Results. A total of 3,776 patients were included in the final analysis (2,706 with CAP; 1,070 with HCAP). 69% (2,586/3,776) of patients received excess antibiotic duration (Figure 1). Antibiotics prescribed at hospital discharge accounted for 52% of total and 94% of excess antibiotic days. Factors associated with excess duration included: identification of bacterial pathogen (OR 1.9, 95% CI: 1.3, 2.8), more signs of pneumonia (OR 1.2, 95% CI: 1.1, 1.3 per sign), and uncomplicated CAP (OR 2.7 vs. HCAP). Comorbid heart failure was protective (OR 0.8, 95% CI: 0.6, 0.9). Hospitals varied widely with even the top performing hospital over-treating half of patients (Figure 2). There were no differences in any outcome for patients receiving excess vs. appropriate antibiotic duration.

Conclusion. Most hospitalized patients with pneumonia receive an excess antibiotic duration. CAP and antibiotics prescribed at discharge are major sources of excess use and thus key targets for stewardship.

Figure 1. Proportion of Patients Who Received an Excess Antibiotic Duration

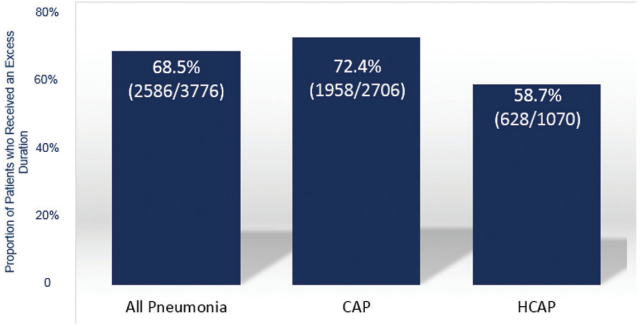
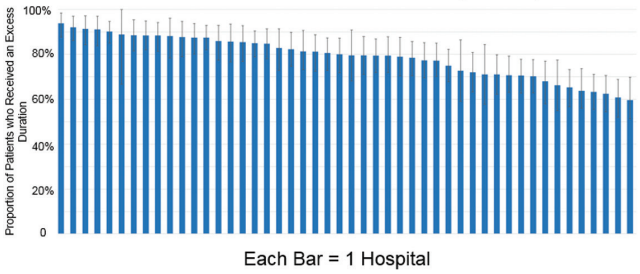


Figure 2. Proportion of Patients who Received an Excess Antibiotic Duration by Hospital



Disclosures. **All authors:** No reported disclosures.

1871. Identifying Time Periods of High and Low Vancomycin Use

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Background. A national goal has been set to decrease inappropriate antibiotic use by 2020. To quantify decreases in use, consumption metrics and benchmarking strategies are implicit. However, while tracking and reporting antimicrobial use is widely recommended, these data do not address appropriateness. Accordingly, we developed a methodology to identify and report high and low vancomycin use periods which may represent inappropriate or unsafe antimicrobial use.

Methods. This is an observational, retrospective study of facility-wide vancomycin consumption data, aggregated, and examined on a hospital level from three academic medical centers: Northwestern Medicine (NM), Michigan Medicine (UM), and Henry Ford (HF) Hospital. Utilization was quantified as antimicrobial days (AD) per 1,000 days present (DP) on a monthly basis, recorded over 46 consecutive months (January 2014 through October 2017) for NM and HF, and 40 consecutive months (July 2014 through October 2017) for UM. Linear regression models and prediction intervals were generated to identify high-usage months. Use exceeding the upper bound of a prediction interval of 80 percent in a given month was used to define increased use, and the lower bound was used to define decreased use.

Results. Vancomycin use averaged 70.3 AD per 1,000 DP at NM, 89 at UM, and 153.8 at HF. Regression models indicated HF and UM consumption decreased at a monthly rate of 1.2 AD per 1,000 DP and 0.1 AD per 1,000 DP, respectively, whereas NM use increased at a rate of 0.1 AD per 1,000 DP over the study period. Overall, we identified $n = 6$, $n = 5$ and $n = 6$ vancomycin increased use months and $n = 7$, $n = 6$ and $n = 5$ decreased use months at NM, UM and HF, respectively.

Conclusion. Our methodology identified a total of 17 potential instances of increased and 18 decreased use periods for vancomycin. Patient-specific and/or hospital-level factors may contribute to inappropriate vancomycin use and requires further study. The relationship between increased or decreased antibiotic use and appropriateness should be a focus in future efforts. Once the link between use and appropriateness is known, interventions can target specific use periods to maximize benefit of the intervention.

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1872. Antimicrobial Utilization Variability Among Training Services at an Academic Medical Center

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Background. The general medicine (GMed) and hospitalist (Hosp) services use antimicrobials at a relatively high rate among our teaching services. It is currently unknown if there is a difference in antimicrobial prescribing between various learner levels or attending type at our institution.

Methods. We measured antimicrobial utilization between January 1, 2016 to April 22, 2018 (2.25 years) in our GMed services. Services are divided by resident-led and hospitalist only services. The GMed1 service is staffed by outpatient internists, the GMed2 service is split between geriatricians and hospitalists, and the GMed3 service is only hospitalists. The "A" service is junior residents while "B" is senior residents. We measured utilization using the WHO defined Days of Therapy (DOT) definition normalized per 1,000 patient-days (PD). Secondary analysis based on antibiotic breadth and route were analyzed by average DOT/1,000 patient-days.

Results. GMed services prescribed at a higher rate of DOT than hospitalist services over the study timeframe (809 vs. 645, $P < 0.0001$). Junior resident-led services (A) used more antimicrobials than senior resident-led services (B) (894 vs. 606, $P < 0.0001$). There were no significant prescribing differences between the 1, 2, and 3 services by different attending roles (840 vs. 775 vs. 797). Similar trends continue in secondary analysis with hospitalists prescribing a lower average DOT/1,000 PD of broad-spectrum antibiotics and A services prescribing higher rates of broad-spectrum, anti-MRSA, and anti-Pseudomonal therapy compared with B services (Table 1).

Table 1: Secondary Analysis of Antimicrobial Breadth by Service (Mean Days of Therapy/1,000 PD)

	Hospitalist	Gen Med (All)	Gen Med 1	Gen Med 2	Gen Med 3	Gen Med A	Gen Med B
Broad spectrum	10.9	11.5	13.4	13.0	12.0	13.5	9.8
Narrow Spectrum	10.1	11.7	11.9	12.2	11.5	11.8	8.8
Anti-MRSA therapy	9.7	12.7	13.2	12.0	14.9	14.9	9.4

Conclusion. Antimicrobials were prescribed at a significantly higher rate in services associated with trainees than those without. Junior resident-led services prescribed at a significantly higher rate than services-led by a senior resident. Interventions to reduce unnecessary antimicrobial exposure should be targeted toward learners, especially junior trainees.

Disclosures. **All authors:** No reported disclosures.

1873. Next Steps in Predicting Anti-MRSA Antibiotic Prescribing

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Background. Antibiotic use metrics are utilized by antimicrobial stewardship programs to benchmark performance against peer institutions and inform stewardship efforts. Benchmarking requires risk adjustment for patient- and facility-level factors so that remaining differences are attributable only to prescribing practices. Antibiotics for the treatment of methicillin-resistant *Staphylococcus aureus* (MRSA) are one of the most frequently used drug classes. Our objective was to identify predictors of anti-MRSA antibiotic use in a nationwide network of hospitals.

Methods. We used data from inpatient encounters at facilities participating in the Vizient data repository between January 1, 2016 and December 31, 2016. The outcome, anti-MRSA antibiotic use, was calculated as days of therapy per patient-days present for each encounter. We constructed a multivariable negative binomial regression model and assessed the following predictors for inclusion: age, sex, race, ethnicity, diagnosis related groups (DRGs), ICU days, admit month, facility bed size, facility teaching status, and region. A clinical framework was used to categorize DRGs based on risk of anti-MRSA antibiotic use. A backwards stepwise approach was used to identify the final model. We evaluated predictor effect size and significance, and assessed model fit using a deviance-based pseudo-R^2.

Results. One hundred forty-five facilities representing 3,608,711 encounters met inclusion criteria. All predictors considered in our model were significant. Predictors with the greatest magnitude of association included DRG categories and patient age. The DRG categories with the strongest associations were DRGs for infections likely due to *Staphylococcus aureus* (RR = 1.66, $P < 0.0001$) or for diagnoses likely to receive long-term MRSA coverage (RR = 1.49, $P < 0.0001$). The age group with the strongest association was age 2–10 years (RR = 1.64; $P < 0.001$). The deviance-based pseudo-R^2 of the final model was 0.19, indicating good model fit.

Conclusion. DRGs and patient-level characteristics can be utilized to account for variability in anti-MRSA antibiotic use beyond what is explained through facility-level characteristics. Incorporation of the significant predictors identified in this study may aid in more meaningful interhospital comparisons of anti-MRSA antibiotic use in both adults and pediatrics.

Disclosures. **J. C. McGregor**, Merck: Grant Investigator, Research grant.

1874. Adherence to Practice Guidelines for Treating Diabetic Foot Infections: An Opportunity for Syndromic Stewardship

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Background. Adherence to the Infectious Diseases Society of America (IDSA) guidelines for the treatment of diabetic foot infections (DFIs) has been associated with improved outcomes. Yet, compliance with these guidelines has been reported to be low. We initiated a quality improvement project aimed at improving guideline adherence for DFI management. Baseline results are reported here.

Methods. We reviewed all hospitalized primary DFIs newly initiated on antibiotics over 1 year (July 2014–June 2015). We collected demographics, DFI severity per IDSA guidelines, antibiotic use, and microbiology data. Guideline adherence for culturing and empiric antibiotic choice (based on severity) was assessed per IDSA guidelines. We then created an institutional guideline and electronic order set with built-in clinical decision support. Educational lectures on DFI best practices were given to providers who commonly treat DFIs.

Results. One hundred seventy-seven DFI admissions were identified: 40% severe ($n = 70$), 47% moderate ($n = 84$), 8% mild ($n = 14$), and 5% with no evidence of infection ($n = 9$). Demographics: mean age 58 years; 68% male, mean HgbA1c 8.6%, length of stay 6.9 days, 3-year mortality 13%. Empiric antibiotic regimens were judged inappropriate in 36% (64/177) of cases. The most common reason for inappropriate antibiotic use was unnecessary coverage for *Pseudomonas aeruginosa* in 50% (54/107) of nonsevere cases. In 28% (39/140) of cases with an ulcer, wound or skin breakdown, a superficial swab culture was obtained which is inappropriate. Only 33.3% ($n = 56$) had a deep tissue culture obtained. In patients with deep tissue cultures, methicillin-resistant *Staphylococcus aureus* (MRSA) was found in 11% (6/56) of cases but covered for empirically in 88% (50/56). Pseudomonas was found in 2% (1/56) of cases but covered for empirically in 73% (41/56).

Conclusion. MRSA and *Pseudomonas* are uncommon DFI pathogens yet are frequently treated empirically. Inappropriate antibiotic use is often due to empiric coverage for Pseudomonas in nonsevere DFIs where it is a rare pathogen. Culture practices are also less than ideal with frequent superficial swabs and underutilization of deep cultures. Institutional guidelines were developed to specifically address these issues and data collection of the impact of this project is in process.

Disclosures. **S. Bergman**, Merck: Grant Investigator, Grant recipient. **T. Vanschooneveld**, Merck: Grant Investigator, Grant recipient.

1875. How Many Different Antimicrobial Regimens Are There and Which Are Emerging and Declining?

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Background. Antimicrobial regimens evolve with changing recommendations and emerging practice patterns. We sought to explore the diversity of these patterns and to identify which inpatient regimens may be emerging in US Veterans Affairs medical centers (VAMC).

Methods. We extracted antimicrobial use and admission data from all acute care VA medical centers between 2005 and 2016. A regimen was defined as all unique antimicrobials and their routes given in a day to a single patient. We applied smoothing to account for intended discontinuation and intermittent dosing due to clearance. We described the distribution of regimens among VAMCs using the Gini index (a Gini index of 0 would mean all regimens were equally frequent and 1 would mean that one regimen dominated all others). We calculated the rank percentile of all regimens. We also used the absolute change in rank percentile between years 2005 and 2016 of the regimen used to describe emerging and declining regimens.

Results. There were 55,767 distinct regimens. Table 1 describes the Gini index and its decomposition among VAMCs. Overlap accounts for most of the inequality present because regimens are shared between VAMCs. Approximately 20% of the inequality present can be accounted for by variation between VAMCs. Table 2 describes the top 10 rising and the top 10 declining regimens.

Conclusion. While there was a large number of distinct regimens, there was a relative handful of antimicrobial regimens dominated—most of which were commonly present among VAMCs (as manifest by the Gini "overlap" percent). Most regimens in the top 10 were broad-spectrum IV agents, with PO levofloxacin and doxycycline being notable standouts. IV vancomycin, which was the single most common regimen in 2005, decreased markedly. Linezolid and mixed PO metronidazole agents appear to be on the decline.

Table 1. Gini index describes the uneven distribution of regimens. A value of 0 represents perfect equality, while a value of 1 represents the domination of a single regimen.

Gini Index	0.948
Between	19.5%
Overlap	79.5%
Within	1.1%

Table 2. Top 10 rising and declining antibiotic regimens by change in percentile (higher is more common). Rank is also shown for context (1 being the most common regimen)

Top 10 rising antibiotic regimens	Rank %ile in 2005	Change in %ile	rank2005	Change in rank
IV vancomycin, IV piperacillin/tazobactam	48.9%	32.0%	11	-7
IV ceftriaxone	55.0%	31.9%	9	-6
PO levofloxacin	37.6%	28.9%	18	-11
PO doxycycline	35.4%	19.0%	20	-10
IV vancomycin, IV meropenem	10.4%	17.7%	122	-95
IV ertapenem	17.4%	16.5%	60	-39
IV meropenem	16.0%	15.5%	68	-45
IV daptomycin	13.6%	12.6%	86	-56
IV vancomycin, IV ertapenem	9.9%	12.6%	130	-93
IV daptomycin, IV meropenem	1.2%	11.8%	476	-396
Top 10 declining antibiotic regimens				
PO metronidazole	72.6%	-33.1%	5	12
IV vancomycin	100.0%	-24.3%	1	4
PO tetracycline	23.1%	-22.6%	40	427
IV cefotaxime	21.5%	-15.2%	45	162
IV vancomycin, PO metronidazole	25.0%	-13.7%	35	63
IV piperacillin/tazobactam, PO metronidazole	22.4%	-13.7%	42	96
PO linezolid	29.6%	-13.1%	27	31
PO cephalexin	63.2%	-12.7%	7	4
IV linezolid	21.8%	-10.7%	44	56
IV ciprofloxacin, IV piperacillin/tazobactam	19.5%	-10.2%	52	75

Disclosures. **V. Stevens**, Pfizer, Inc.: Grant Investigator, Research grant.

1876. Patient- and Hospital-Level Factors and Outcomes Associated With Treatment of Asymptomatic Bacteriuria in Hospitalized Patients: A Multi-Hospital Cohort Study

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