770. Multimodal Sepsis Performance Improvement Initiative Improves Early and Appropriate Treatment, Reduces Sepsis-related Readmissions, and Reduces Overall Mortality
Sele Yohannes, MD; MedStar Washington Hospital Center, Bethesda, Maryland
Session: 69. What’s New in Clinical Practice? Thursday, October 3, 2019: 12:15 PM

Background. CMS has implemented the SEP-1 Core Measure, which mandates that hospitals implement sepsis quality improvement initiatives. At our hospital, a 900-bed tertiary hospital, a sepsis performance improvement initiative was implemented in April 2016. In this study, we analyzed patient outcomes before and after these interventions.

Methods. We studied coding data in patients with a diagnosis of Sepsis reported to CMS using a third-party performance improvement database between October 2015 and July 2017. The interventions included a hospital-wide education campaign about sepsis; a 24–7 electronic warning system (EWS) using SIRS criteria; a rapid response nursing team that monitors the EWS; a 24–7 mid-level provider team; a database to monitor compliance and timely treatment; and education in sepsis documentation and coding. We performed a before and after analysis of patient outcomes.

Results. A total of 4,102 patients were diagnosed with sepsis during the study period. 861 (21%) were diagnosed during the pre-intervention period and 3,241 (80%) were diagnosed in the post-intervention period. The overall incidence of sepsis, severe sepsis, and septic shock were 59%, 13%, and 28% consecutively. Regression analysis showed age, admission through the ED, and severity of illness as independent risk factors for increased mortality. Adjusted for these risk factors, the incidence of severe sepsis and septic shock was reduced by 5.3% and 6.9% in the post-intervention period, while the incidence of sepsis was increased by 1.2%. In total, 32% of patients had a diagnosis was reduced 4.5% (P = 0.01). Based on an average of 2000 sepsis cases at our hospital, this amounted to 90 lives saved per year. Death from severe sepsis and septic shock both were also reduced by 5% (P = 0.01) and 6.5% (P = 0.01).

Conclusion. A multi-modal sepsis performance improvement initiative reduced the incidence of severe sepsis and septic shock, reduced hospital length of stay, reduced readmission rates, and reduced all-cause mortality.

Disclosures. All authors: No reported disclosures.

771. A Quality Improvement Initiative to Reduce 30-days Sepsis-Related Readmissions by Internal Medicine Residents
Mahmoud Ahmed, MD1; Nida Khalid, MD1; Faran Ahmad, MBBS2; Rochester General Hospital, Rochester, New York; Creighton University Medical Center, Webster, New York
Session: 69. What’s New in Clinical Practice? Thursday, October 3, 2019: 12:15 PM

Background. Early readmissions after sepsis treatment are associated with an increased cost of care and poor outcome. Based on nationwide Medicare data, one-third of sepsis survivors get readmitted and wide variation exists between hospitals. Internal medicine residents aimed to determine the most common factors associated with readmission after hospitalization for sepsis at Rochester General Hospital and Unity Hospital in Rochester, New York.

Methods. This quality improvement (QI) project involved a retrospective chart review of 30 days sepsis-related readmissions from January to July 2017. We used Rochester General Hospital and Unity Hospital electronic database of the admitted patients with ICD 9/ICD 10 diagnoses for sepsis admission or during the hospital course. We also analyzed data for interpreting predominant risk factors for readmission. Based on the specific determinants, a “readmission alert” is being implemented in the electronic medical record to address the specific area of concern with relevant interventions. In the next phase of the performance improvement, six-monthly follow-up retrospective chart review will be carried out to look for the outcome.

Results. Of 2,221 patients admitted with a sepsis diagnosis from January to July 2017, 462 (20.8%) were readmitted within 30 days of discharge. Of these patients, 31.7% were diagnosed with severe sepsis and 68.3% with sepsis. The overall incidence of readmission was 13.6% (P < 0.001); hospital length of stay was reduced by 1.8 days (P = 0.05); length of stay above 1.5 days was reduced by 1.5 days (P = 0.05); re-admission rate was reduced by 1.6% (P = 0.003); and deaths in any sepsis diagnosis was reduced 4.5% (P = 0.01). Based on an average of 2000 sepsis cases at our hospital, this amounted to 90 lives saved per year. Death from severe sepsis and septic shock both were also reduced by 5% (P = 0.01) and 6.5% (P = 0.01).

Conclusion. Reducing sepsis-related readmission requires a multidisciplinary collaboration of primary care providers, visiting nursing services and infectious disease consult team. This pilot QI project results indicate that early follow-ups are important for reducing readmission.

Disclosures. All authors: No reported disclosures.

772. Access Denied: Impact of Insurance Denials for High Cost Outpatient Parenteral Antimicrobial Therapy
Monica L. Bianchini, PharmD, MPH1; Rachel Kenney, PharmD1; Robyn Lenz, LMSW2; Marcus Zirvos, MD1; Manu Malhotra, MD1

Methods. We conducted a retrospective chart review of patients admitted to our hospital from January to July 2017 who were diagnosed with sepsis. We identified a total of 2,221 patients. Of these, 462 (20.8%) were diagnosed during the pre-intervention period and 3,241 (80%) were diagnosed in the post-intervention period. The overall incidence of sepsis, severe sepsis, and septic shock were 59%, 13%, and 28% consecutively. Regression analysis showed age, admission through the ED, and severity of illness as independent risk factors for increased mortality. Adjusted for these risk factors, the incidence of severe sepsis and septic shock was reduced by 5.3% and 6.9% in the post-intervention period, while the incidence of sepsis was increased by 1.2%. In total, 32% of patients had a diagnosis was reduced 4.5% (P = 0.01). Based on an average of 2000 sepsis cases at our hospital, this amounted to 90 lives saved per year. Death from severe sepsis and septic shock both were also reduced by 5% (P = 0.01) and 6.5% (P = 0.01).

Conclusion. A multi-modal sepsis performance improvement initiative reduced the incidence of severe sepsis and septic shock, reduced hospital length of stay, reduced readmission rates, and reduced all-cause mortality.

Disclosures. All authors: No reported disclosures.

773. First National Survey of Antibiotic Use Prescribed by All Dentists in Japan from 2015 to 2017 using the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB)
Masahiro Ishikane, MD, PhD1; Chika Tanaka, BPharm;2 Sachiko Ono, D.D.S., MPH;3 Mie University Hospital, Tsu-shi, Mie, Japan; Shinya Tsuzuki, MD, MSc, Yuiichi Muraki, PhD; 4 Daikoku Yamashita-ku, Tokyo, Japan; Masaki Tanabe, MD, PhD; 2 Norio Ohmagari, MD, MSc, PhD; 2 National Center for Global Health and Medicine, Shinkuju-ku, Tokyo, Japan; 3 The University of Tokyo, Bunkyo-ku, Tokyo, Japan; 4 University of Antwerp, Tokyo, Japan; 5 Kyoto Pharmaceutical University, Yamashita-ku, Kyoto, Japan; 6 Me University Hospital, Tsuchi-ku, Me, Japan; 7 National Center for Global Health and Medicine Hospital, Shinkuju, Tokyo, Japan

Methods. This national survey (QI) was conducted to assess antibiotic use prescribed by all dentists in Japan from 2015 to 2017 using the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB). The study design was based on the national database that contains information about patients who are covered by the National Health Insurance System (approximately 75% of Japan's population), and it is the largest insurance database in the world with over 90 million enrollees. The database contains comprehensive information about the patients, including demographic data, health status, health care utilization, and prescription data. The database also contains data on the utilization of specific medications, including antibiotics, and it is used by the Japanese government to monitor the use of antibiotics and to promote appropriate prescribing.

Results. A total of 4,102 patients were diagnosed with sepsis during the study period. Of these patients, 31.7% were diagnosed with severe sepsis and 68.3% with sepsis. The overall incidence of readmission was 13.6% (P < 0.001); hospital length of stay was reduced by 1.8 days (P = 0.05); length of stay above 1.5 days was reduced by 1.5 days (P = 0.05); re-admission rate was reduced by 1.6% (P = 0.003); and deaths in any sepsis diagnosis was reduced 4.5% (P = 0.01). Based on an average of 2000 sepsis cases at our hospital, this amounted to 90 lives saved per year. Death from severe sepsis and septic shock both were also reduced by 5% (P = 0.01) and 6.5% (P = 0.01).

Conclusion. Reducing sepsis-related readmission requires a multidisciplinary collaboration of primary care providers, visiting nursing services and infectious disease consult team. This pilot QI project results indicate that early follow-ups are important for reducing readmission.

Disclosures. All authors: No reported disclosures.
was 1.19 (98.4%), comprising cephalosporins (0.76, 63.6%), macrolides (0.23, 18.9%), penicillins (0.12, 10.2%), and quinolones (0.07, 5.5%). DID values of oral AMU in outpatient settings were compared for in-house (0.89, 74.4%) and outside (0.31, 25.6%) prescriptions; in-house resulted in a higher proportion of oral cephalosporins (0.60, 66.6% vs. 0.17, 54.1%), but a lower proportion of oral penicillins (0.08, 9.0% vs. 0.04, 13.8%) (Table 1).

**Conclusion.** Oral AMU in outpatient settings comprised the highest proportion of antibiotic prescribing by dentists in Japan (98.4%). Oral cephalosporins, the predominant drug type and thought to result from inappropriate prescribing in general, were more frequently prescribed in-house than outside. To tackle AMR, further studies are needed to determine the patient and dentist characteristics encouraging cephalosporin prescription.

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

### Table 1. Comparison of oral AMU among all dentists between in-house and outside prescribing in Japan

|                | In-house  | Outside  |
|----------------|-----------|----------|
| Total          | 0.89      | 0.31     |
| Cephalosporins | 0.60 (66.9%) | 0.17 (54.1%) |
| Macrolides     | 0.15 (17.2%) | 0.007 (23.9%) |
| Penicillins    | 0.08 (9.0%)  | 0.04 (13.8%) |
| Quinolones     | 0.05 (5.2%)   | 0.02 (6.1%)  |
| Others         | 0.01 (1.6%)   | 0.01 (2.1%)  |

Data show defined daily doses per 1000 inhabitants per days, DID (%).

### Session: 69. What's New in Clinical Practice?

**Thursday, October 3, 2019: 12:15 PM**

**774. A New Outpatient Parenteral Antimicrobial Therapy (OPAT) Management Program Reduces Excess Antimicrobial Days of Therapy and Expedits Timely Central Line Removal**

Catherine Kidd, MSN, AG-ACNP; Joshua C. Eby, MD; Tania Thomas, MD, MPH; Megan Shah, PharmD, BCIDP; Zachary Elliott, PharmD, BCIDP; Heather L. Cox, PharmD, BCPS-AQID, BCIDP; 1University of Virginia, Charlottesville, Virginia; 2University of Virginia Health System, Charlottesville, Virginia.

**Session:** 69. What's New in Clinical Practice?

**Thursday, October 3, 2019: 12:15 PM**

**Background.** Patients discharged on parenteral antimicrobials often require in-person follow-up to determine antimicrobial discontinuation and coordination of central line (CL) removal at the end of therapy. Without close attention to timing of follow-up, antimicrobial courses may be extended beyond a planned end date until scheduled follow-up, leading to excess antimicrobial days of therapy (DOT) and CL retention. Excess DOT can result in increased cost of medication and CL supplies, antimicrobial exposure, and risk of CL-associated bloodstream infections or thrombosis. We sought to assess the impact of the University of Virginia (UVA) OPAT program on excess antimicrobial DOT and excess CL days.

**Methods.** This was a retrospective chart review of patients enrolled in the OPAT program at UVA between August 2018 and April 2019. The UVA OPAT program was started in August 2018. Quality improvement (QI) practice change was implemented in February 2019 for improving follow-up and stopping antimicrobials at the projected end date. Patients were therefore divided into 2 cohorts – August through January 2018 and February through April 2019. Data collected included projected end date of therapy (EOT), actual EOT, actual removal date of CL, and follow-up date. Excess antimicrobial DOT and excess CL days were calculated by the difference in projected vs. actual dates. For continuous data, Student t-test was used.

**Results.** 248 patients enrolled in OPAT from August 2018 through April 2019. After implementation of QI efforts, mean time from projected EOT to follow-up appointment decreased from 10.0 days to 4.3 days for those with appointments after projected EOT. Mean excess antimicrobial DOT decreased from 2.8 ± 4.53 SD days to 1.6 ± 2.75 SD days (P = 0.026), and mean excess CL days decreased from 3.2 ± 4.63 SD days to 2.0 ± 2.89 SD days (P = 0.035).

**Conclusion.** The involvement of an OPAT program with close attention to outpatient follow-up and cessation of antimicrobials decreased the excess antimicrobial DOT and CL days and reduced variability in care. Reduction in antimicrobial overdose and CL overuse is expected to reduce cost and decrease the risk of medication- and CL-related collateral damage.

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

**775. Comparison of Initial Vancomycin Costs and Target Attainment Between Trough- and 24-Hour Area Under the Concentration-Time Curve (AUC24)-Guided Dosing**

David Laurent, PharmD, BCPS; Richard H. Drew, PharmD MS; Richard H. Drew, PharmD, BCPS; 1University of Virginia Hospital, Durham, North Carolina; 2Campbell University College of Pharmacy and Health Sciences, Durham, North Carolina.

**Session:** 69. What's New in Clinical Practice?

**Thursday, October 3, 2019: 12:15 PM**

**Background.** Vancomycin is the treatment-of-choice for most invasive methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Although serum trough concentration-guided vancomycin dosing is the current standard, dosing based on AUC24 to minimum inhibitory concentration ratio best predicts efficacy while reducing trough concentrations associated with increased nephrotoxicity. Data regarding the impact of AUC24-guided dosing on drug costs is sparse. We compared the relative initial acquisition cost of vancomycin when utilizing AUC24- vs. trough-guided dosing. We also sought to describe current dosing practices relative to attainment of targeted vancomycin exposures.

**Methods.** A retrospective, single-center cohort study was performed on 200 randomly-selected hospitalized adults at Duke University Hospital (DUH) in calendar year 2017 with suspected or confirmed invasive MRSA infection and stable renal function. For the primary outcome measure, a cost-minimization analysis was performed utilizing DUH wholesale vancomycin acquisition cost through 48 hours as determined from prescribed trough- and Bayesian computer-simulated AUC24-guided dosing. Descriptive statistics were utilized to characterize dosing, serum concentration monitoring practices and attainment of goal vancomycin exposures.

**Results.** In the 200 enrolled subjects, the median (IQR) did (mg/dL) cost difference per patient among trough- and AUC24-guided dosing was 80.00 (15.02, 15.02). Serum vancomycin troughs were labeled correctly in 54% of samples, while 20.7% exceeded 2 hours of the next scheduled dose. Mean loading doses were 21.0 mg/kg and 24.8 mg/kg, respectively. Goal steady-state troughs were achieved in 22% of subjects. Initial dosing was predicted to achieve an AUC24 within 400–600 mg.hr/L in 66.5% and 100%, respectively. Troughs ≥15 mg/dL (a known risk factor for nephrotoxicity) were measured in 32.1% of trough-guided dosing regimens while predicted in 5.0% of AUC24-guided dosing regimens.

**Conclusion.** When compared with trough-, AUC24-guided dosing may lead to improved attainment of vancomycin target exposures, including potential reductions in excessive and incorrectly labeled trough concentrations, without impacting drug acquisition costs.

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

**776. Effect of the SEP-1 Sepsis Bundle on Mortality in Hospital-Onset v. Community-Onset Sepsis**

Jonathan Baghdadi, MD; Daniel Uslan, MD, MBS; Douglas Bell, MD, PhD; Mitchell Wong, MD, PhD; 1UCLA / Greater Los Angeles VA Medical Center, Los Angeles, California; 2UCLA, Los Angeles, California; 3UCLA / RAND, Los Angeles, California.

**Session:** 69. What's New in Clinical Practice?

**Thursday, October 3, 2019: 12:15 PM**

**Background.** The SEP-1 sepsis bundle is a performance measure from the Centers for Medicare and Medicaid Services that requires blood cultures, serum lactate, broad-spectrum antibiotics, and IV fluids (in some cases) within 3 hours of onset of sepsis. Published evidence regarding an effect of SEP-1 on mortality is mixed and largely excludes cases of hospital-onset sepsis.

**Methods.** Retrospective cohort study using clinical data from 4 University of California hospitals. Sepsis-related admissions from 2014–2017 were identified by diagnosis codes. We compared the effect of the SEP-1 sepsis bundle on in-hospital mortality in cohorts with community-onset and hospital-onset sepsis. To control for selection bias, patients who did and did not receive the SEP-1 bundle from each cohort were balanced on key variables related to likelihood of treatment using Mahalanobis distance matching.

**Results.** 5,034 out of 6,005 sepsis-related patient encounters were matched, including 1,770 (35%) patients who received the SEP-1 bundle and 3,264 (65%) who did not. The SEP-1 bundle was not associated with an effect on mortality in the unmatched (Table 2) or matched analyses (Table 3). Point estimates from the matched analysis suggested a greater potential benefit associated with SEP-1 and its components in community-onset sepsis, but differences in effect size between community-onset and hospital-onset were nonsignificant. Among bundle components, timely blood cultures, lactate, and antibiotics were not associated with an effect on mortality, while IV fluids were associated with a