

An Outpatient Antimicrobial Stewardship Initiative in Pediatric Clinics

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BACKGROUND

Antimicrobial stewardship is critical for improving patient outcomes through optimizing microbe coverage, minimizing antimicrobial-related adverse effects, and reducing rates of antimicrobial resistance.

- 60% of antibiotics are prescribed in the outpatient setting in the United States.
- Over 20% of pediatric clinic visits in the United States result in an antibiotic prescription.
- Over 70% of outpatient antibiotics are prescribed for respiratory tract infections (RTI).
- Pediatric RTI in the United States have an antibiotic prescribing rate of 57%, which exceeds the estimated bacterial prevalence of RTI infection of 27%.

Tracking and reporting of antibiotic prescribing is one of the four core elements of outpatient antimicrobial stewardship recommended by the Centers for Disease Control. Characterization of antibiotic use can be useful for identification of areas for improvement and monitoring of performance over time.

- At UW Health, providers must select an associated “order diagnosis” for each antibiotic prescription. This diagnosis may or may not be identical to the primary encounter diagnosis.
- In late March 2020, many outpatient clinic visits transitioned to phone or telehealth visits to mitigate spread of SARS-CoV-2, and patients with complaint of RTI were directed to be seen at urgent care clinics rather than primary care clinics.

PURPOSE

The purpose of this study is to describe antibiotic prescribing patterns for respiratory tract infections occurring at pediatric outpatient clinics at an academic medical center and identify a strategy to improve antibiotic prescribing.

METHODS

- A medication use evaluation was performed from January 2020 to March 2020 using data from the electronic medical record.
- This time frame preceded structural changes in the pediatric ambulatory clinics due to the COVID-19 pandemic.

METHODS, continued

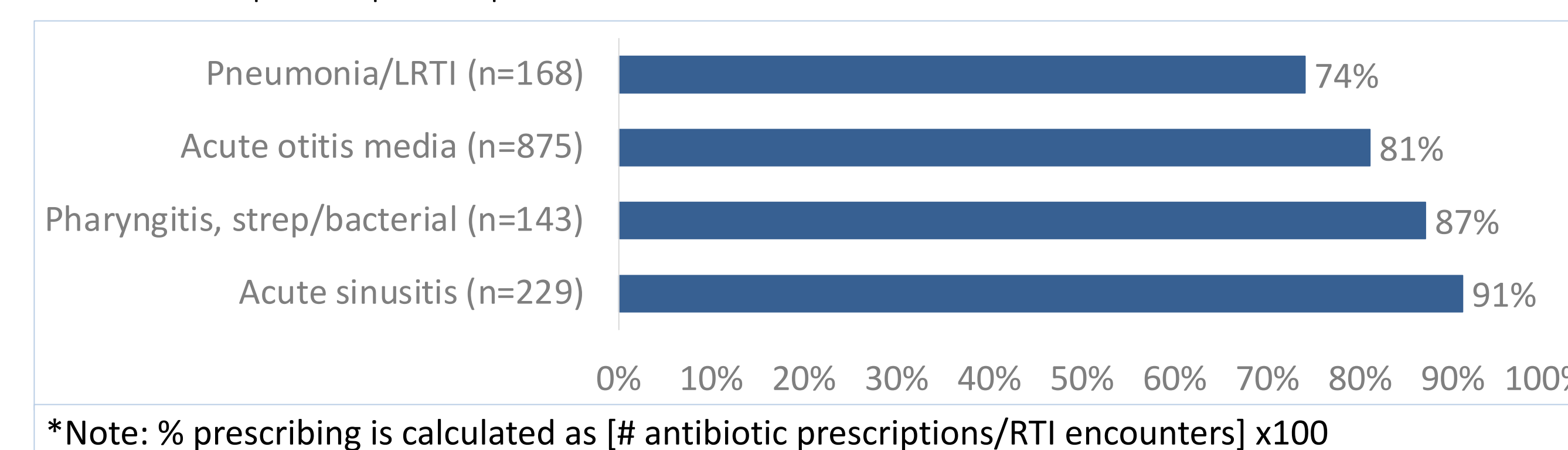
Inclusion Criteria

- Seven pediatric primary and urgent care clinics at a single academic medical center in the Midwest
 - All encounters with a primary encounter diagnosis of respiratory tract infection
 - Respiratory tract infections may include both bacterial or viral illnesses
 - No exclusion criteria
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- “Order diagnosis” selected by the provider on each antibiotic prescription at order entry was used to determine prescribing patterns by indication.
 - Baseline prescribing characteristics will be used to identify areas of focus for intervention and education of providers.
 - Individual provider report cards will be developed based on order diagnosis to compare providers with their peers.

RESULTS

- From January to March 2020, 2,180 RTI encounters resulted in 1,438 total antibiotic prescriptions.
- The rate of antibiotic prescribing was 659 prescriptions per 1,000 patient visits
- Most prescriptions were written during an in-person visit (n=1490; 98%).
- The most frequent indications for antibiotic prescribing were acute otitis media (n=829) and acute sinusitis (n=353).

Figure 1. Antibiotic prescriptions per encounters for four most common RTI indications



The most common indications for antibiotic prescribing were **acute otitis media** (n=875) and **acute sinusitis** (n=229).

A peer report card will be developed based on order diagnosis to improve antibiotic prescribing.

RESULTS, continued

Figure 2. Antibiotic class choice

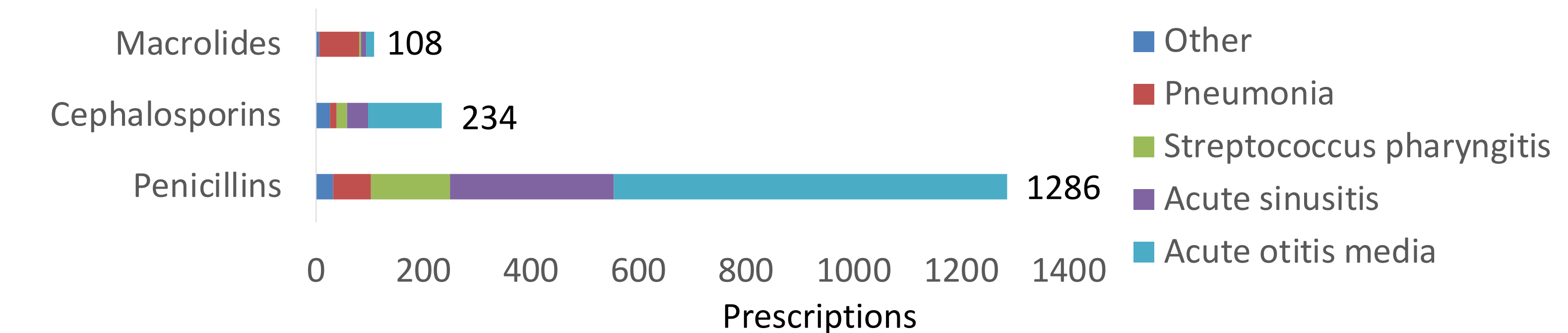


Figure 3. Example report card

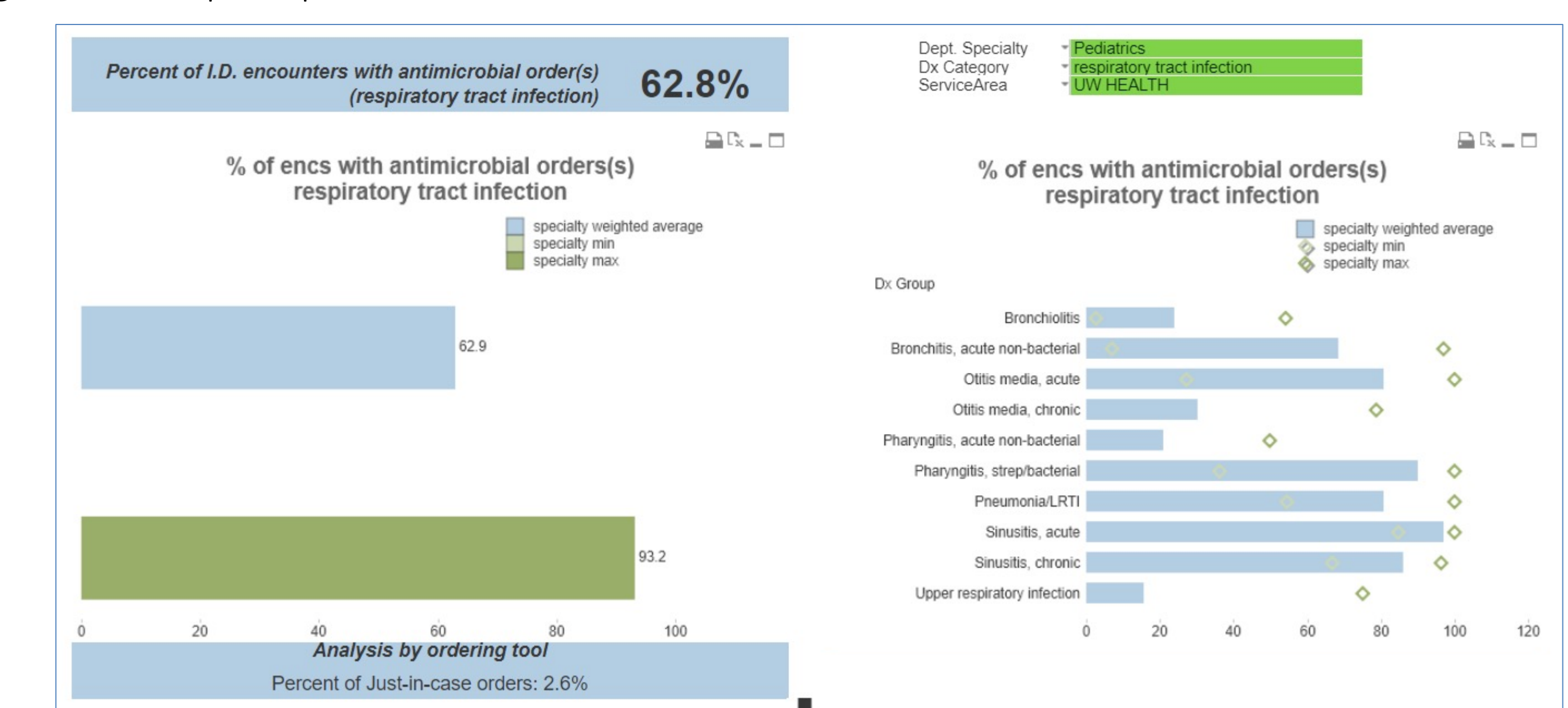


Figure 4. Example Department Chair report

Provider Name	Encounters (n)	% Prescribing for composite RTI	Rank
Provider 1	26	15.4%	1
Provider 2	54	24.1%	2
Provider 3	472	26.7%	3
Provider 4	42	33.3%	4
Provider 5	47	36.2%	5
Provider 6	406	37.7%	6
Provider 7	1082	38.4%	7
Provider 8	26	38.5%	8
Provider 9	1822	42.6%	9
Provider 10	183	42.6%	10

Pediatric providers RTI prescribing rates by RANK ORDER for the selected timeframe (Jan. 1, 2017 – Apr 30, 2021). % prescribing is for the composite RTI measure, calculated as [# antibiotic prescriptions/RTI encounters] x100

*Note: Providers without a rank did not meet the minimum number of encounters (25)

CONCLUSIONS

Most common indications for antibiotic prescribing included acute otitis media and sinusitis, infections that are often of viral etiology.

This data will be used to focus antimicrobial stewardship education and peer report cards for providers. The impact of this intervention will be analyzed through comparison of pre- and post-intervention prescribing patterns.

Anticipated Outcomes

- Following this intervention, a decrease in total number of antibiotics prescribed, decrease in percentage of encounters resulting in an antibiotic prescription, and optimization of choice of antibiotic is expected.
- Antibiotic prescribing optimization will mitigate antibiotic resistance rates, decrease incidence of adverse drug effects, and improve patient care.

References:

- 1.) Sanchez GV, Fleming-Dutra KE, Roberts RM, Hicks LA. Core Elements of Outpatient Antibiotic Stewardship. MMWR Recomm Rep 2016;65(No. RR-6):1–12.
- 2.) Hersh AL, Shapiro DJ, Pavia AT, Shah SS. Antibiotic prescribing in ambulatory pediatrics in the United States. Pediatrics. 2011 Dec;128(6):1053–61. doi: 10.1542/peds.2011-1337.
- 3.) Kronman MP, Zhou C, Mangione-Smith R. Bacterial prevalence and antimicrobial prescribing trends for acute respiratory tract infections. Pediatrics. 2014 Oct;134(4):e956–65. doi: 10.1542/peds.2014-0605.