

# Comparison of Emergency Department versus Inpatient Pediatric Treatment for Empiric Community Acquired Pneumonia in Infants and Children over 3 Months of Age



Hackensack  
Meridian Health

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## Introduction

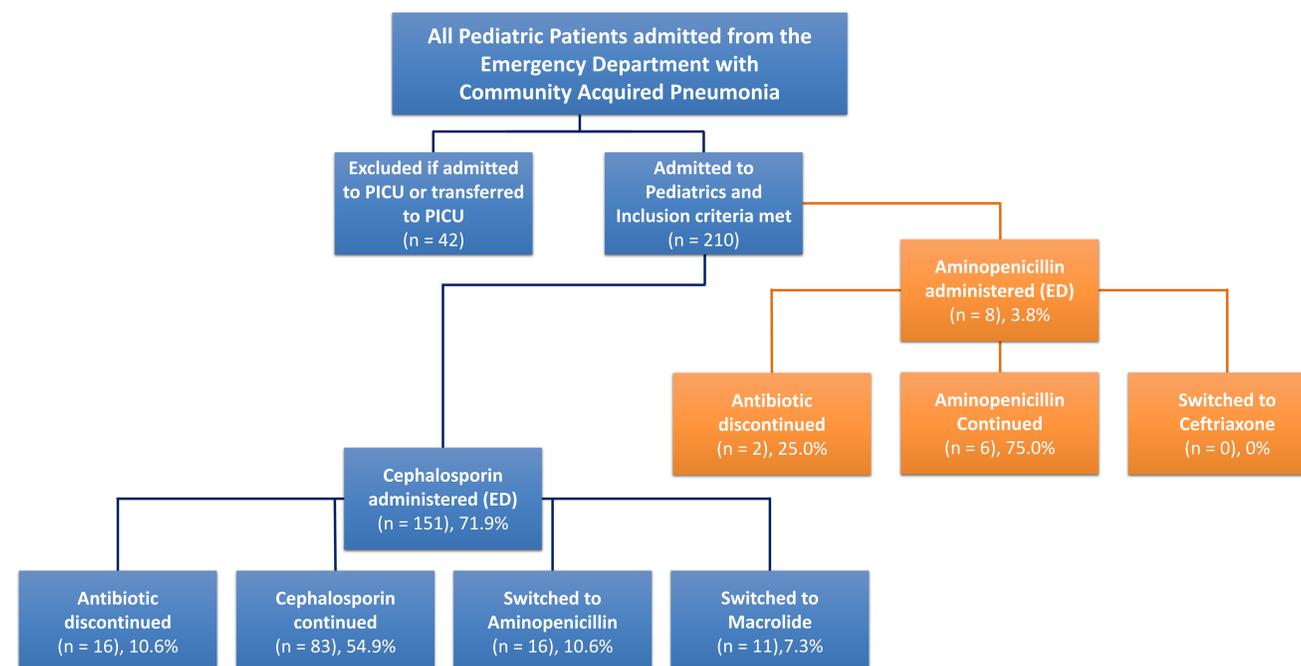
- In 2011, the Infectious Diseases Society of America released guidelines for appropriate management of community acquired pneumonia (CAP) in infants and children older than 3 months of age who are otherwise healthy.
- These guidelines were created to assist clinicians in choosing appropriate antimicrobial therapy in order to decrease morbidity and mortality as well as minimize antimicrobial resistance.
- Current guidelines recommend narrow spectrum antibiotics such as amoxicillin or penicillin as first line treatment. However, inappropriate selection of broad spectrum antibiotics remains high.

## Objective

- Our study investigates the discordance between emergency department (ED) and inpatient prescribers in choosing appropriate antibiotic therapy for CAP. A descriptive statistical analysis was conducted to determine the prescribing differences.

## Methods

- This retrospective chart review included infants and children aged 3 months and 18 years who were admitted to the inpatient pediatric service via the ED from January 1, 2015 – December 1, 2017.
- Data collection included patient demographics, prior antibiotic use from an outside prescriber, radiographic findings, the antimicrobial prescribed in the ED, and the antimicrobial used in the pediatric unit.
- The primary outcome was to determine the consistency between the prescribing pattern in the ED and the inpatient. Secondary outcomes include duration of treatment and patient length of stay (LOS).



## Results

- There were 252 patients admitted for CAP; 42 were admitted to the pediatric intensive care unit and 210 were admitted to the inpatient pediatric service from the ED.
- The ED prescribed an aminopenicillin as monotherapy to 2.9% (n=6) of patients, a cephalosporin as monotherapy to 70.9% (n=149), and 0.9% (n=2) of patients were started on both a cephalosporin and an aminopenicillin.
- Once under the hospitalist's service, the hospitalist continued the cephalosporin in 72.4% (n=108), switched to an aminopenicillin in 10.6% (n=16), switched to a macrolide in 5.4% (n=8), and 8.1% (n=17) discontinued antimicrobials altogether.
- If an aminopenicillin was started in the ED, it was continued by the hospitalist in 83.3% (n=5) of the cases, with none switching to a cephalosporin, and 1 patient being switched to a macrolide.
- The mean duration of antimicrobial was 8.2 +/- 3.8 and mean LOS was 2.8 +/- 1.9.

## Conclusions

- At our local pediatric hospital, there is poor compliance with IDSA guidelines for CAP. There is also a high concordance between ED and in-patient prescribers since hospitalists were more likely to continue the antimicrobial started in the ED. Of note, none of the patients started on an aminopenicillin or switched to one were readmitted to the hospital after discharge,
- Guideline adherence might be improved by focus on antibiotic stewardship and creating order sets for CAP that adhere to IDSA guidelines. Future studies could investigate if these suggestions improve our overall adherence rates.

## References

- Management of Community-Acquired Pneumonia (CAP) in Infants and Children Older Than 3 Months of Age. *Pediatrics*. 2011;128(6). doi:10.1542/peds.2011-2385.
- Handy LK, Bryan M, Gerber JS, Zaoutis T, Feemster KA. Variability in Antibiotic Prescribing for Community-Acquired Pneumonia. *Pediatrics*. 2017;139(4). doi:10.1542/peds.2016-2331.
- Williams DJ, Hall M, Gerber JS, et al. Impact of a National Guideline on Antibiotic Selection for Hospitalized Pneumonia. *Pediatrics*. 2017;139(4). doi:10.1542/peds.2016-3231.

Patient Measures	n = 210
<b>Age (years)</b>	
Min	0.0
Max	19.0
Mean ± SD	4.8 ± 4.8
Median [Q1, Q3]	3.0 [1.0, 7.0]
<b>Gender, n (%)</b>	
Female	95 (45.2)
Male	115 (54.8)
<b>Past Medical History, n (%)</b>	
Chronic Lung Disease	4 (1.9)
Down Syndrome	2 (1.0)
Eczema	2 (1.0)
GERD	2 (1.0)
Laryngomalacia	2 (1.0)
Prematurity	11 (5.2)
Seizure Disorder	5 (2.4)
Sickle Cell Disease	2 (1.0)
NONE	125 (59.5)