lactate clearance in patients without infection.

	No Infection		
	Liver n=19	No Liver n=14	P-value
Rate of 24h lactate clearance	21%	61.5%	0.033169
DOT	4.53 (4.48)	1.38 (1.98)	0.0246
Mean peak PCT	2.03 (0.61)	0.795 (0.66)	0.0162

Conclusion: Cancer patients often manifest SIRS criteria at baseline which may lead to the overdiagnosis of infection and excessive antibiotic usage. Our observation is that lactate clearance as opposed to degree of lactic acidosis may be a more accurate indicator of infection in cancer patients especially those with liver involvement. This information may mitigate unnecessary antibiotic use in cancer patients with persistent lactic acidosis unrelated to infection.

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

207. Travel Related Risk Behaviors and Antibiotic Use among Older Travelers

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Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Older travelers (≥ 60 years) are a unique risk population for travel related infections and adverse events from antibiotics. We evaluated the differences in travel characteristics, exposures, illnesses and antibiotic use among older travelers and those between 18 – 59 y using a prospective, observational cohort of US Department of Defense (DoD) beneficiaries traveling outside the US for ≤ 6.5 months (TravMil).

Methods: Adult DoD beneficiaries were enrolled pre-travel. Itineraries limited to Western/Northern Europe, Canada, or New Zealand and active duty personnel on military travel were excluded. Demographics, itineraries and prescriptions were abstracted. A post-travel survey collected information on exposures and illnesses (travelers' diarrhea (TD), influenza-like illness (ILI) or febrile illness). Categorical variables were analyzed using chi-square or Fishers exact test and the Mann-U Whitney test was used for continuous variables.

Results: Of the 1468 travelers, 755 were ≥ 60y and 719 were < 60y. Asia (35%) and South/Central America (28%) were the most common travel regions. Older travelers were more likely to be Caucasian (80% vs. 67%), male (52% vs. 39%) and travel for tourism (84% vs. 51%) (p< 0.05). Younger travelers were more likely engage in risk behaviors (e.g. consume poorly cooked meat or seafood (16% vs 9%) or street vendor food (26% vs 8.6%), wade in fresh water (24% vs. 18%), and non-compliance with malaria prophylaxis (22% vs 12%) (p< 0.05). Older travelers had a lower incidence of TD (18% vs 24%), and a higher proportion of cases with loose stool or mild TD that did not interfere with daily activities (63% vs. 51%) (p< 0.05). Inappropriate antibiotic use for loose stool or mild TD were similar among the two age groups (67% vs 59%). Non-significant trends of lower incidence and mild infections were observed for ILI and febrile illness in older travelers.

Conclusion: Older travelers were less likely to engage in risk behaviors, had a lower TD incidence and reported mild diarrheal symptoms. Inappropriate antibiotic use for loose stool or mild TD was common in both age groups. Enhancing antibiotic stewardship is important for older travelers to prevent potential side effects, drug interactions and antibiotic resistance.

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

208. Variation in Clinical Practice and Attitudes in the Management of Fever and Neutropenia in Patients With Hematologic Malignancy: A Survey of Cancer Centers Across the United States

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Antimicrobial Stewardship in Cancer Consortium (ASCC)

Session: P-7. Antimicrobial Stewardship: Special Populations

Background: Fever and neutropenia (FN) is common in cancer patients after chemotherapy, and there are national guideline recommendations for FN prevention and treatment. We conducted a survey of practices across multiple US cancer centers to determine the extent to which these guidelines have been adapted.

Methods: US cancer centers performing 20 allogeneic hematopoietic stem cell transplantations annually were identified from the National Marrow Donor Program's "Be the Match" directory. Antimicrobial stewardship physicians and pharmacists at each institution were identified using institutional websites, residency or fellowship program directories, and personal contacts. A survey assessing institutional practices and individual attitudes on FN management in high-risk patients was distributed via email. Duplicate responses at the hospital level were removed. Complete surveys regarding individual attitudes were assessed using a 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree."

Results: Thirty-four (23%) responses from 148 individuals were received, representing 31 of 86 hospitals (36%). 29 (94%) hospitals reported having guidelines for the management of FN. Of these, cefepime was the most commonly recommended agent for empiric treatment (26, 90%) and 16 (55%) provide guidance based on presumed site of infection. Eighteen (62%) hospitals recommend de-escalation of Gram negative therapy in certain situations, most often after being afebrile 48 – 72 hours or after neutrophil recovery (7 each, 39%). Twenty-seven (93%) hospitals recommended antibiotic prophylaxis, most often with levofloxacin (21, 78%). Of 34 respondents, attitudes were split regarding the statement "The benefit of antibiotic prophylaxis outweighs the harms in high-risk patients" (10 strongly agree or agree, 10 strongly disagree or disagree; 29% each); most agreed with the statement "I would use antibiotic prophylaxis in high-risk patients" (25, 78%).

Conclusion: Most cancer centers across the US have guidelines for the management of FN. While most recommend antibacterial prophylaxis, there were differences in individual perceptions regarding the risk / benefit. Significant variation exists in the approach to antibiotic de-escalation.

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

209. Antibiotic Utilization During the COVID-19 Surge in Detroit

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Antibiotic overutilization during the COVID-19 pandemic has been reported, despite relatively infrequent bacterial co-infection. We explored antibiotic utilization before, during and after the COVID-19 surge in Michigan.

Methods: Cross-sectional study at an 877-bed hospital in Detroit, Michigan from January 2019 through May 2020. Measures: Count of COVID-19 hospital admissions by day. Monthly antibiotic utilization for formulary agents used to treat pneumonia were measured using monthly days of therapy (DOT) per 1000 patient days present and the National Health Care Safety Network Standardized Antimicrobial Administration Ratio (SAAR). Descriptive analysis was utilized.

Results: The first COVID-19 case was detected March 11, 2020 and peaked in early April (Figure 1). Antibiotic utilization is demonstrated in Figure 2. The COVID-19 peak was associated with increased use of multiple antibiotics; notably, DOT per 1000 days present for ceftriaxone, cefepime and doxycycline were 85.43, 79.42 and 71.56, respectively in April. The institutional all-antibacterial SAAR was significantly reduced in May at 0.96, p=0.0022, after the COVID-19 surge.
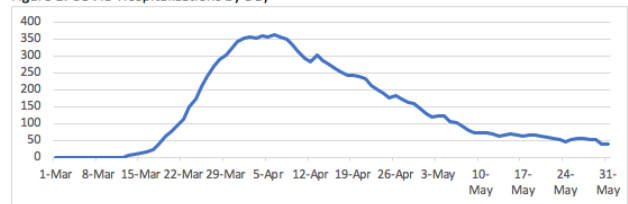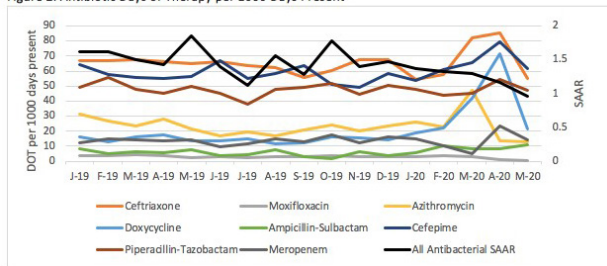
Figure 1

Figure 1. COVID Hospitalizations by Day

Figure 2

Figure 2. Antibiotic Days of Therapy per 1000 Days Present

Conclusion: We observed increased utilization of multiple antibiotics during the COVID-19 surge, and reduction in the all-antibacterial SAAR after the surge. More robust information is needed to promote optimal antibiotic use for patients with COVID-19 infections.

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

210. Vancomycin Infusion Frequency and Intensity: Analysis of Real-World Data Generated from Automated Infusion Devices

Cynthia Yamaga, PharmD[1]; David L. Bostick, PhD[1]; Ying P. Tabak, PhD[2]; Ann Liu-Ferrara, PhD[1]; Didier Morel, PhD[1]; Kalvin Yu, MD[3]; [1]Becton, Dickinson and Co., Franklin Lakes, New Jersey; [2]BD, Franklin Lakes, NJ; [3]Becton, Dickinson and Company, Franklin Lakes, New Jersey

Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Automated infusion devices captures actual infused medication administration data in real-time. Vancomycin use is now recommended to be driven by AUC (area under the curve) dosing. We evaluated automated infusion device data to depict vancomycin administration practices in acute care hospitals.

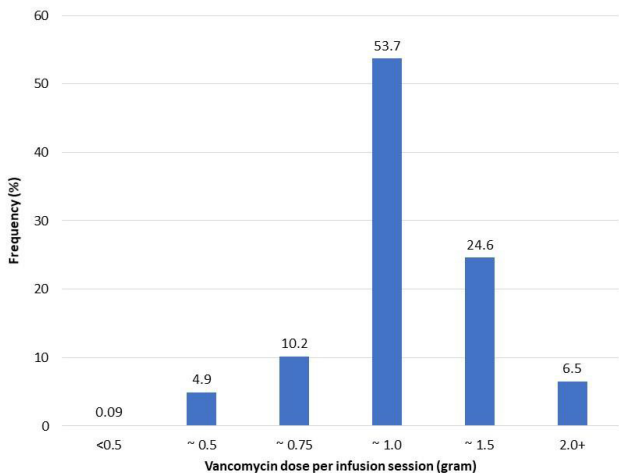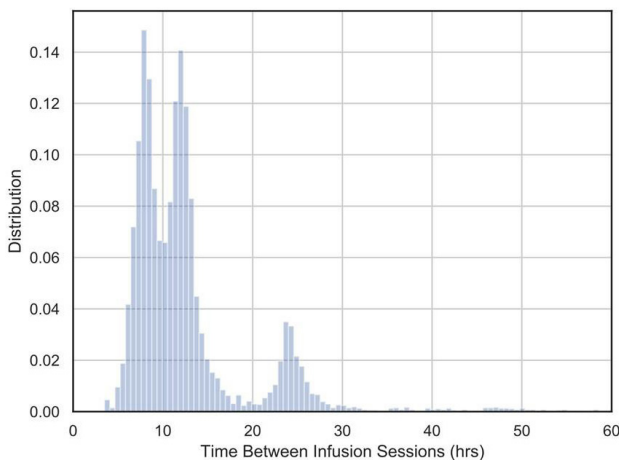Figure 1. Distribution of vancomycin infusion dosing

Figure 2. Distribution of time intervals between each vancomycin infusion session (mostly around 8 or 12 hours)

Methods: We analyzed archived vancomycin infusion data from 2,417 patients captured by automated infusion systems from 3 acute care hospitals. The infusion device informatics software recorded a variety of events during infusion – starting and stopping times, alarms and alerts, vancomycin dose, and other forms of timestamped usage information. We evaluated infusion session duration and dosing, using data-driven clustering algorithms.

Results: A total of 13,339 vancomycin infusion sessions from 2,417 unique adult patients were analyzed. Approximately 26.1% of patients had just one infusion of vancomycin. For the rest of the patients, the median number of infusion sessions per patient was 4; the interquartile range was 3 and 8. The most common dose was 1.0 gram (53.7%) or 1.5 gram (24.6%) (see *Figure 1*). The distribution of infusion session duration (hours) was 4.2% (≤1.0 hh); 40.1% (1.01–1.5 hh); 29.1% (1.51–2.0 hh); and 26.6% (>2.0 hh). The dosing frequency was 39.5% (q8 hh), 42.9% (q12 hh), 11.1% (q24 hh), and 6.5% (>q24 hh) (Figure 2), demonstrating clinical interpretability.

Conclusion: A considerable number of patients received just one vancomycin infusion during their hospital stay, suggesting a potential overuse of empiric vancomycin. The majority of infusion doses were between 1 to 1.5 grams and most infusion sessions were administered every 8 or 12 hours. The actual infusion duration for each dose often exceeds the prescribed 1- or 2-hour infusion orders, which may be due to known instances of infusion interruptions due to patient movement, procedures or IV access compromise. The data generated by infusion devices can augment insights on actual antimicrobial administration practices and duration. As vancomycin AUC dosing becomes more prevalent, real world infusion data may aid timely data-driven antimicrobial stewardship and patient safety interventions for vancomycin and other AUC dosed drugs.

Disclosures: Cynthia Yamaga, PharmD, BD (Employee) David L. Bostick, PhD, Becton, Dickinson and Co. (Employee) Ying P. Tabak, PhD, Becton, Dickinson and Co. (Employee) Ann Liu-Ferrara, PhD, Becton, Dickinson and Co. (Employee) Didier Morel, PhD, Becton, Dickinson and Co. (Employee) Kalvin Yu, MD, Becton, Dickinson and Company (Employee)GlaxoSmithKline plc. (Other Financial or Material Support, Funding)

211. A Comprehensive Assessment of Carbapenem Use across 90 Veterans Health Administration Hospitals with Defined Stewardship Strategies for Carbapenems

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Carbapenems are an important target for antimicrobial stewardship (AS) efforts. In this study, we sought to compare different hospital-based strategies for improving carbapenem use.

Methods: We analyzed a cohort of all patients hospitalized at Veterans Health Administration (VHA) acute-care hospitals during 2016 and mandatory survey data that characterized each hospital's carbapenem-specific AS strategy into one of three types: no strategy (NS), prospective audit-and feedback (PAF), or restrictive policies (RP). Sites that could not be classified were excluded. Inpatient carbapenem use was compared across strategies using risk-adjusted generalized estimating equations that accounted for clustering within hospitals. Two Infectious Disease (ID) physicians independently performed manual chart reviews in 425 randomly-selected carbapenem-treated cases (100 for PAF/NS and 225 for RP). Auditors assessed for the presence of ID consultation and carbapenem appropriateness on day 4 of therapy. Assessments were categorized as follows: appropriate (1), acceptable (2), suboptimal (3), unnecessary (4) and inappropriate (5). Assessment scores across strategies were compared with the Kruskal-Wallis test.

Results: There were 429,602 admissions in 90 sites (8 PAF, 24 NS, 58 RP). Median carbapenem use across sites was 17.4 (IQR 8.6–28.4) days of therapy/1,000 days-present. Inpatient carbapenem use was lower at PAF than NS sites [RR 0.67 (95% CI, 0.46–0.98); p=0.04] but similar between RP and NS sites [RR 0.86 (95% CI, 0.61–1.22); p=0.41].

Carbapenem use was considered appropriate or acceptable in 215 (50.6%) of the reviewed cases. Assessment scores were higher (i.e. worse) at NS than RP sites (mean 2.7 vs 2.3; p< 0.01) but did not differ significantly between NS and PAF sites (mean 2.7 vs 2.5; p=0.14).

ID consultations were more common at PAF/RP than NS sites (51% vs 29%; p< 0.01). ID consultations were associated with lower (i.e. better) assessment scores (2.3 vs. 2.6; p< 0.01).

Conclusion: In this VHA cohort, AS strategies and ID consultations were associated with either less or more appropriate carbapenem-prescribing. The use of AS and ID consultations may be complementary, and hospitals could leverage both to optimize carbapenem use.

Disclosures: Daniel J. Livorsi, MD, MSc, Merck and Company, Inc (Research Grant or Support)