261. Alternative Antibiotic Prescribing for Community Acquired Pneumonia (CAP) in Pediatric Patients in Relation to Allergy Status

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Background. While 10% of the population may report a penicillin (PCN) allergy, it has been shown that 90% of these patients are not allergic and may still be able to take PCN safely. Inaccurate reporting of a PCN allergy may lead to prescription of other non-B-lactam or broader spectrum antibiotics. Inpatients with reported antibiotic allergy status have been shown to have inappropriate antibiotic prescribing, increase microbiologic resistance, and suboptimal patient outcomes. Our goal was to evaluate antibiotic prescribing patterns for children with CAP in the setting of reported antibiotic allergy.

Methods. The Children’s Hospital’s Initiative for Research in Pneumonia (CHIRP) study enrolled inpatient and outpatient children 22 months to 18 years of age with a diagnosis of CAP from six participating sites. Demographic data, allergy status, antibiotic therapy, and clinical outcomes were collected. Overall prevalence of reported antibiotic allergy and alternative therapy used in setting of reported allergy were analyzed.

Results. A total of 470 subjects were included, enrolled from October 2015 to December 2017. The mean age was 6.3 years (range: 3 months to 18.9 years), 45% were females. Sixty-three (13.4%) subjects self-reported one or more antibiotic allergies. Twenty-seven subjects reported amoxicillin (AMOX) allergy, nine with PCN allergy, nine with amoxicillin/clavulanate (AMOX/CLA) allergy, and 11 with ampicillin (AMP) or ampicillin/sublactam allergy. Cephalosporin allergy was reported in seven subjects. Of the 47 subjects who reported AMOX or AMP allergy, 37 (79%) were treated with ceftriaxone, a broad-spectrum agent. In the 47 subjects with reported AMOX or AMP allergy, 30 (63.8%) were prescribed AMOX at discharge. Of the three subjects with reported levofloxacin allergy, two were treated with levofloxacin during hospitalization for CAP as well as at the time of discharge.

Conclusion. Most subjects with reported AMOX allergy were treated with alternative broad-spectrum antibiotics. In our cohort, 10.6% still received the antibiotic despite the allergy labeling. Better confirmation of allergy history to hone appropriate antimicrobial therapy appears to be indicated.

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262. Pediatric Antibiotic Use in the Duke Antimicrobial Stewardship Outreach Network

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Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Background. The Duke Antimicrobial Stewardship Outreach Network (DASON) was established in 2013 to provide antimicrobial stewardship resources to community hospitals in the Southeast. Pediatric patients in community hospitals may benefit from antimicrobial stewardship program (ASP) activities.

Methods. Antimicrobial use (AU) was reviewed using the DASON Antimicrobial Stewardship Assessment Portal, which includes filters for National Healthcare Safety Network (NHSN) unit types. We performed a retrospective review of AU in pediatric units from January 1 to December 31, 2017. AU was summarized by days of therapy (DOT) and percent of specific unit types and agents. AU rates were reported by DOT/1,000 patient-days.

Results. A total of 41 pediatric units were included from the 28 hospital DASON cohort: 11 Neonatal Critical Care or Step Down Nurseries, eight Pediatric Medical/Surgical Wards, and 22 Well Baby Units. There were no pediatric (non-neonatal) critical care or oncology units. A total of 21,731 antibiotic DOT were attributable to pediatric units, accounting for 1.6% of all AU in the cohort. These include 5,585 (26%) DOT in Neonatal Critical Care (level II/III) Units, 4,898 (23%) in Pediatric Medical/Surgical Units, 3,910 (18%) in Well Baby Units, 3,307 (15%) in Neonatal Critical Care (level II) Units, 3,217 (15%) in Step Down Neonatal Nurseries (level II), and 814 (4%) in Pediatric Critical Care or Oncology Units. DOT per patient-days ranged from 65 (Well Baby Units) to 1,081 DOT/1,000 patient-days (Pediatric Medical/Surgical Units). Rates in level II and III nurseries ranged from 302 to 697 DOT/1,000 patient-days.

Conclusion. Pediatric patients accounted for a small proportion of AU in community hospitals. AU rates in pediatric medical/surgical units were comparable with adult units. Although rates were lower in neonatal units, these units accounted for 75% of pediatric AU. Antibiotic exposure in the neonatal period has been associated with short- and long-term outcomes, including necrotizing enterocolitis, obesity, and atopy. This population would benefit from a dedicated focus from community hospital ASPs.

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263. Effect of Microbiologic Data on Prospective Audit and Feedback Recommendations

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Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Background. Prospective audit and feedback (PAF) is an effective method of antimicrobial stewardship. Given the time-intensive nature of PAF and low rates of intervention, understanding predictors of PAF recommendation and acceptance is important. Prior studies have not examined the impact of microbiologic data on the rate of PAF recommendation or recommendation acceptance. We evaluated whether antimicrobials prescribed for patients with positive microbiologic culture data were more or less likely to have a PAF recommendation and whether the presence of culture data impacted recommendation acceptance.

Methods. All PAF audits on antibiotic and antifungal medications for patients admitted to Lucile Packard Children’s Hospital Stanford between April 18, 2017 and April 17, 2018 were included. The PAF program included all pediatric units and injectables. PAF data collection was completed in the electronic health record and included the presence or absence of positive microbiological culture data. Our primary outcome was a comparison of PAF recommendation rate based on the presence or absence of positive culture data. We also evaluated whether there were differences in the recommendation acceptance rate and the type of recommendation based on the presence or absence of positive culture data.

Results. Of the 3,250 audits performed during the study period, 802 (25%) had positive cultures at the time of audit documentation. Of the 802 audits with positive cultures, 299 resulted in a recommendation compared with 824 of the 2,448 audits without positive cultures (37% vs. 34%, P = 0.07). PAF recommendations were more likely to be followed when positive culture data were present at the time of audit (80% vs. 73%, P = 0.03). The most common recommendation in the presence of positive culture data was to change the antimicrobial (27%) while the most common recommendation in the absence of positive culture data was to stop the antimicrobial (30%).

Conclusion. The presence of positive microbiologic culture data did not impact the PAF recommendation rate. However, recommendations were more likely to be followed when there was concurrent positive culture data. This highlights the importance of obtaining culture data to direct antimicrobial therapy.

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264. Simple and Feasible NICU Antimicrobial Stewardship Program in a Japanese Community Hospital

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Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Background. NICU antimicrobial stewardship programs (ASP) have been implemented in many hospitals, including NICU departments. Although tertiary hospitals have previously introduced antimicrobial stewardship programs in NICU departments without pediatric infectious disease specialists have difficulty implementing ASP. We present a successful implementation of simple and feasible NICU antimicrobial stewardship program in a Japanese community hospital.

Methods. We developed a protocol of antimicrobial treatment in the NICU department of Nara Prefecture General Medical Center, Nara, Japan and have implemented it from September 2017. The protocol consists of antimicrobial treatment criteria (criteria for starting antimicrobials for neonates with suspected early-onset infection, criteria of prolonged antimicrobial treatment for more than 48 hours and duration of treatment),
weekend report of blood culture result from microbiology department and stopping ordering antimicrobials beforehand for the next day. We compared days of therapy (DOT) during the post-implementation period (September 2017 to March 2018) with that of the pre-implementation period (March 2013 to August 2017).

**Results.** During the pre- and post-ASP implementations, 913 and 92 patients were admitted to NICU during the same period. DOT/1,000 patient-days were 217.9 and 56.6 in pre- and post-ASP implementations (P < 0.001) with 74.0% reduction of antimicrobial prescriptions. Mortality rates were 0.4% and 0.0% (P = 0.54), and 4.6% and 5.3% of patients had sepsis (P = 0.76), respectively. Weekend reports of blood culture result were performed in six patients and shortened their length of antimicrobial treatment during the post-ASP implementation period.

**Conclusion.** This ASP program was easily implemented in a NICU department of a community hospital and significantly reduced antimicrobial prescription. This kind of simple protocol may be successfully scaled up in resource limited community hospitals without any pediatric infectious disease specialists or antimicrobial stewardship teams.

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

265. Identification of Solid-Organ Transplant Antimicrobial Stewardship Opportunities in Pediatric Liver Transplant Patients

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**Session:** 53. Pediatric Antimicrobial and Diagnostic Stewardship

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

**Background.** Through the prospective audit with feedback program, postoperative antimicrobial use for pediatric liver transplant was observed to extend beyond the recommended 24 hours for surgical site infection (SSI) prophylaxis. Biological infections in the immediate post-transplant period represent significant risk in pediatric liver transplant recipients, including SSI. We describe our posttransplant antimicrobial (PTA) utilization in the largest pediatric liver transplant center to determine opportunities for the antimicrobial stewardship program (ASP).

**Methods.** All children who underwent a liver transplant between January 1, 2017 and September 30, 2017 at our institution were included. Antimicrobials initiated within 14 days posttransplant were captured, presence of fever within 14 days, positive microbiologic data within 30 days, and massive transfusion protocol (MTP) status were collected. The primary endpoint was duration of PTA. Clinical factors associated with PTA use >48 hours were evaluated.

**Results.** Thirty-eight children underwent a liver transplant during the study period and 29 (76%) received a broad-spectrum Gram-negative (GN) antibiotic for > 48 hours posttransplant. Half of the patients received vancomycin and 15 (40%) received an antifungal posttransplant. Fever occurred in 21 (55%) of patients with a median onset of 1 day; 3 (8%) patients had a culture-proven posttransplant bacterial infection, with no resistant Gram-positive organisms identified. Eight patients (21%) met MTP and received PTA for ≥7 days and none had a positive bacterial culture. No differences were detected in fever or culture proven posttransplant infection between patients who received ≥48 hours of GN antibiotics compared with those who received ≥48 hours.

**Conclusion.** The majority of children received PTA beyond 48 hours which was not attributable to prolonged posttransplant fevers or positive cultures. We identified ASP opportunities, including limiting GN antibiotics to 48 hours posttransplant, eliminating empiric vancomycin, restricting antifungals to MTP only, and limiting MTP PTA to ≤5 days.

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266. Implementation and Evaluation of a Pharmacist-Managed Pediatric Vancomycin Protocol

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**Session:** 53. Pediatric Antimicrobial and Diagnostic Stewardship

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**Background.** Pediatric studies have shown that pharmacist-guided vancomycin dosing leads to reduction in time to initial target vancomycin trough, duration of vancomycin therapy, time to clinical stability, and shorter hospital stay. At Boston Medical Center, 65% of pediatric patients receiving vancomycin did not achieve initial therapeutic troughs within 3 days and showed delayed attainment of therapeutic troughs. We aimed to determine if pharmacist-guided vancomycin dosing would result in increased percentage of patients achieving therapeutic troughs within 3 days from 67% to 90% by May 1, 2018. Secondary aims included reducing the incidence of supratherapeutic troughs from 10% to 5% and maintaining the incidence of vancomycin-associated nephrotoxicity (VAN) at 0%.

**Methods.** A quality improvement (QI) initiative based on the Institute for Healthcare Improvement’s (IHI) Model for Improvement, Plan-Do-Study-Act (PDSA) cycles. In PDSA cycle 1, pharmacists designed and implemented a standardized vancomycin dosing protocol for pediatric patients. In PDSA cycle 2, the addition of area under the curve (AUC)-guided dosing was implemented in select patients. Process and balancing measures included percentage of appropriately drawn vancomycin troughs, provider adherence to the new dosing protocol, and incidence of supratherapeutic troughs.

**Results.** A total of 32 pediatric patients were assessed. Compared with baseline data, percentage of patients achieving initial therapeutic troughs increased from 35% to 44% and percentage of patients achieving therapeutic troughs within 3 days increased from 67% to 92%. The incidence of supratherapeutic troughs decreased from 10% to 0% and the incidence of vancomycin-associated nephrotoxicity was maintained at 0%.

**Conclusion.** Standardized initial vancomycin dosing with increased pharmacy involvement led to more patients achieving initial therapeutic troughs, shorter times to therapeutic troughs, and a reduction in supratherapeutic troughs. Next steps include hospital-wide implementation of a pediatric vancomycin per pharmacy protocol.

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267. Viral Respiratory Infections in Children with Neuromuscular Disease and Chronic Lung Disease Hospitalized in the Pediatric Intensive Care Unit and Associated Antibiotic Use

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**Session:** 53. Pediatric Antimicrobial and Diagnostic Stewardship

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**Background.** Viral respiratory infections (VRI) cause significant morbidity in children with neuromuscular disease (NMD) and chronic lung disease (CLD). Antibiotics may be prescribed to children with NMD and/or CLD during hospitalizations in the pediatric intensive care unit (PICU) due to concerns of bacterial coinfection or superinfection. The purpose of this study was to describe the bacteriologic features of these VRI and associated antibiotic use.

**Methods.** From May 2012 to April 2015, we identified children with NMD and/or CLD who were hospitalized in the PICU and had a viral respiratory infection identified by multiplex PCR. Cases were those with VRI and/or NMD, while control patients were without these conditions. Patients with immunodeficiency, congenital heart disease, and those with positive bacterial cultures at sterile body sites, or bacterial infections identified by multiplex PCR were excluded. Virus types, bacterial respiratory culture results, peripheral WBC, X-ray findings, and receipt of antibiotics were compared between the two groups.

**Results.** There were 104 infections among cases and 300 among controls. The most common viruses were rhinovirus/enterovirus (188, 47%), respiratory syncytial virus (91, 23%), and influenza (34, 8%). Cases were more likely to have a positive Gram stain from respiratory culture (44% vs. 10%, P < 0.01), respiratory WBC count > 25 (26% vs. 9%, P < 0.01), and growth of nonrespiratory flora (46% vs. 9%, P < 0.01); but did not differ in proportion with peripheral WBC count > 15 (16% vs. 21%, P = 0.43), or proportion with >600 neutrophils or >1000 band 54% (51% vs. 41%, P = 0.05), or peripheral polynuclear; ≥39% (38% vs. 34%, P = 0.45). Proportion of patients treated for >5 days of antibiotics did not differ between the two groups (38% vs. 33%, P = 0.40).

**Conclusion.** Broad-spectrum antibiotic use during VRI was common among patients with and without CLD and/or NMD. Though laboratory features differed between the two groups, antibiotic use was similar.

268. Cardiothoracic Surgery Antimicrobial Prophylaxis in Pediatric Patients: Reducing Antimicrobial Exposure

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**Session:** 53. Pediatric Antimicrobial and Diagnostic Stewardship

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**Background.** Pediatric cardiothoracic (CT) surgery poses significant infectious risks, mitigated by antimicrobial prophylaxis and standardized infection control practices. Little is known about the most appropriate postoperative antimicrobial regimen and duration of therapy. In efforts to decrease exposure to broad-spectrum (BS) antimicrobial prophylaxis, while preventing postoperative infection, we implemented a risk-stratified algorithm CT surgery prophylaxis algorithm (Figure 1) at our institution.

**Methods.** This quasi-experimental study included pediatric CT surgery patients at an urban academic medical center. Algorithm implementation in conjunction with daily prospective audit with feedback started simultaneously in September 2017, with retrospective review of pre- and postintervention groups. Data related to length of DOT