

Jorden Tan, Pharm. D Candidate^{1,2}; Kenneth Kue, Pharm. D Candidate^{1,2}; Pramodini B. Kale-Pradhan, Pharm. D^{1,2};
George Delgado Jr, Pharm. D.^{1,2}; Christopher Giuliano Pharm. D^{1,2}; Leonard Johnson, MD^{1,3}
¹Eugene Applebaum College of Pharmacy and Health Sciences, ²Department of Pharmacy Services
³Division of Infectious Disease, Ascension St. John Hospital and ⁴Wayne State University School of Medicine

Introduction

- Urinary tract infections (UTIs) are one of the most common infections in the emergency department (ED). The risk of treatment failure and readmissions to the ED may be increased with inappropriate antibiotic regimens.
- The purpose of this project is to determine the proportion of patients receiving guideline-based therapy (GBT) for UTI discharged from the ED and the effects of compliance on readmission and adverse events.

Methods

- Design:** Single-center retrospective cohort study examining ED visits at Ascension St. John Hospital.
- Inclusion:** All adult patients presenting to the ED at Ascension St. John Hospital with diagnosis of a UTI between 7/1/20-12/31/20.
- Exclusion:** Patients that were <18 YO, pregnant, admitted inpatient, or has asymptomatic bacteriuria (ASB).
- Definitions:**
 - Diagnosis of a UTI was identified through ICD-10 codes.
 - GBT was based on IDSA guidelines.
 - Thirty-day readmission was defined as where the time between discharge from the first ED visit and admission for the second ED visit was less than or equal to 30 days.
- Data collection:**
 - Demographics (age, sex)
 - Vitals (height, weight, BP, O2 saturation, etc.)
 - Charlson Comorbidity index
 - Labs (urine analysis, WBC, SCr, etc.)
 - Results of urine cultures (if performed)
 - Treatment (antibiotic agent, dose, frequency and the duration of treatment)
 - 30-day readmission rate (including reason for readmission and if it led to inpatient admission)
- We evaluated antibiotic agent, dose, frequency and duration of antibiotic treatment based on IDSA guidelines.

Statistical Methods

- Descriptive statistics used to characterize the study population.
- Differences between means analyzed using the Student's t-test.
- Associations among categorical variables assessed using the chi-squared test.

Results

Figure 1. Data Collection

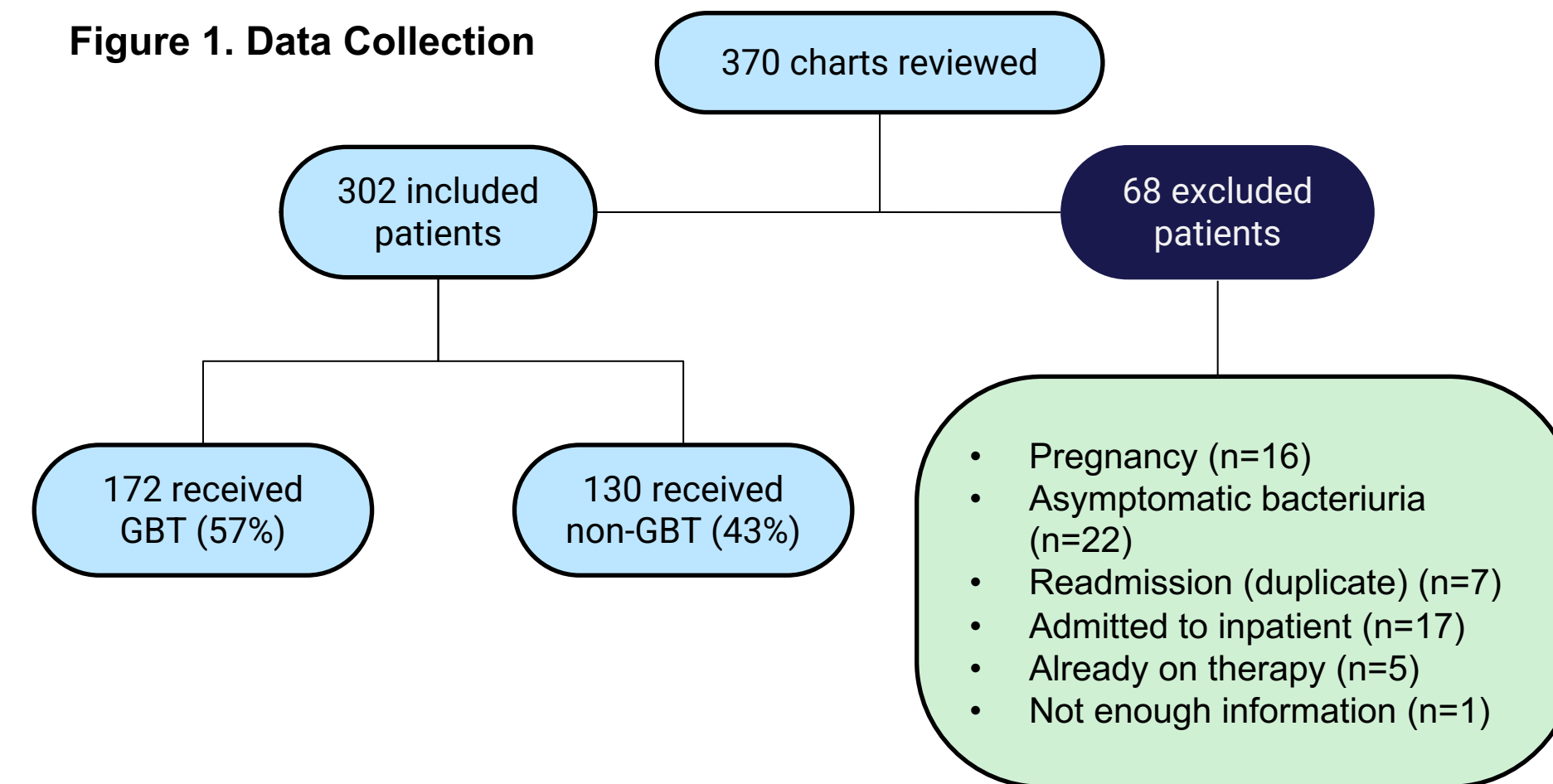


Table 1. Patient Characteristics

	GBT (n=172)	Non-GBT (n=130)	p-value
Female	158	102	<0.01
Mean Age (years)	41.87	41.74	0.21
Mean BMI (kg/m2)	27.53	27.3	0.93
Race			
White	27	17	0.61
Black	143	107	
CCI	0.343	0.392	0.48
UTI			
Not specified/Cystitis	158	121	0.69
Pyelonephritis	14	9	
Antibiotics within 1 year	54	40	0.91

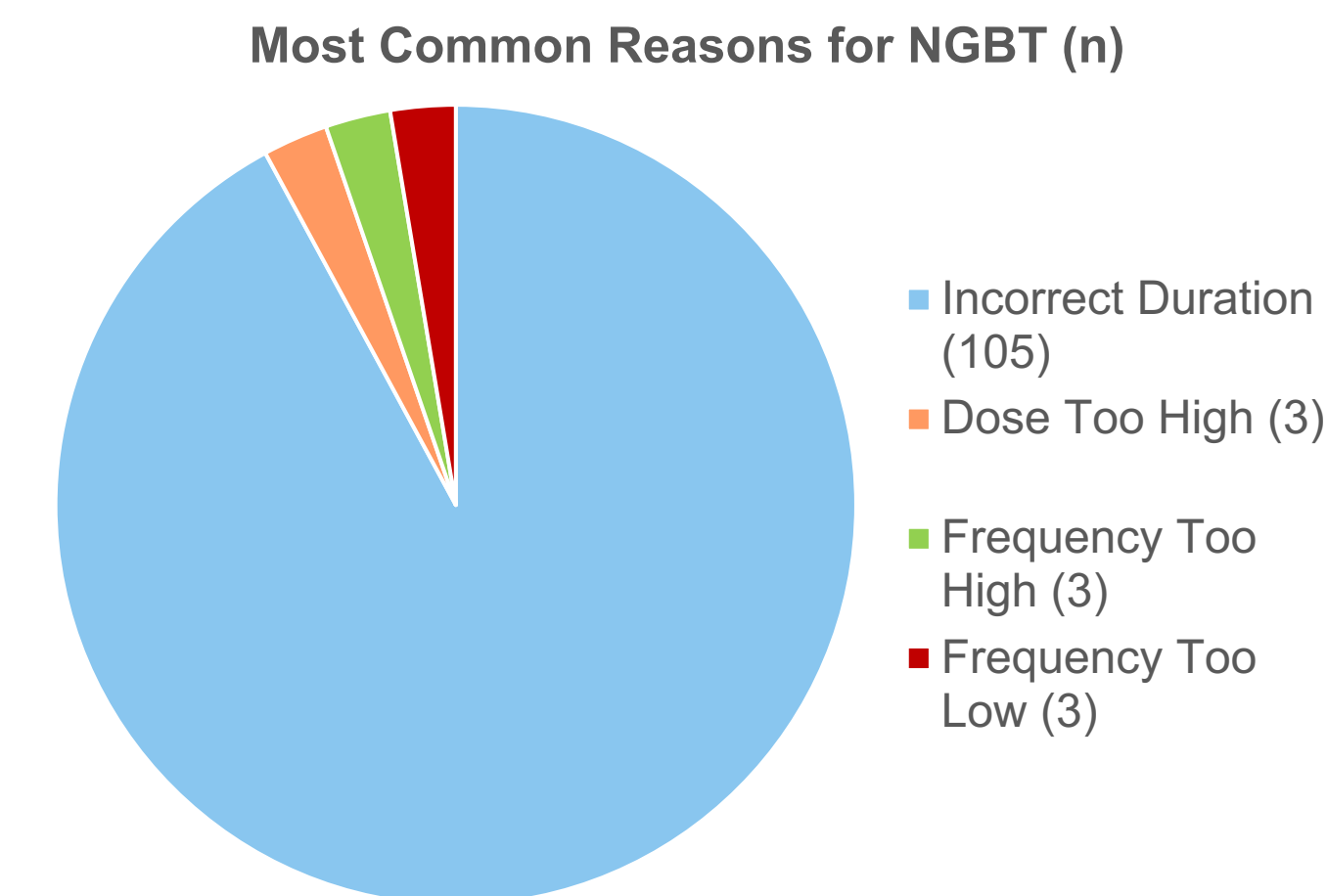
Table 2. Readmission Rate by Group

	30-Day Readmission Rate	P-value
GBT	18%	0.632
Non- GBT	16.2%	

Table 3. Reason for Readmission

	GBT (n=31)	Non-GBT (n=21)	P-value
Persistent symptoms or sepsis	9	5	0.92
Reasons not related to UTI	23	17	0.92

Figure 2. Major Causes of Non-Guideline Therapy



Summary

- Of the 302 patients included in the final analysis, 172 (57%) received GBT and 130 (43%) received non-GBT.
 - Females were more likely to receive GBT than males.
- Fifty two of 302 patients (17.2%) were readmitted within 30 days.
 - Readmission rates for the patients receiving GBT and non-GBT were 60% and 40% respectively (p=0.632). Of the 52 readmissions, 14 (26.9%) were related to the UTI and returned for persistent symptoms (11 patients) or development of sepsis (3 patients). The other 38 patients (73.1%) were readmitted for reasons unrelated to UTI.
- There was no significant difference between GBT and non-GBT in readmissions related to persistent symptoms of UTI or development of sepsis, 11 patients and 3 patients, respectively (p=0.92).

Conclusions

- In the final analysis, the majority of prescribed antibiotic therapy did conform to GBT for UTI.
- However, 30-day readmission rates were not significantly different between groups.

Limitations

- Retrospective chart review
- Limited sample size

Future Directions

- There was no significant difference in readmissions between GBT and non-GBT. The majority of patients received appropriate therapy in accordance to IDSA guidelines. Those who did not, most commonly received longer treatment durations than IDSA recommended.

References

- Gupta K, Hooton TM, Naber KG, et al. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: a 2010 update by the infectious diseases society of america and the european society for microbiology and infectious diseases. *Clinical Infectious Diseases*. 2011;52(5):e103-e120.