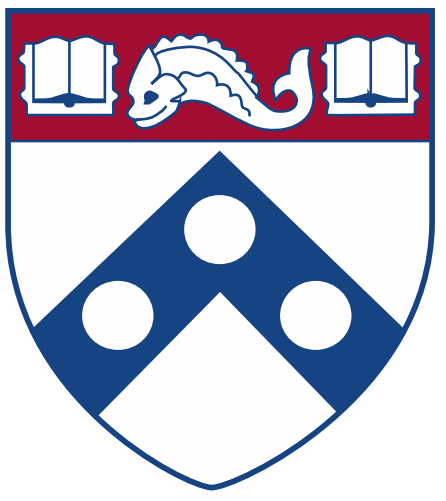




Discharge Antibiotic Prescribing at Children's Hospitals with Established Antimicrobial Stewardship Programs



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BACKGROUND

- Antibiotic stewardship programs (ASPs) optimize antibiotic use in hospitalized children, but most do not routinely review antibiotic prescriptions at discharge
- Up to 30% of discharged children receive additional days of antibiotics¹
- One single-center study found that 27% of discharge prescriptions were suboptimal²

OBJECTIVE

- To evaluate duration of therapy (DOT) and antibiotic choice at discharge for children hospitalized with uncomplicated:
 - community-acquired pneumonia (CAP)
 - skin and soft tissue infections (SSTI)
 - urinary tract infections (UTI)

METHODS

- Retrospective cohort study of children <18 years admitted to 4 children's hospitals in 2019 and prescribed antibiotics at discharge for uncomplicated CAP, SSTI, or UTI
- Exclusions:
 - complex medical conditions
 - > 1 infection requiring antibiotics
 - > 7-day hospital stay
 - intensive care unit (ICU) stay
- Primary outcomes were the percentage of subjects prescribed optimal therapy based on current national guidelines and available evidence:
 - Total (inpatient plus outpatient) DOT: 4-6 days for CAP and SSTI, ≤8 days for UTI
 - Antibiotic choice:
 - CAP: amoxicillin
 - SSTI: clindamycin, amoxicillin-clavulanate, cephalexin, or trimethoprim-sulfamethoxazole (TMP/SMX)
 - UTI: cephalexin, amoxicillin, amoxicillin-clavulanate, TMP/SMX, or nitrofurantoin

RESULTS

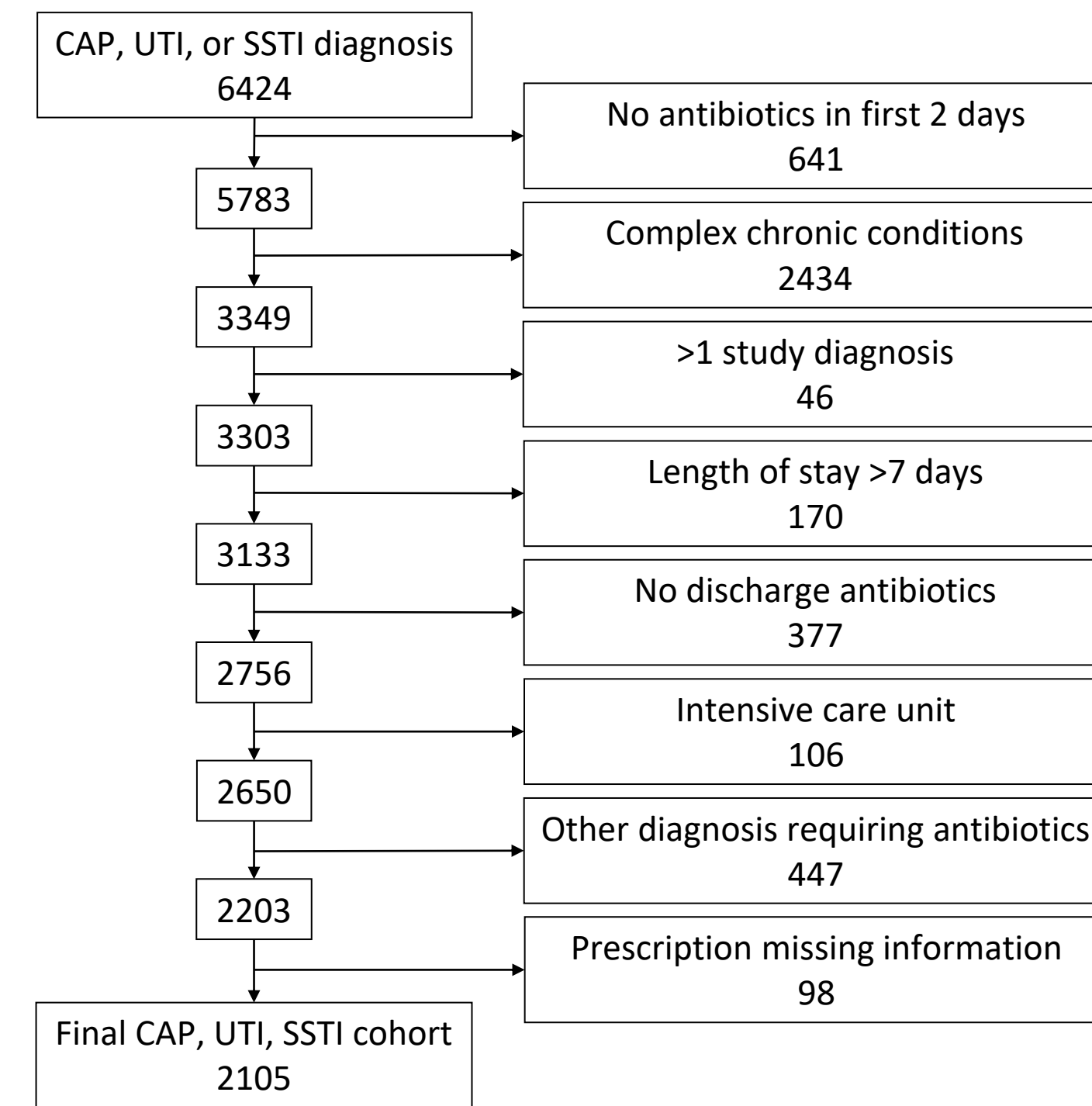


Figure 1. Flow diagram of children included in a retrospective analysis of discharge prescribing for uncomplicated CAP, UTI, and SSTI

	Total N= 2105
Sex	
Male	1068
Female	1037
Age: Median (IQR)	4 (1-9)
Condition	
PNA	783
UTI	406
SSTI	916
Race	
White/Caucasian	1123
Black/African American	482
Asian	136
American Indian or Alaska Native	16
Native Hawaiian or Pacific Islander	45
Multiple Races	46
Other	186
Unknown	71
Ethnicity	
Hispanic or Latino	283
Non-Hispanic or Latino	1782
Unknown	40
Length of Stay: Median (IQR)	2 (1-3)
Total antibiotic duration: Median (IQR)	10 (8-12)

Table 1. Baseline characteristics of children admitted to 4 children's hospitals in 2019 and prescribed antibiotics at discharge for uncomplicated CAP, UTI, or SSTI

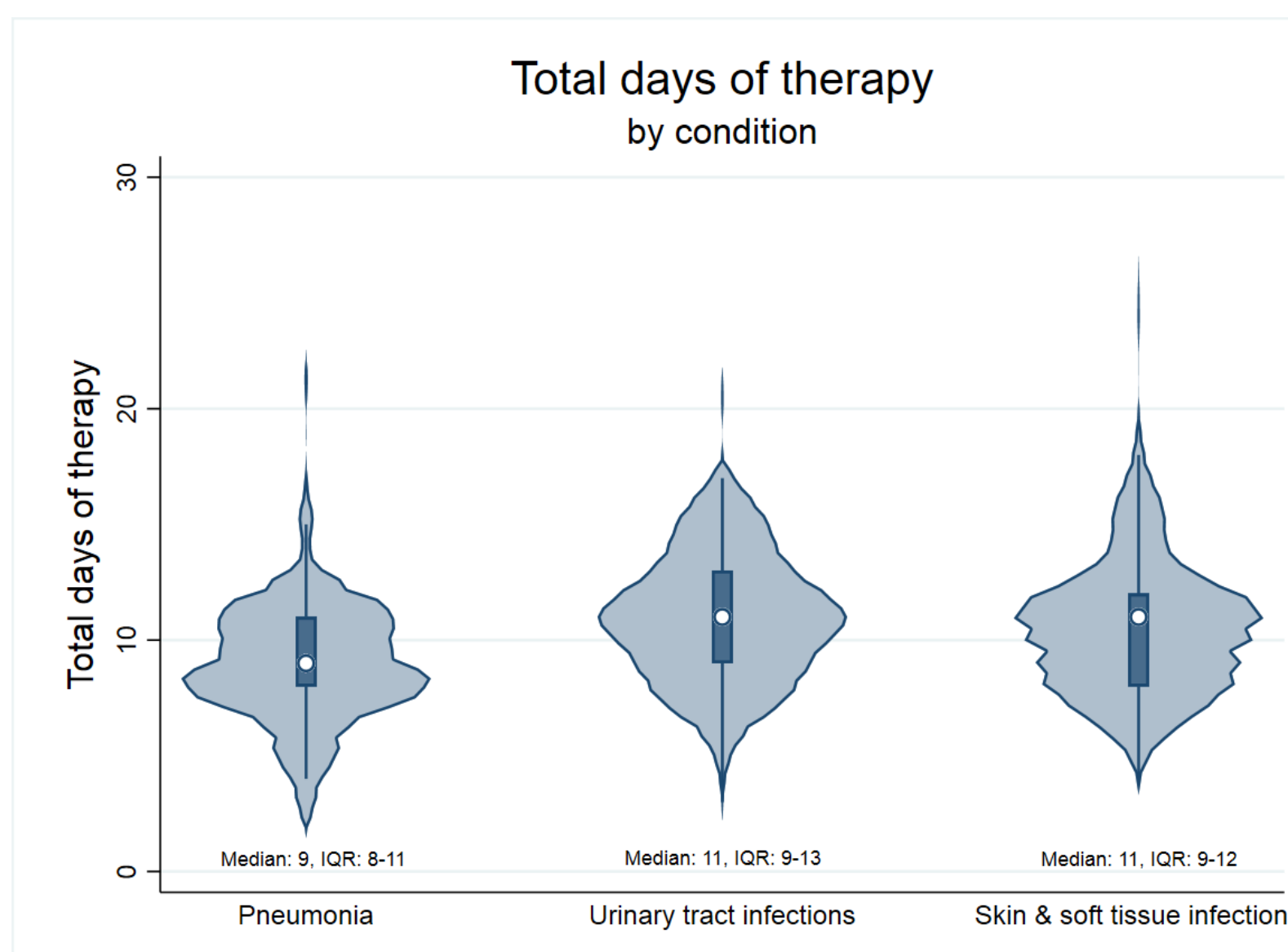


Figure 2. Median duration of antibiotic therapy prescribed for 783 children with CAP, 406 with UTI, and 916 with SSTI. The box and whiskers within each plot depict the median (white dot), interquartile range (box) and 5th/95th percentiles (whiskers); the width of each plot represents the number of courses that received that value for overall antibiotic duration.

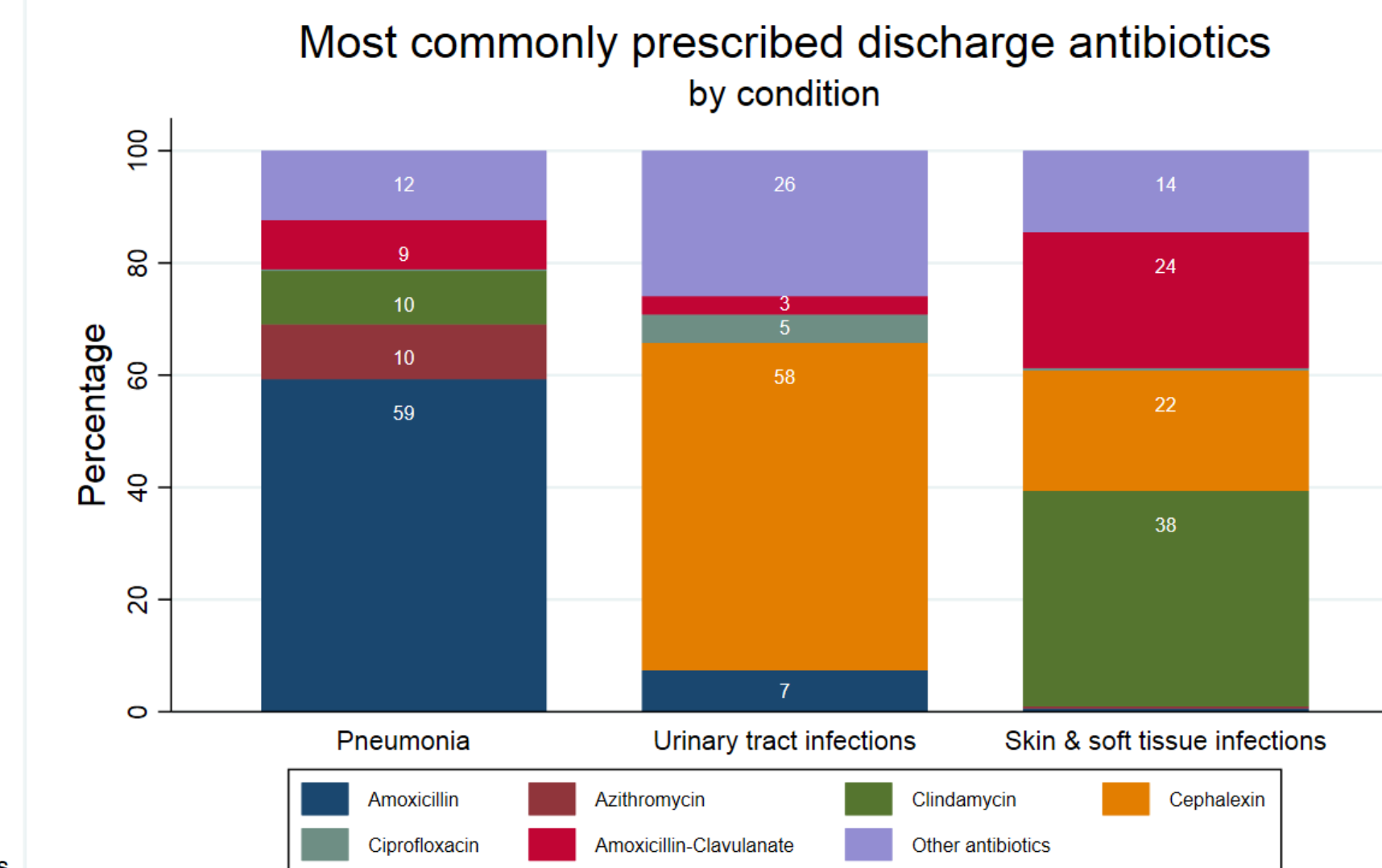


Figure 3. The most commonly prescribed antibiotics at discharge for 2105 children with CAP, UTI, or SSTI. Percentages based on total number of antibiotic prescriptions. Other antibiotics include: Cefadroxil, Cefdinir, Cefixime, Doxycycline, Levofloxacin, Linezolid, Nitrofurantoin, trimethoprim-sulfamethoxazole.

RESULTS

	Optimal Therapy		
	Duration	Antibiotic Choice	Both Duration & Choice
Pneumonia	11%	66%	2%
Urinary Tract Infection	4%	88%	19%
Skin and Soft Tissue Infection	21%	98%	4%
All Indications	10%	84%	6%

Table 2. Percentage of children diagnosed with CAP, UTI, and SSTI prescribed optimal antibiotic choice and duration of therapy at discharge

CONCLUSIONS

- At 4 children's hospitals with established antimicrobial stewardship programs, **94% of discharge antibiotic courses for CAP, UTI, and SSTI were suboptimal** either by choice of antibiotic or duration of therapy.
- Discharge antibiotic prescribing represents a significant opportunity to improve antibiotic use in children.

LIMITATIONS

- Retrospective review using administrative data
- We did not review microbiologic data; pre-defined optimal antibiotic choices are preferred empiric therapies and do not account for culture-driven antibiotic use that may be clinically appropriate

REFERENCES

- Hersh AL, Newland JG, Gerber JS. Pediatric Antimicrobial Discharge Stewardship: An Unmet Need. *JAMA Pediatr.* 2016 Mar;170(3):191-2.
- Olson J, Thorell EA, Hersh AL. Evaluation of Discharge Antibiotic Prescribing at a Freestanding Children's Hospital: Opportunities for Stewardship. *J Pediatric Infect Dis Soc.* 2018 Dec 13.

