Session: P-63. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

Background. Antibiotic overuse leads to antimicrobial resistance, adverse events, and excess costs. Antibiotic time-outs (ABTOs) offer a structured approach to reevaluate antimicrobial regimens, but implementing and maintaining ABTOs can be challenging. In this project, we built on previous ABTO implementation in adult inpatient units to incorporate ABTOs in pediatrics using quality improvement (QI) methods.

Methods. We identified champions, including attending physicians, residents, nurses, team coordinators, and pharmacists. Following pilot testing, ABTOs began in November 2019 and January 2020 for two general pediatric teams, and in June 2020 in the pediatric ICU (PICU). Patients were eligible for an ABTO if they were on antibiotics for 36-72 hours. ABTOs were documented in the electronic medical record (EMR) with a structured note template. These notes along with patient antimicrobial regimens were extracted and analyzed using an automated EMR query. Metrics included: (1) Proportion of ABTO-eligible patients with an ABTO; (2) Proportion of ABTOs conducted within goal time frame; (3) Documented plan changes in ABTO (e.g. change IV antibiotics to PO); and (4) Proportion of documented changes completed within 24 hours.

Results. To date, there have been 342 pediatric ABTOs over 145 team weeks on the general pediatrics team and 50 weeks in the PICU, representing 96% of eligible patients. 77.8% of ABTOs were completed within the recommended time frame. A majority of ABTOs (67%) resulted in no change to antibiotic regimen, and 18% of patients had already had de-escalation. In 10.5% of patients, the ABTO led to a de-escalation (antibiotics discontinued in 2%, converted from IV to PO in 8.5%). 86.8% of planned changes occurred within 24 hours of ABTO.

Conclusion. In vitro penicillin resistance was rare at our institution. Further, we were able to achieve 100% of ABTOs within 24 hours, which indicates that antibiotic overuse is a challenging topic in the pediatric population, and ABTOs provide a valuable tool for reevaluating antibiotic regimens.

Disclosures. All Authors: No reported disclosures

Figure 1. Compliance with antibiotic time-outs over time, by week. The green line represents the goal of 80%, and the orange line represents median performance.

Figure 2. Planned changes to antimicrobial regimen documented in antibiotic time-out.

Table 1. Antibiotic time-out performance on participating pediatric services.

| Antibiotic | Sensitive (N%) | Intermediate (N%) | Resistant (N%) | Sensitive (N%) | Intermediate (N%) | Resistant (N%) |
|------------|----------------|------------------|--------------|----------------|------------------|--------------|
| Penicillin | 100 (100)      | 4 (2)            | 0 (0)        | 2 (2)          | 0 (0)            | 0 (0)        |
| Vancomycin | 100 (100)      | 0 (0)            | 0 (0)        | 0 (0)          | 0 (0)            | 0 (0)        |
| Ceftriaxone| 100 (100)      | 0 (0)            | 0 (0)        | 0 (0)          | 0 (0)            | 0 (0)        |
| TMP-SMX    | 20 (71)        | 5 (22)           | 13 (49)      | 5 (18)         | 14 (53)          | 14 (53)      |
| TMP-SMX, trimethoprim-sulfamethoxazole |

Table 1. Antibiotic susceptibilities of S. pneumoniae isolates

Conclusion. In vitro penicillin resistance was rare at our institution. Further, given that S. pneumoniae is rarely identified by culture, we also demonstrated that clinical antimicrobial treatment failures were infrequent using twice daily amoxicillin dosing. Coupled with provider and family preference, these data supported continuing our current practice of twice daily amoxicillin dosing.

Disclosures. All Authors: No reported disclosures

1132. Evaluating an Amoxicillin Dosing Regimen for Community Acquired Pneumonia: A Quality Improvement Initiative Using Clinical and Laboratory Data

Emma Keeler, n/a; Jonathan Beus, MD; Molly Hayes, PharmD; Joseph Zorc, MD; Talene Mietjou, PharmD; Brandon K, MD; Rose Hamershein, MA; Jeffrey Gerber, MD, PhD; Kathleen Chiotou, MD, MSc; Children’s Hospital of Philadelphia, Philadelphia, Pennsylvania

Session: P-63. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

Background. Amoxicillin 90 mg/kg/day divided twice daily is recommended for children with mild community acquired pneumonia (CAP). While adequate for fully susceptible Streptococcus pneumoniae isolates, three times daily dosing allows achievement of peak amoxicillin exposed for isolates which may be nephrotoxic penicillin minimum inhibitory concentrations (MIC) of ≥2 μg/mL. We evaluated our current twice daily amoxicillin dosing strategy by characterizing 1) the MIC distribution among S. pneumoniae isolates and 2) the frequency of clinical amoxicillin treatment failures.

Methods. We performed a retrospective cohort study of all S. pneumoniae isolates from sterile and non-sterile sites between 2017-2020. Breakpoints established by the CLSI were used for both meningitis and non-meningitis isolates. Only the first isolate per patient was included. We also evaluated the frequency of amoxicillin treatment failure in patients diagnosed with CAP who were discharged from the ED in 2019. CAP was defined as a discharge diagnosis code for pneumonia and an antibiotic prescription. Treatment failure was defined as an ED or primary care revisit, or admission, within 14 days during which an antibiotic change was made.

Results. 28 S. pneumoniae isolates were identified from sterile sites between 2017-2020 and 171 isolates were identified overall. All isolates from sterile sites had penicillin MICs of ≤ 2 μg/mL and 165 (96%) of isolates overall had penicillin MICs of ≤ 2 μg/mL (Table 1). Of these, 10 isolates had MICs of ≥ 2 μg/mL, all from non-sterile sites. In 2019, 58 patients were treated for CAP in the ED; 447 (76%) received amoxicillin and 142 (24%) were treated with alternative antibiotics. Treatment failures occurred in 15 amoxicillin-treated patients (3.3%, 95% confidence interval 1.9-5.5%) and in 5 patients (3.5%, 95% confidence interval 1.2-8.0%) treated with alternative antibiotics.

Conclusion. In vitro penicillin resistance was rare at our institution. Further, given that S. pneumoniae is rarely identified by culture, we also demonstrated that clinical amoxicillin treatment failures were infrequent using twice daily amoxicillin dosing. Coupled with provider and family preference, these data supported continuing our current practice of twice daily amoxicillin dosing.

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1133. Opportunities for Antibiotic Discontinuation and De-escalation after Discharge from the Emergency Department in Pediatric Patients with UTI

Stephanie Hawkins, n/a; Patrick Gavigan, MD, MS; Jessica E. Ericson, MD, MPH; George McSherry, MD; Penn State College of Medicine, Hershey, Pennsylvania; Penn State Children’s Hospital, Hummelstown, Pennsylvania; Penn State Hershey, Hershey, PA

Session: P-63. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

Background. Urinary tract infection (UTI) in children, particularly in pediatric patients seen in the emergency department (ED), is unknown.

Methods. This was a retrospective study conducted over a period of 18-months, which included subjects less than 18 years of age who were discharged from the ED with a diagnosis of UTI. Episodes in which urine cultures were negative or grew only mixed urogenital flora were considered possible for discontinuation. De-escalation was considered possible in episodes in which identified bacteria were susceptible to more narrow spectrum agents than the prescribed empiric antibiotic. Rates of discontinuation and de-escalation were calculated as proportions, and excess days of therapy were described. Subjects whose empiric antibiotics were active against isolated bacteria were compared to those with bacteria resistant to empiric therapy.

Results. A total of 87 episodes of UTI were identified. Pathogenic bacteria were isolated in 51 (59%) of the 78 episodes in which urine cultures were sent, most commonly Escherichia coli (84%). Empiric antibiotic therapy and duration varied and were active against isolated bacteria in 39 (76%) of the episodes. Subjects whose antibiotic choices were active were more likely to be Hispanic and receive cephalexin (Table 3). Antibiotics were discontinued in 3 of the 27 possible episodes (11%), resulting in 27 excess antibiotic days, median of 6 (IQR=10) days per episode. In 20 episodes there was an opportunity for de-escalation, but it was never attempted, leading to 131 extra days of broad-spectrum antibiotics (median 7.5 days, IQR=3).

Conclusion. In vitro penicillin resistance was rare at our institution. Further, given that S. pneumoniae is rarely identified by culture, we also demonstrated that clinical amoxicillin treatment failures were infrequent using twice daily amoxicillin dosing.