171. Impact of Limiting Antimicrobial Indication Options in a Pediatric Electronic Health Record
Craig Shapiro, MD; Shannon Chan, PharmD and Karen Ravin, MD; Infectious Diseases, Nemours/Alfred I. duPont Hospital for Children, Wilmington, Delaware

Session: 49. Antimicrobial Stewardship: Interventions in Pediatric Populations
Thursday, October 4, 2018: 12:30 PM

Background. In April 2005, our Antimicrobial Stewardship Program (ASP) started to require prescribers to select an indication as part of an antimicrobial (AM) order. The ASP developed a list of approved indications for each AM with an unlimited number of options including “other.” In 2015–2016, we modified the indication lists to decrease the number of options. The goal of this project is to compare the frequency of indication “other” and the appropriateness of provider-selected indications before and after the intervention.

Methods. We performed a retrospective cohort study of cefepime, ceftriaxone, piperacillin/tazobactam, and ciprofloxacin (IV) orders for all children in our facility excluding orders placed in ambulatory locations and the emergency department. AM orders and provider-selected indications from January to March 2014 (preintervention) and 2017 (postintervention) were compared. Chart review was performed on a sample of pre- and postmodification orders to assess the appropriateness of provider-selected indications. An indication was considered appropriate if the provider-selected indication matched the clinical indication documented.

Results. A total of 747 orders were included in the data analysis, 350 and 397 orders from pre- and postintervention period, respectively. Cefepime was the most commonly prescribed AM:13.7 and 17.2 orders per 1,000 inpatients-days during pre- and postintervention periods. The percent of indication “other” orders increased in the postintervention period for cefepime while it decreased for ceftriaxone and remained about the same for piperacillin/tazobactam and piperacillin (RR 0.56).

Conclusion. Requiring selection of an indication encourages prescribers to evaluate their rationale for initiating an AM. Decreasing the number of indication options for some AMs was associated with increased use of indication “other,” suggesting that the prescriber could not find an indication that matched their needs.

Disclosures. All authors: No reported disclosures.

172. Antimicrobial Stewardship in High-risk Pediatric Patients
Jennifer Goldman, MD, MS; Diana Yu, PharmD, BCPS-AQ ID; Jason Newland, MD, MED, FPIDS; Mary Anne Jackson, MD, FIDSA, FPIDS; Gina Weddle, DNP; RN, CPNP; Michaela Micollu, MD, MPH, FPIDS; James Day, MD; Brian R. Lee, MPH, PhD; Children’s Mercy Kansas City, Kansas City, Missouri, Doernbecher Children’s Hospital, Portland, Oregon, Washington University School of Medicine, Kansas City, Missouri, Pediatrics, Children’s Mercy Hospital, Kansas City, Missouri, Infectious Disease, The Children’s Mercy Hospital, Kansas City, Missouri, University of Nebraska Medical Center, Omaha, Nebraska, Children’s Mercy Hospital, Kansas City, Missouri, University of Missouri-Kansas City School of Medicine, Kansas City, Missouri, Children’s Mercy Hospitals and Clinics University of Missouri-Kansas City, Kansas City, Missouri, and Health Outcomes, Children’s Mercy Kansas City and University of Missouri Kansas City SOM, Kansas City, Missouri

Session: 49. Antimicrobial Stewardship: Interventions in Pediatric Populations
Thursday, October 4, 2018: 12:30 PM

Background. The clinical impact of antimicrobial stewardship programs (ASP) on children admitted to the intensive care units (ICU) or oncology wards is unknown. The objective of this study was to determine whether following ASP recommendations improved clinical outcomes in pediatric ICU and oncology patients.

Methods. We performed a retrospective cohort study to evaluate the relationship between ASP recommendation(s) agreement and patient outcomes (hospital length of stay [LOS], 30-day mortality, hospital readmission within 30 days, and hospital-onset Clostridium difficile infection [HO-CDI]) in a high-risk (HR) population. For this study, we included all children admitted to the neonatal ICU (NICU), pediatric ICU (PICU), or oncology (Onc) ward from March 2008 to March 2017 who underwent an ASP review. Unadjusted differences in LOS, mortality, readmissions, and HO-CDI were compared between cases of ASP agreement and disagreement. Generalized linear mixed models were used to control for potential confounders and account for patients with >1 ASP review.

Results. ASP performed 11,545 antimicrobial reviews (PICU 3,628; NICU 2,824; Onc 5,093) on 7,329 unique patients. ASP provided 2,088 recommendations. Stop antibiotics was the most common recommendation (N = 1,045; 50%) followed by narrow spectrum antibiotics (N = 747; 35%), and obtain an infectious disease consultation (N = 334; 16%). Agreement with ASP by the prescribing clinician occurred in 70% of cases. Overall, 356 (5%) patients died, 87 (1%) had HO-CDI, and 2,608 (36%) were readmitted. Agreeing with an ASP recommendation was not associated with increased odds of mortality or readmission. Agreement with an ASP recommendation was associated with decreased odds of acquiring HO-CDI (adjusted OR 1.58, 95% CI 0.35: 7.26). Among HR patients with a single ASP review, the median LOS was significantly shorter for clinicians who agreed with recommendations vs. disagreed (10.3 days vs. 12.5 days, respectively, P = 0.02).

Conclusion. Agreement with an ASP recommendation was associated with a shorter LOS and no increase in readmissions or mortality. Further stewardship strategies are needed to optimize antimicrobial use in this HR pediatric population.

Disclosures. All authors: No reported disclosures.

173. Nationwide Outpatient Oral Antimicrobial Utilization by Children in Japan
Noriko Kinoshita, MD, PhD; Naho Morisaki, MD, MPH, PhD; Yuiko Okabe, MD, MPH; Kazuhiro Uda, MD; Masashi Kasai, MD; Yuto Horikoshi, MD; Isao Miyari, MD; Division of Infectious Diseases, Department of Medical Subspecialties, National Center for Child Health and Development, Tokyo, Japan, Division of Infectious Disease Medicine, Hyogo Prefectural Kobe Children’s Hospital, Hyogo, Japan, Infectious Diseases, Tokyo Metropolitan Children’s Medical Center, Tokyo, Japan and St Jude Children’s Research Hospital, Memphis, Tennessee

Session: 49. Antimicrobial Stewardship: Interventions in Pediatric Populations
Thursday, October 4, 2018: 12:30 PM

Background. Antimicrobial resistance (AMR) is a major public health concern across the world. Japanese government set goals in national AMR action plan to reduce oral cephalexin, macrolides, and quinolones into a half of the 2013 use by 2020. We evaluated the nationwide antimicrobial use (AMU) in children in Japan using the dispensing receipt from the national administrative database in regard to the national AMR action plan.

Methods. The national health claims database was interrogated for oral antibiotics dispensed from outpatient pharmacies in Japan to children under 15 years of age from January 2013 to December 2016. Information obtained from each prescription included age, residence area, days of therapy (DOT) for each antimicrobial from dispensed receipt, DOT was recorded by the resident pharmacies, and postintervention periods. The percent of indication “other” orders increased in pre- and postintervention period except piperacillin/tazobactam (RR 0.56).

Results. A total of 1,386,332 oral antibiotic prescriptions were identified during 2013–2016. Total amount of antimicrobial use did not change (2013: 28.54 DOT/PID, 2016: 28.70 DOT/PID, P trend = 0.25). No statistically significant changes were observed in prescriptions of third-generation cephalosporin (2013: 10.21DOT/PID, 2016: 9.87DOT/PID, P trend = 0.50), macrolide (2013: 11.04 DOTID, 2016: 10.72 DOTID, P trend = 0.52), and quinolone (2013: 1.46DOT/PID, 2016: 1.68DOT/PID, P trend = 0.46) compared with older children, with the highest rate among children aged 1 year. Targeted antimicrobials for AM action plan showed similar distribution by age (Figure 2).

Conclusion. Interim assessment of the national AMR action plan revealed that the goals were not attainable without significant interventions in children by 2020. Overall antibiotic prescription as well as cephalexin, macrolides, and quinolones prescription were most prevalent in children aged 1 year. Antimicrobial stewardship targeting infants and younger children is necessary.

Disclosures. All authors: No reported disclosures.

174. Treatment of Tracheitis and Antimicrobial Stewardship Interventions
Jennifer Goldman, MD, MS; Michael Price, BS; Diana Yu, PharmD, BCPS-AQ ID; Jason Newland, MD, Med, FPIDS; Mary Anne Jackson, MD, FIDSA, FPIDS;
Gina Weddle, DNP, RN, CPNP; Russell McCulloh, MD; Angela Myers, MD, MPH, FPIDS; James Day, MD; Brian R. Lee, MPH, PhD; 1Children's Mercy Kansas City, Kansas City, Missouri, 2UMKC School of Medicine, Kansas City, Missouri, 3Doenerbecher Children's Hospital, Portland, Oregon, 4Division of Pediatric Infectious Diseases, Washington University School of Medicine in St. Louis, St. Louis, Missouri, 5Pediatrics, Children's Mercy Hospital, Kansas City, Missouri, 6Infectious Disease, The Children's Mercy Hospital, Kansas City, Missouri, 7Hospital Medicine, Children's Hospital and Medical Center, Omaha, Nebraska, 8Children's Mercy Hospital, Kansas City and University of Missouri-Kansas City School of Medicine, Kansas City, Missouri, 9Children's Mercy Hospitals and Clinics and University of Missouri-Kansas City, Kansas City, Missouri and 10Health Outcomes, Children's Mercy Kansas City and University of Missouri-Kansas City SOM, Kansas City, Missouri

**Session:** 49. Antimicrobial Stewardship: Interventions in Pediatric Populations

**Thursday, October 4, 2018: 12:30 PM**

**Background.** Antimicrobials are commonly overused in the treatment of ventilator-associated tracheitis (VAT). Antimicrobial stewardship programs (ASP) optimize antibiotic prescribing and decrease unnecessary antibiotic use. At our institution, clinicians who have initiated antibiotics for the treatment of tracheitis do not agree with ASP recommendations in 35% of cases. The goal of this study was to compare antibiotic duration and treatment failure in children treated for VAT who did and did not receive an ASP recommendation.

**Methods.** We performed a retrospective cohort study to evaluate VAT treatment courses and subsequent treatment failures. For this study, we included all children who were hospitalized from January 2009 to February 2013 and reviewed by ASP for receiving a monitored drug with an indication of VAT. Treatment failure was defined as a patient requiring a repeat course of antibiotics with an indication of VAT within 14 days of completing a previous antibiotic course.

**Results.** A total of 220 VAT cases were included. ASP provided recommendations to optimize antibiotics in 44 cases (20%) and stop antibiotics in 53 cases (24%). The shortest duration of treatment (days) was prescribed when ASP recommended a stop therapy (median 4.7, IQR 3.0–6.5) when compared with no intervention (6.0, 4.3–7.0; P = 0.01). Treatment failure occurred in 33 (15%) cases. No difference in antibiotic duration was observed between those who did or did not fail (6.3 vs. 5.9, respectively; P = 0.11). Additionally, treatment failure rates did not differ by ASP recommendation status (no recommendation 15%; optimize 18%; stop 11%; ID involved 20%; P = 0.78).

**Conclusion.** ASP recommendations for the treatment of pediatric VAT were not associated with an increased likelihood of treatment failure. Further work is needed to standardize the diagnosis and treatment of VAT to avoid unnecessary antibiotic use in these children.

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

---

**Table 1:** Clinical Indication Determination of V/M Definitive Courses (n)

| Clinical Indication | Vancomycin (n = 73) | Meropenem (n = 15) |
|---------------------|---------------------|---------------------|
| Clearly indicated (clinical cultures warrant use) | 18 (25%) | 4 (27%) |
| Likely indicated (sepsis in the setting of known MDRO colonization) | 5 (7%) | 3 (20%) |
| Clearly not indicated (clinical cultures warrant narrowing) | 30 (41%) | 6 (40%) |
| Unclear if indicated (critically ill infant but no known MDRO colonization and negative culture data) | 20 (27%) | 2 (13%) |

---

**Fig 2:** Vancomycin Use in the NICU, DOT per 1000 patient days (1/2015-12/2015)

**Fig 3:** Meropenem Use in the NICU, DOT per 1000 patient days, 01/2015-12/2015

---

**176. Comparison of Prescribing Practices for Community-Acquired Pneumonia (CAP) Among Outpatient versus Emergency Department Settings**

Leah Koenig, BS; Judith M. Martin, MD, 1University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania and 2Department of Pediatrics, Children’s Hospital of Pittsburgh, Pittsburgh, Pennsylvania

**Session:** 49. Antimicrobial Stewardship: Interventions in Pediatric Populations

**Thursday, October 4, 2018: 12:30 PM**

**Background.** Exposure to broad spectrum antimicrobial agents (AA) is a known risk factor for colonization and infection with multidrug-resistant organisms (MDROs). Therapy with broad spectrum AAs is commonplace with no published guideline to help minimize their use in the NICU. We aimed to analyze clinical indications for the use of vancomycin and meropenem (V/M) in the NICU and the impact of a necrotizing enterocolitis (NEC) clinical practice guideline (CPG) on the use of V/M in the NICU.

**Methods.** Patients who received V/M between January 2015 and December 2015 were identified using pharmacy administration data. Medical charts were reviewed retrospectively by two ID physicians to determine whether V/M were clinically indicated for each definitive course. A CPG outlining the optimal use of AAs for NEC was implemented in the NICU in our institution in August 2015 (Figure 1). We analyzed V/M DOT per 1,000 patient-days before and after CPG implementation. There were no parallel changes in antimicrobial stewardship interventions.

**Results.** At the start of V/M, mean gestation and chronologic age of the study population were 28.8 weeks and 26.9 days, respectively, and the mean weight was 2.676 g. During the study period, 91 patients received 191 courses of vancomycin and 27 patients received 32 courses of meropenem. 56% of V/M definitive use did not have a clear clinical indication (Table 1). Thirty-three percent of meropenem definitive use was in infants with NEC. During a 7-month baseline period, mean vancomycin and meropenem use was 105 and 56 DOTs per 1,000 patient-days, respectively. Following NEC CPG implementation, mean vancomycin and meropenem use was 101 and 12 DOTs per 1,000 patient-days, respectively (Figures 2 and 3).

**Conclusion.** Widespread use of V/M was identified in the NICU. Following the implementation of NEC CPG, there was a decrease in the utilization of meropenem in the NICU.

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