site was developed; meetings and teleconferences were held regularly. By way of a shared contract, a CSS (Theradoc, DSS Inc.) was installed at all three VAMCs between November 2015 and March 2016. Within TheraDoc, each AS program designed alerts and interventions specific to its own medical center and collaborated to develop a group of 22 interventions that were shared by all sites. There was no attempt to alter individually determined AS practices of each VAMC.

Results. The table demonstrates the combined AS team interventions and aggregate cost-saving generated by the shared CSS. The number of interventions and the hours spent in CSS varied between centers; the top five most heavily conducted interventions differed between sites. Over time, new interventions developed at one VAMC were adopted at one or more of the other VAMCs at the discretion of the respective AS teams. Within a short period of time the cost savings generated exceeded the CSS start-up investment.

	CY 2016	CY 2017	Combined
AS interventions	2,946	10,016	12,962
Time spent AS PharmDs (hours)	472	2,032	2,503
Time spent AS MD (hours)	199	308	508
Cost savings	$532,520	$1,790,906	$2,323,426

Conclusion. Working collaboratively allowed each VAMC to leverage shared resources. Each AS program was able to adapt to its VAMC's specific needs, while also demonstrating significant aggregate cost savings as a result of coordinated and defined AS activities.

Disclosures. **M. Zuzick**, Document Storage Systems: Employee, Salary. **J. Chang**, Document Storage Systems: Employee, Salary.

1868. Successful Use of Telemedicine vs. On-site Infectious Diseases Consultation After Implementation of a System-Wide Antimicrobial Stewardship-Led *Staphylococcus aureus* Bacteremia Care Bundle

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Background. Telemedicine (TM) programs have been effectively implemented to deliver specialty care through virtual platforms to overcome geographic and resource constraints. Yet, few data exist to describe outcomes associated with TM-based management of patients with infectious diseases (ID). The purpose of this study was to compare adherence and other outcomes associated with TM and on-site (SOC) ID consultation (IDC) implementation strategies of an antimicrobial stewardship (ASP)-led *S. aureus* bacteremia (SAB) bundle.

Methods. We launched an SAB bundle at 10 acute care hospitals in the metro Charlotte, NC area in September 2016 for adult patients admitted with SAB and conducted a retrospective cohort study using data collected through 2017. Bundle components included (1) mandatory IDC, (2) appropriate antibiotics within 24 hours of *S. aureus* speciation, (3) repeat blood cultures at least every 72 hours until clearance, (4) obtainment of an echocardiogram, and (5) appropriate duration of intravenous antibiotic therapy based on SAB severity. ASP facilitated bundle initiation and assisted with compliance for all patients. The primary outcome was bundle adherence. Secondary outcomes included time to culture clearance and persistent SAB (i.e., positive blood cultures for >7 days). We used Wilcoxon rank-sum and chi-squared tests to compare outcomes.

Results. We evaluated 872 patients with SAB during the study interval. After excluding 126 patients (prematurely discharged or died/transitioned to comfort care within 48 hours of *S. aureus* speciation), we analyzed 583 SOC and 163 TM group patients. There were no differences observed in overall SAB bundle adherence (SOC 86% vs. TM 88%, *P* = 0.52), or its individual components. No differences were found in time to culture clearance (median days: SOC = 2.9 vs. TM = 2.8, *P* = 0.96) and persistent SAB (SOC 11% vs. TM 11%, *P* = 0.77).

Conclusion. Our findings provide preliminary evidence to support TM-based strategies for IDC and ASP-led care bundles in resource-limited settings. Future analyses will compare mortality and hospital readmission outcomes.
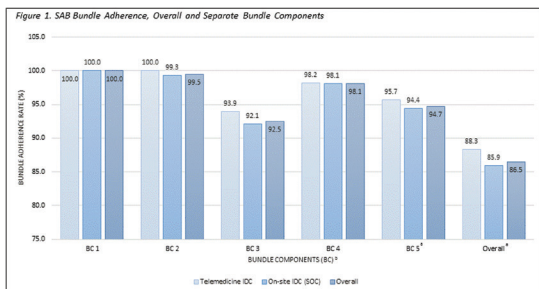

Figure 1. SAB Bundle Adherence, Overall and Separate Bundle Components

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

1869. Telepharmacy Support of an Antimicrobial Stewardship Program in a Small Rural Canadian Acute Care Hospital

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Background. In 2013 Accreditation Canada identified an Antimicrobial Stewardship Program (ASP) as a Required Organizational Practice in all acute care hospitals. A successful antimicrobial stewardship program is interdisciplinary and involves clinical pharmacists as a key member of the team. This small rural acute care hospital utilizes a telepharmacy model of care with a remote clinical pharmacist. This hospital is a 20-bed acute care hospital with no on-site clinical pharmacist and has been utilizing Telepharmacy services since 2008. To prepare for Accreditation in December 2013, the remote clinical pharmacist was requested to support and lead the antimicrobial stewardship program.

Methods. The remote clinical pharmacist performed a gap analysis to identify areas requiring improvement for a successful ASP which included the need for an Antimicrobial Stewardship committee, an IV to PO conversion program for antibiotics, development of guidelines and clinical pathways for common infections, hospital specific antibiogram, and prospective audit with intervention and feedback. The remote clinical pharmacist participated in meetings with nurses, physicians, and other key stakeholders using videoconference technology to develop a plan for the ASP. The remote clinical pharmacist started prospective data collection in September 2013. Starting January 2014, the remote clinical pharmacists started providing prospective audit with intervention and feedback.

Results. The antimicrobial stewardship program was formally accepted by Accreditation Canada in December 2013.

Figure 1. Days of Therapy (DOT) per 1,000 Patient-Days Over 4 Years

Figure 1: Day of Therapy per 1000 Patient Days
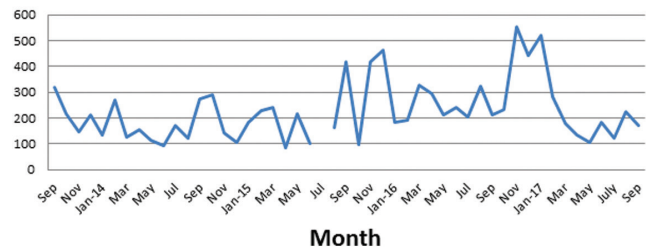
Conclusion. Small rural and remote acute care hospitals without access to an on-site clinical pharmacist can successfully implement and maintain an ASP by seeking support from experienced remote clinical pharmacists.

Disclosures. **S. Dhaliwall**, Northwest Telepharmacy Solutions: Employee, Salary. **K. McDonald**, Northwest Telepharmacy Solutions: Employee, Salary.

1870. Excess Antibiotic Duration in Patients Hospitalized for Pneumonia: A Multi-Hospital Cohort Study

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Vaughn VM, Flanders SA, Chopra V, Conlon A, Malani A, Thyagarajan R, Hsaiky L and Gandhi T

Background. Despite guidelines recommending patients with pneumonia receive the shortest effective duration of antibiotic therapy, patients continue to receive antibiotics for longer than necessary. Patterns and predictors of excess antibiotic duration are not well understood.

Methods. Cohort study of patients hospitalized with community-acquired pneumonia (CAP) or healthcare-associated pneumonia (HCAP) between November 2015 and January 2018 at 48 hospitals participating in the Michigan Hospital Medicine Safety consortium. Adult, non-ICU, medical patients were included. Patients with concomitant infections, severe immunosuppression, or unusual pathogens were excluded. Detailed patient data, included duration of antibiotic treatment, were abstracted from the medical record. Appropriate duration was calculated for each patient based on time to clinical stability, organism, and comorbidities. Patient outcomes included mortality, readmission, length of stay, transfer to intensive care, and *Clostridium difficile* infection. Disease-, patient-, provider-, and hospital-factors associated with excess antibiotic duration and association of excess duration with patient outcomes were evaluated using multivariable generalized estimating equations models.

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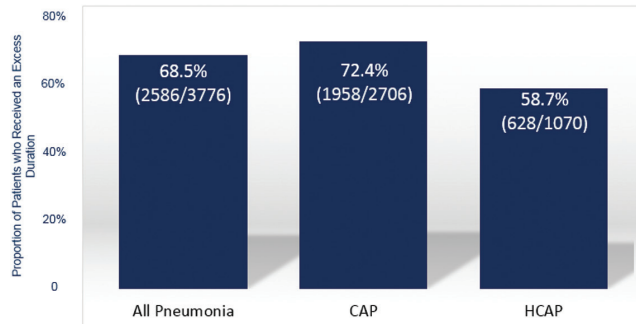
Figure 2. Proportion of Patients who Received an Excess Antibiotic Duration by Hospital

Each Bar = 1 Hospital
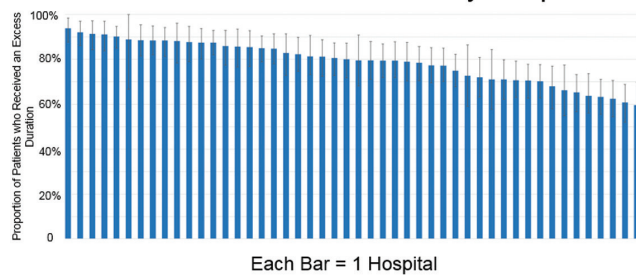
Disclosures. All authors: No reported disclosures.

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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