



Evaluation of Antibiotic Overuse for Asymptomatic Bacteriuria in a Hospital with Low Baseline Antibiotic Use

Denver Health Medical Center, Denver, CO

Bailey Kernan, PharmD; Katherine Shihadeh, PharmD, BCIDP; Timothy Jenkins, MD

Background

- The 2019 Infectious Diseases Society of America (IDSA) guidelines¹ for management of asymptomatic bacteriuria recommend avoidance of antimicrobial therapy for most patients.
- Antimicrobial overuse contributes to increasing antimicrobial resistance, and positive urinalysis or culture results often leads to antimicrobial prescribing, even in the absence of symptoms.
- Denver Health has guidance for the management of urinary tract infection (UTI), and implemented guidance for the management of ASB in August 2019.
- As an institution, Denver Health has a Standardized Antimicrobial Administration Ratio (SAAR) of 0.8-0.9, suggesting a strong antimicrobial stewardship program with a ratio <1.

Objectives

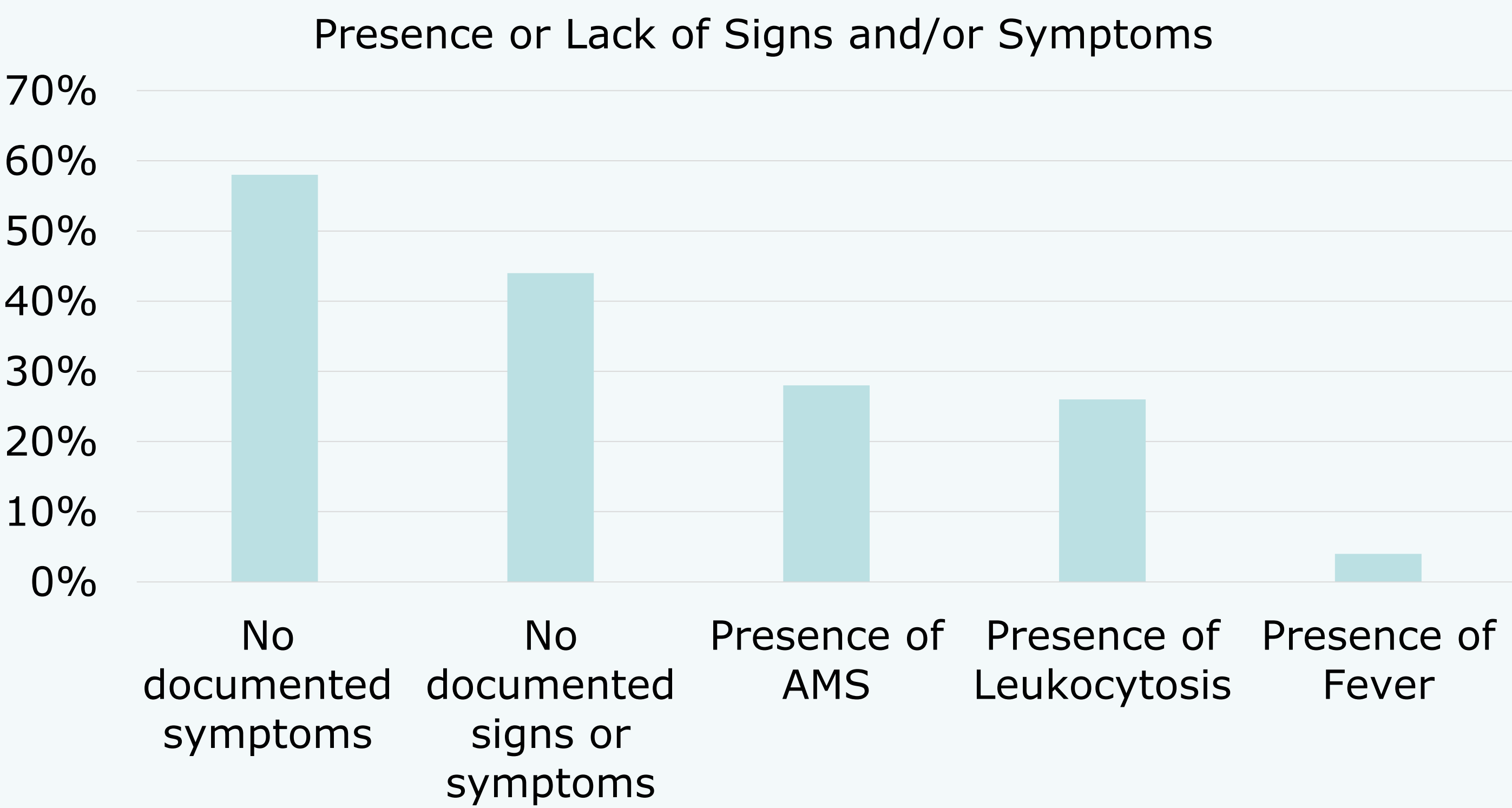
- The purpose of this study was to assess if signs and symptoms were present in patients prescribed an antimicrobial for UTI
- Primary outcome: proportion of patients prescribed an antibiotic for UTI in the absence of signs or symptoms
- Secondary outcomes: prescribing patterns for choice and duration of antimicrobials

Methods

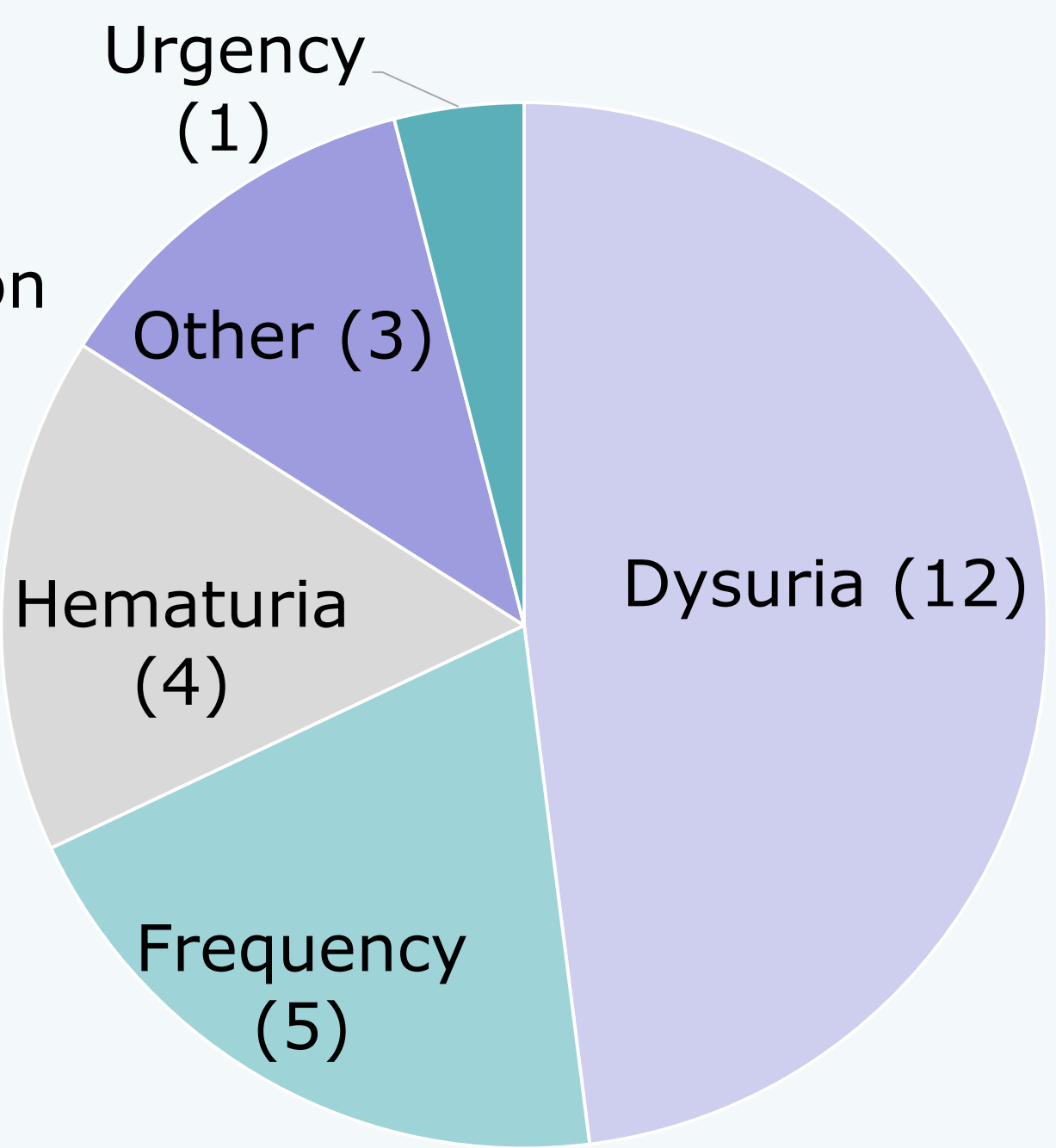
- Retrospective analysis and chart review for encounters between March 1st to August 31st, 2019
- Inclusion criteria: hospitalized patients at least 18 years of age who were prescribed an antibiotic with "UTI" as the selected indication
- Exclusion criteria: catheter-associated UTIs
- A total of 382 antibiotics were prescribed during the time period, of which a random sample of 50 cases was selected and reviewed for inclusion in the analysis
- "Signs" were considered to be:
 - fever, defined as at least 38°C or
 - leukocytosis, defined as at least 10 k/uL white blood cell count
- Symptoms collected were based on documentation of patient reported occurrences of dysuria, frequency, or urgency, or UA findings of hematuria

Results

Baseline characteristics:	Result (n=50)
Male gender; n (%)	11 (22)
Age (years); median (range)	65.8 (29-94)
Hospital day culture obtained; median (range)	1 (0-24)
Type of UTI per chart diagnosis; n (%)	
Simple cystitis	9 (18)
Complicated cystitis	34 (68)
Pyelonephritis	7 (14)



Of those encounters that did have documented symptoms, there were 25 reported symptoms. The most common were:



Urinalysis reflex to culture	Result
Number of UA reflexed to culture; n = 48 (%)	44 (91.7)
Negative UA with subsequent culture; n = 48 (%)	5 (10.4)
Culture Results; n = 44 (%)	
1 isolate	30 (68.2)
Contamination OR ≥ 2 isolates	12 (27.3)
No growth	2 (4.5)

- The most commonly prescribed oral antibiotics were cefdinir and fosfomycin (24% each), followed by nitrofurantoin (12%), sulfamethoxazole-trimethoprim (10%), and levofloxacin (8%).
- The most commonly prescribed IV antibiotics were levofloxacin (12%), and ceftriaxone (4%).
- The majority of encounters received no more than 5 days duration of antibiotics (70%), but 10% of encounters received >10 days duration.

Conclusion

- Despite a well established stewardship program, nearly half of patients prescribed an antibiotic for UTI did not have signs or symptoms consistent with infection.
- This suggests many patients were treated for ASB, without necessity
- Among hospitals with comparatively low antibiotic use, ASB may be a high-yield opportunity to reduce unnecessary antibiotic use.
- Since this data was gathered, Denver Health has implemented several changes to potentially limit the use of antibiotics for ASB:
 - Education to providers on appropriately withholding antimicrobials for ASB
 - Adjustment of UA reflex to culture criteria
- Further interventions may be determined after a subsequent analysis of antimicrobial prescribing for ASB

References:

1. Nicolle LE, et al. Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update by the Infectious Diseases Society of America, *Clinical Infectious Diseases*, Volume 68, Issue 10, 15 May 2019, Pages e83–e110, <https://doi.org/10.1093/cid/ciy1121>

Disclosure: Authors of this presentation have no disclosures.