DOT (RR: 0.96, P < 0.001) and orders for UTI (RR: 0.56, P < 0.001) occurred, when comparing phase I to phase 2. It also resulted in a decrease in cephalexin DOT (RR: 0.83, P < 0.001) and orders for UTI (RR: 0.70, P < 0.001).

Conclusion. A multimodal stewardship intervention using a pocket card with guidelines and urine antibiogram, and an EMR BPA successfully reduced BSA and increased NSA for treatment of uncomplicated UTIs.

Figure 1: Stewardship pocket card with urinary antibiogram (top) and narrow-spectrum antibiotic recommendations (bottom).

Disclosures. All authors: No reported disclosures.

1116. Impact of Antimicrobial Stewardship Incentive Goals for Pharmacists on Overall Antibiotic Use and Appropriate Duration of Therapy in Urinary Tract Infections
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Session: 136. Antibiotic Stewardship: Urine Cultures
Friday, October 4, 2019: 12:15 PM

Background. Urinary tract (UTI), skin and soft tissue, and respiratory infections are among the most frequently reported indications for antibiotics, such that focusing stewardship efforts here would expectedly have dramatic effects. Antimicrobial stewardship (AMS) programs vary in structure and available resources. At the University of Colorado Hospital, a 740-bed academic medical center, dedicated resources for AMS are limited to a pharmacist, pharmacy resident, and physician; however, there is a large clinical pharmacist group. For the past 2 years, pharmacy management incorporated AMS targets as group goals tied to performance bonuses.

Methods. This is a descriptive report utilizing incentives to achieve AMS goals. The first goal (July 1, 2016 to June 30, 2017) set out to reduce inpatient antibiotic use by 10%. The second goal (July 1, 2018 to June 30, 2018) was a 10% reduction in microbiologically indicated antibiotic use.

Results. The AMS team provided guidelines, education, and infection control guidelines and urine antibiogram, and an EMR BPA successfully reduced BSA and increased NSA for treatment of uncomplicated UTIs.

Conclusion. Although this study found a decrease in prescribing over time across all indications, antibiotic use continues to be a concern for upper respiratory tract infections in pediatric care. These diagnoses generally do not require antibiotics, and inappropriate prescribing is a major factor in antimicrobial resistance. The increased prescribing rates in the youngest age group (0–2 years) offers a new target for provincial antimicrobial stewardship efforts.

Disclosures. All authors: No reported disclosures.

1117. A Retrospective Analysis of Paediatric Prescribing in British Columbia from 2013 to 2016
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings
Friday, October 4, 2019: 12:15 PM

Background. Antibiotic prescribing in pediatric care is highly prevalent. Often children are prescribed antibiotics for conditions that are commonly self-limiting and viral in etiology such as upper respiratory tract infections. The purpose of this study was to examine the scope of pediatric antibiotic prescribing in British Columbia from 2013 to 2016 and identify potential new provincial antimicrobial stewardship targets.

Methods. Antibiotic prescription data for children were extracted from a provincial prescription database, and linked to demographic files in order to obtain patient age, sex and geographic location. Prescription rates were then calculated, and trends were examined by major anatomic therapeutic chemical (ATC) classification.

Results. Our cohort included an average of 271,134 children per year and 1,767,652 antibiotic prescriptions. Over the 4 years, rates of antibiotic prescribing increased 4.5% (from 453 to 474 prescriptions per 1,000 population per year). The greatest increase, across all classes of antibiotics, was seen in children aged 0–2 years of age. By 2016, the greatest increase in prescribing, by class, was observed in J01X (e.g., nitrofurantoin, fosfomycin) with a 160% increase for children aged 3–9. Across all ages, quinolones (J01M) increased 98%. Remaining classes, including β lactams (J01C), and macrolides (J01F), experienced modest reductions in the older age groups.

Conclusion. Past studies have illustrated decreasing or static rates of antibiotic prescribing in British Columbia. However, we have identified a paradoxical (4.5%) increase in pediatric antibiotic prescribing since 2013. Although it appears that provincial efforts have been successful in reducing the use of broad-spectrum penicillins (J01C), marked surges in the use of classes like tetracyclines (J01A), quinolones (J01M), and other antibacterials (J01X) identify a new potential target for provincial stewardship.

Disclosures. All authors: No reported disclosures.

1118. Trends of Paediatric Prescribing for Common Infections in British Columbia
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings
Friday, October 4, 2019: 12:15 PM

Background. Antibiotic prescribing in pediatric care is highly prevalent, and quite often children are prescribed for conditions which are commonly self-limiting and viral in etiology. The purpose of this study was to examine the scope of pediatric antibiotic prescribing by indication, from 2013 to 2016, and identify potential new targets for provincial antimicrobial stewardship efforts.

Methods. Antibiotic prescription data for children were extracted from a provincial prescription database, and linked to physician billing data in order to obtain diagnostic information. Prescription rates were then calculated, and trends were examined by indication. Major categories included: upper respiratory tract infection, acute otitis media, lower respiratory tract, skin and soft tissue, and urinary tract infections.

Results. Our database included an average of 244,763 children per year, and 5,896,173 total antibiotic prescriptions. Increased indication-specific rates of prescribing were observed in children aged 0–2 years, for every category. Children aged 3–18 years experienced decreased prescribing across all indications, with the exception of urinary tract infections for those aged between 10–18 years. Urinary tract infections increased by 134% for children aged 0–2 years, and 75% for those aged 10–18 years, from 2013 to 2016. Although antibiotic use for upper respiratory tract infections decreased by 11% for all ages, these diagnoses continue to be prescribed for at rates 2–5 times higher than other conditions.

Conclusion. Although this study found a decrease in prescribing over time across all indications, antibiotic use continues to be a concern for upper respiratory tract infections in pediatric care. These diagnoses generally do not require antibiotics, and inappropriate prescribing is a major factor in antimicrobial resistance. The increased prescribing rates in the youngest age group (0–2 years) offers a new target for provincial stewardship efforts.

Disclosures. All authors: No reported disclosures.

1119. Implementation of Pediatric Antimicrobial Stewardship Rounds in a Children's Hospital
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings
Friday, October 4, 2019: 12:15 PM
Background. Antimicrobial stewardship programs (ASP) are required in all acute care hospitals per The Joint Commission. ASP must adhere to the recommendations laid out by the Centers for Disease Control and Prevention, but how each ASP chooses to implement these recommendations is left to the individual program. In January 2018, we began formal antimicrobial stewardship (AMS) walking rounds, led by infectious diseases trained physicians and pharmacist, in our 99-bed pediatric hospital.

Methods. In January 2018, we started twice-weekly AMS rounds on the pediatric hospitalist service. A custom-made “Antimicrobial Stewardship Patient List” was designed in our electronic medical record (EMR) to generate a list of all patients receiving antibiotics. The ASP team (comprised of an infectious diseases physician and a pediatric infectious diseases physician) reviewed EMR charts to determine antibiotic prescribing appropriateness and design recommended interventions. Any recommendations and teaching points were then discussed with the hospitalist team in person. After piloting the hospitalist service, AMS rounds were extended to include general surgery patients and finally the intensive care unit. Data on number of charts reviewed, proposed interventions, and acceptance rates were collected throughout the hospitalist service. Descriptive statistics were used to assess the intervention data.

Results. In the first year of the program, charts were reviewed with 186 identified interventions. In total, 156 (84.3%) of the interventions were accepted and implemented by the primary team. The most common types of interventions were the duration of therapy (29%), antibiotic discontinuation (16.7%), intravenous to oral conversion (10.2%), and infectious diseases consult (5.9%).

Conclusion. Pediatric AMS rounds led to the successful implementation of the majority of recommended interventions. Future goals of the program include calculating days of therapy per 1000 patient-days to assess antibiotic consumption before and after AMS rounds and to expand into other services to further promote appropriate antibiotic use in hospitalized pediatric patients.

Disclosures. All authors: No reported disclosures.

1120. Reliability of Parent-Reported Pediatric Antibiotic Use in a Longitudinal Birth Cohort
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings Friday, October 4, 2019: 12:15 PM

Background. Depending on the population of interest, it is not always feasible to acquire electronic health record (EHR) data for antibiotic prescribing in longitudinal outpatient studies. Even when available, EHR algorithms are limited to only capturing in-network prescriptions. Thus, there is value in learning more about the reliability of parent-reported data to see whether this approach can be validated for epidemiologic research.

Methods. We examined antibiotic prescribing in the MAGIC (Microbiome, Antibiotics, and Growth Infant Cohort) Study, a longitudinal birth cohort of healthy newborns followed through 2 years of life. An informatics algorithm within an EHR platform was developed such that the study team received a text message alert every time a study participant who sought care in the Children’s Hospital of Philadelphia (CHOP) Care Network was prescribed an antibiotic. Families were also asked every 3 months whether their child had been prescribed an antibiotic in the past 3 months. We compared parent-reported antibiotic use with antibiotic use that generated an alert in the EHR.

Results. Among the 104 EHR-documented antibiotic exposures in 3-month spans, 52 (50%) were reported by parents at the relevant time point. Of the 52 non-reported antibiotic prescriptions that generated alerts, 4 (4%) were explicitly not reported by families and the remaining 48 exposures (46%) were not reported because the family did not answer the question at the relevant time point. There were 11 total exposures that were parent-reported without documented EHR alerts.

Conclusion. In a longitudinal birth cohort of in-network, EHR-generated alerts for antibiotic prescriptions were reported by parents, and parent-reported antibiotic exposures occurred outside of the pediatric network that, by definition, could not generate EHR-based alerts. These results suggest that the most effective method for quantifying antibiotic use may be using EHR data supplemented with parent-reported data.

Disclosures. All authors: No reported disclosures.

1121. Pediatric Urgent Care Providers’ Approach to Antibiotic Stewardship: A National Survey
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings Friday, October 4, 2019: 12:15 PM

Background. A high proportion of urgent care visits are for acute infectious conditions. Emerging data have shown that outpatient antibiotic prescribing for acute respiratory conditions is highest in urgent care settings; however, this has not been specifically studied among pediatric urgent cares. The objective of this study was to survey pediatric urgent care providers about their approach to antibiotic stewardship.

Methods. Members of the Society for Pediatric Urgent Care were recruited via e-mail to participate in a quality improvement antibiotic stewardship project. A pre-implementation survey developed by study investigators was piloted with several pediatric urgent care physicians and revised based on feedback. The finalized REDCap survey was sent to participants via e-mail in March 2019. Descriptive statistics were used to analyze the survey responses.

Results. A total of 156 providers completed the survey; 83% were board-certified pediatricians. Almost all (98%) indicated that antibiotic stewardship programs are important to optimize antibiotic use in urgent care. Just over half (53%) indicated that their urgent care center provides guidelines for prescribing antibiotics for acute respiratory tract infections. Treating patients with an underlying complex medical condition was the most common reason (21%) providers would deviate from guidelines. The most commonly cited barriers to appropriate prescribing for acute respiratory infections were patient requests (93%), AMS rounds wochosocellular barriers (40%), lack of clear evidence-based recommendations (15%), and lack of access to guidelines on prescribing (15%).

Conclusion. Most pediatric urgent care providers feel that antibiotic stewardship is important and would not impede their clinical approach. Parental expectations of receiving antibiotics were viewed as the most common barrier to appropriate prescribing. This work will be used to promote directed interventions to improve appropriateness of antibiotic prescribing for target diagnoses in pediatric urgent care centers.

Disclosures. All authors: No reported disclosures.

1122. Implementation of an Outpatient Antimicrobial Stewardship Program within a Pediatric Health System
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Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings Friday, October 4, 2019: 12:15 PM

Background. Over 60% of antibiotic expenditures occur in outpatient settings with at least 30% being unnecessary. In 2016, the Centers for Disease Control and Prevention (CDC) defined core elements for outpatient antimicrobial stewardship programs (ASP): commitment from all members of the healthcare team, action for policy and practice, tracking and reporting, and education and expertise. Quantifying local prescribing practices and frontline provider engagement are essential for successful outpatient ASP. We describe our outpatient ASP efforts at Children’s Mercy Kansas City (CM) emergency departments (ED) and urgent care clinics (UCC).

Methods. From March 2018, we created a report defining antibiotic prescribing patterns in 16 common pediatric infections using ICD-10 codes from ED and UCC encounters. Baseline data helped identify areas for targeted interventions and establish ED/UCC engagement, which we have maintained by ongoing review and sharing of data with leadership and frontline providers.

Results. Baseline data showed low antibiotic prescribing rates (<5%) for most viral infections, except a rate of 74% in otitis media with effusion (OME) (Figure 1). We also identified a higher rate of cefdinir use in acute otitis media (AOM), community-acquired pneumonia, and urinary tract infections (Figure 2). We developed and shared an outpatient antibiotic handbook facilitating diagnosis and treatment of common infections. Ongoing QI teams are focusing on increasing utilization of safety-net antibiotic prescriptions for eligible patients with AOM in EDs, decreasing antibiotic prescriptions of OME, and decreasing unnecessary rapid streptococcal testing in UCCs. Through these multiple interventions, in addition to email communications and newsletter articles, we observed early improvements in prescribing patterns, including OME antibiotic prescriptions and cefdinir use (Figures 1 and 2).

Conclusion. We used the CDC’s core elements for outpatient ASP to successfully develop interventions in our EDs and UCCs. We created a report defining baseline prescribing patterns and identifying opportunities for improvement. Data sharing with leadership and frontline providers facilitated widespread engagement in ASP efforts.

Figure 1: Antibiotic prescribing trend for otitis media with effusion

Figure 2: Antibiotic prescribing trend for otitis media without effusion