Figure 2: Prescribing trends by common indications for cefdinir

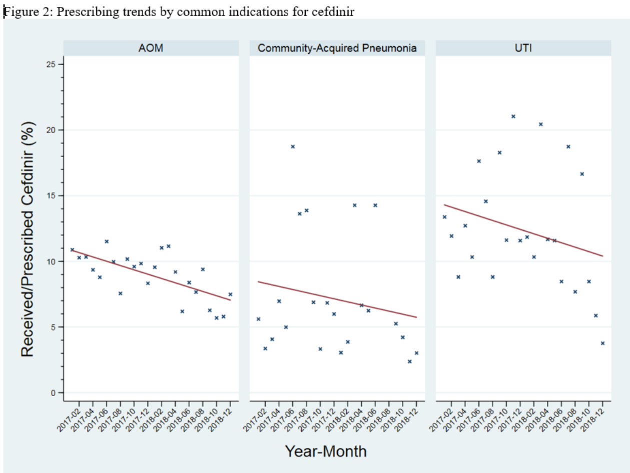

Figure delineates the percentage of cefdinir prescriptions given for 3 common bacterial infections, and the trend between February 2017 and December 2018.

AOM= acute otitis media, UTI = urinary tract infection

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

1123. Specificity of Diagnosis Codes and Adequacy of Supportive Documentation for Common Acute Pediatric Infections: Implications for Ambulatory Stewardship

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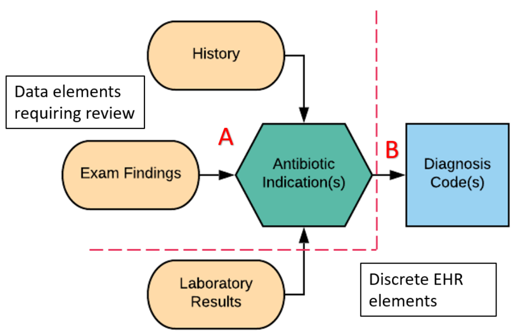
Background. Assessing the appropriateness of antibiotic prescribing in ambulatory care generally relies on the accuracy of diagnosis codes, which is uncertain. It is also uncertain if documented history and physical findings support antibiotic indications (AI). We completed a retrospective study of pediatric primary care (PPC) encounters to determine: A) if documented findings supported documented AI; and B) whether diagnosis codes captured documented AI (figure).

Methods. We conducted point-prevalence audits of the 9 PPC clinics in our healthcare system, randomly selecting one weekday per month to review all visits between 9/2017 and 4/2018. We included only encounters with antibiotic prescribing. We reviewed clinician notes, orders, laboratory results, and ICD-10 diagnosis codes. We recorded demographics; visit date/location; AI as documented in notes; history, examination, and laboratory findings; and diagnosis codes. We used national guidelines to determine whether documentation supported AI. We calculated the sensitivity of diagnosis codes using documented AI as the gold standard.

Results. The sample included 452 encounters. The most common AI were acute otitis media (AOM), pharyngitis, and sinusitis. For AOM, 163 of 168 encounters (97.0%) had an appropriate diagnosis code; for pharyngitis, 127 of 138 (92.0%); and for sinusitis, 68 of 75 (90.7%). For AOM, 160 of 168 encounters (95.2%) had adequate documentation of supportive findings. For sinusitis, 44 of 75 encounters had adequate supporting history and/or examination findings (58.7%). For pharyngitis, while 135 of 139 (97.1%) had a positive streptococcal test, 104 of 139 (74.8%) had history and examination findings to support testing.

Conclusion. By chart review, we identified each AI and evaluated whether findings supported those AI. The sensitivity of diagnosis codes for AI ranged from 90.7–97.0% for common conditions; this result can inform the design of ambulatory stewardship programs. Only 74.8% of children treated for pharyngitis and 58.7% of children treated for sinusitis had sufficient supporting documentation. Use of discrete data elements alone (Figure 1) may result in overestimates of the proportion of children for whom antibiotics are appropriate. Further research is needed across healthcare settings.



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

1124. Impact of a Best Practice Advisory for Pediatric Patients with *Staphylococcus aureus* Bloodstream Infection

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Background. Infectious diseases (ID) consultation and use of optimal antibiotic therapy have been shown to improve outcomes of patients with *Staphylococcus aureus* bloodstream infection (SA-BSI). We investigated the ability of an electronic medical record (EMR)-based best practice advisory (BPA) to enhance adherence to these practices for pediatric patients with SA-BSI.

Methods. An EMR-based BPA for SA-BSI (Figure 1) was implemented on 8/1/2017, recommending ID consultation and optimal therapy based on *mecA* gene rapid testing (vancomycin if *mecA*-positive; cefazolin or nafcillin if *mecA*-negative). We conducted a quasi-experimental pre/post study to evaluate impact of the BPA. Patients <21 years old admitted to C.S. Mott Children's Hospital with SA-BSI during the pre- (1/2015 – 7/2017) and post-intervention (8/2017 – December 2018) periods were included. Demographic and clinical data were collected via chart review. Receipt of ID consult and optimal therapy before and after intervention were compared using interrupted time series (ITS) analysis with segmented regression. Time to optimal therapy was compared with segmented Cox regression.

Results. We included 99 SA-BSI episodes (70.7% pre-intervention and 29.3% post-intervention). Pre-intervention, 68.6% of patients received an ID consult compared with 93.1% post-intervention, but this was not significant with ITS analysis (Figure 2). The proportion of patients receiving optimal therapy did not significantly increase following the intervention, but time to optimal therapy significantly decreased (Figure 3). The median time to optimal therapy decreased from 26.1 hours to 5.5 hours. Cox regression showed both an immediate decrease in time to optimal therapy (HR 3.9, P = 0.009), followed by a continued decrease over time.

Conclusion. Following implementation of a novel EMR-based intervention, ID consultation for SA-BSI increased, although this was not statistically significant due to a pre-existing trend of increasing ID consults over time. Implementation of the BPA was associated with a significant decrease in time to optimal therapy, likely due to a combination of increasing ID consultation and antibiotic guidance provided by the BPA.

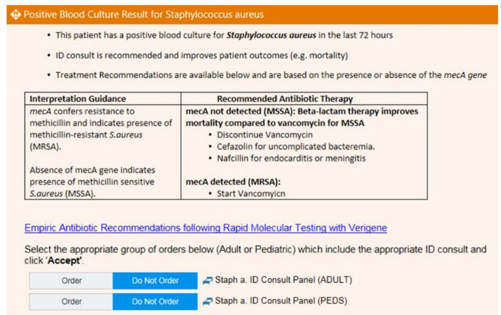

Figure 1. Best practice advisory (BPA) recommending infectious diseases (ID) consultation and optimal antibiotic therapy based on the presence or absence of the *mecA* gene (vancomycin if *mecA*-positive; cefazolin or nafcillin if *mecA*-negative).

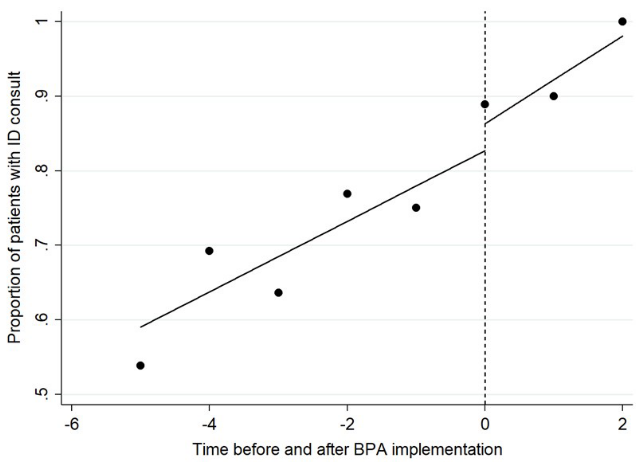

Figure 2. Raw and modeled probabilities of receipt of infectious diseases (ID) consult before (time periods -6 to -1) and after (time periods 0 to 2) implementation of a best practice advisory (BPA) for patients with *Staphylococcus aureus* bloodstream infection. Time is represented in 6 month blocks. The dotted line at 0 indicates BPA implementation in August 2017.

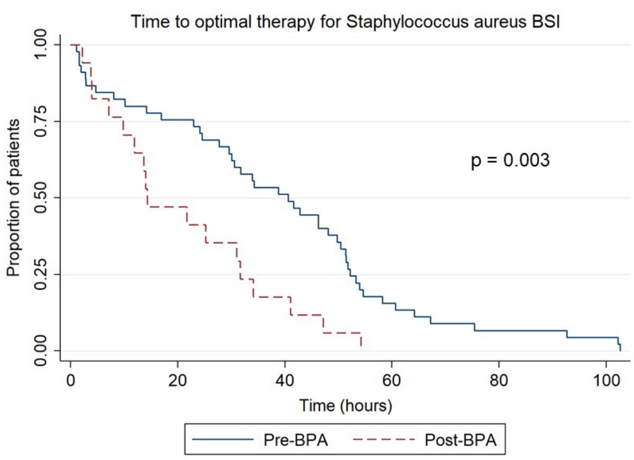

Figure 3. Kaplan-Meier curve demonstrating a significant decrease in time to optimal antibiotic therapy after implementation of a best practice advisory (BPA) for patients with *Staphylococcus aureus* bloodstream infection (BSI).

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

1125. *In with the Out*-patient Antimicrobial Stewardship Initiative: A Collaboration between a Children's Hospital Antimicrobial Stewardship Program and a Nonaffiliated Pediatric Private Practice

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Background. While antibiotic stewardship programs have been well described in the inpatient setting, data on effectiveness and guidance on implementing outpatient stewardship in pediatric patients is scarce. To the best of our knowledge, this is the first study describing the impact that an established inpatient pediatric antimicrobial stewardship program (ASP) has had on antimicrobial prescribing practices in a multi-site (14 locations) nonacademic, nonaffiliated pediatric outpatient practice. This study's main objective was to compare the prescribing patterns for urinary tract infections (UTIs) at baseline (before education was provided on local uropathogen resistance patterns, implications of broad-spectrum antibiotic usage, national practice guidelines, cost, etc.) and after antimicrobial stewardship education and interventions.

Methods. Prescribing patterns for UTIs at baseline were reviewed and assessed for appropriateness by the inpatient ASP the summer of 2018. Following this review, education was provided to the outpatient prescribers that included discussion on local uropathogen resistance patterns, UTI guidelines, antimicrobial properties, risk for adverse effects, appropriate antimicrobial selections and dosing for UTIs. After education was provided prescribing patterns from the various sites and prescribers was reviewed on a quarterly basis. Email reminders were also sent out to providers reminding them to use cephalexin as first-line treatment. Unblinded peer comparison was utilized as a behavioral intervention in which all prescribers received reports comparing their antibiotic prescribing rates for UTIs to their peers.

Results. The rate by which cephalexin was prescribed for UTIs has steadily improved from 4.02% of all prescriptions for UTIs during the reporting period of December 2017 - February 28, 2018 to 67.55% during the reporting period January 1 - March 31, 2019.

Conclusion. Collaboration between an established inpatient pediatric ASP and a nonaffiliate, multi-site private pediatric outpatient practice resulted in decreased utilization of broad-spectrum antibiotics and optimization of empiric treatment of urinary tract infections based on local resistance patterns.

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

1126. Variability in Antibiotic Use in Children's Hospitals in the United States

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Background. Understanding patterns of inpatient antibiotic use is necessary to enhance appropriate use and minimize preventable harm at hospitals. Few studies have characterized antibiotic use in the inpatient setting in children.

Methods. We conducted a cross-sectional study in children admitted to 51 freestanding US children's hospitals included in the Pediatric Health Information System (PHIS). Overall and broad-spectrum antibiotic use (see Table) were measured using charge data, and prevalence of use was assessed on a single day of each 2017–2018 season over one year. Comparisons were made based on clinical setting (medical vs. surgical), clinical unit (PICU, NICU, and all others), hospital, and region. We assessed the relationship between antibiotic use and median hospital case-mix index (CMI), a surrogate for clinical complexity.

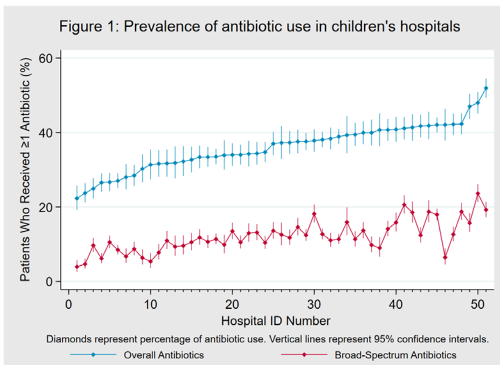
Results. Of 52769 hospitalized children assessed on a study day, 19174 (36%) received antibiotics, and 6575 (12%) received broad-spectrum antibiotics (table). Overall antibiotic use prevalence varied across hospitals from 22% to 52% (Figure 1). Median hospital CMI had no significant relationship with overall antibiotic use and only a weak correlation (ρ=0.29) with broad-spectrum antibiotic use (Figure 2). Antibiotic use prevalence varied minimally by season, ranging from 36% in fall to 37% in summer. Antibiotic use prevalence was 29% (9470/32436) among medical patients and 48% (9704/20333) among surgical patients. The antibiotics most commonly administered in medical patients were ceftriaxone and ampicillin, while surgical patients most commonly received cefazolin and vancomycin. Regional prevalence ranged from 33% (Midwest) to 40% (West). By unit, PICU patients had the highest prevalence of overall [58% (4006/6874)] and broad-spectrum [27% (1830/6874)] antibiotic use. Children with complex chronic conditions accounted for 63% of hospitalized children but represented 72% of children receiving any antibiotic and 85% of those receiving broad-spectrum antibiotics.

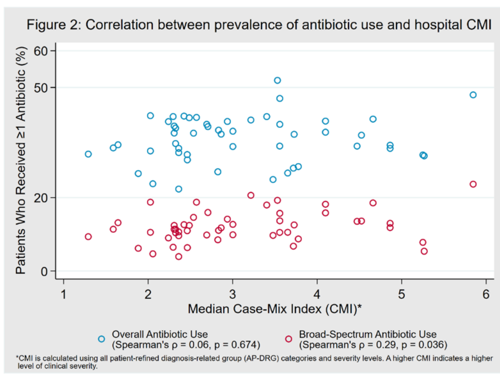
Conclusion. We observed large and apparently unexplained variability in antibiotic use prevalence among children's hospitals, clinical settings, and regions. This indicates potential opportunities for enhanced antibiotic stewardship activities.

Table: Characteristics of Pediatric Inpatients

Characteristics		Overall, N (%)	With Antibiotics[1], n (%)	With Broad-Spectrum[2] Antibiotics, n (%)
Number of patients (N)		52769	19174 (36%)	6575 (12%)
Age	0-29 days	16149 (31%)	3685 (19%)	976 (15%)
	30-364 days	8186 (16%)	3007 (16%)	868 (13%)
	1-4 years	9023 (17%)	4216 (22%)	1497 (23%)
	5-11 years	8916 (17%)	4100 (21%)	1544 (23%)
	12-17 years	10495 (20%)	4166 (22%)	1690 (26%)
Gender	Male	28298 (54%)	10389 (54%)	3630 (55%)
Race	White	25030 (47%)	9109 (48%)	976 (15%)
	Black	10142 (19%)	3378 (18%)	868 (13%)
	Hispanic	10087 (19%)	4086 (21%)	1497 (23%)
	Asian	1695 (3%)	624 (3%)	1544 (23%)
	Other	5815 (11%)	1977 (10%)	1690 (26%)
Census region	Midwest	14925 (28%)	4884 (25%)	1627 (25%)
	Northeast	7850 (15%)	2936 (15%)	1046 (16%)
	South	19028 (36%)	6951 (36%)	2296 (35%)
	West	10966 (21%)	4403 (23%)	1606 (24%)
Type of encounter[3]	Medical	32436 (61%)	9470 (49%)	3020 (46%)
	Surgical	20333 (39%)	9704 (51%)	3555 (54%)
Infection diagnosis		19311 (37%)	11084 (58%)	4695 (71%)
Complex chronic condition (CCC)[4]		33400 (63%)	13842 (72%)	5581 (85%)

[1]Antibiotics include any antibacterial antibiotic administered via the oral, intravenous, or inhalational route.
[2]Broad-spectrum antibiotics include vancomycin, daptomycin, cefepime, ceftaroline, ceftazidime-avibactam, ceftolozane-tazobactam, piperacillin-tazobactam, carbapenems, fluoroquinolones, and linezolid.
[3]Each patient encounter day is coded as either medical or surgical based on service line charge data.
[4]Complex chronic condition was defined per Feudtner et al. as "any medical condition that can be reasonably expected to last at least 12 months (unless death intervenes) and to involve either several different organ systems or 1 organ system severely enough to require specialty pediatric care and probably some point of hospitalization in a tertiary care center."





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