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An Antibiotic Stewardship Initiative – Improving Adherence to Guidelines for the Treatment of Inpatients with Complicated Urinary Tract Infections

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BACKGROUND

- Adherence to therapeutic guidelines for the treatment of UTIs in inpatients is poor, with studies showing adherence to be as low as 30% of clinical encounters¹⁻³.
- The Infectious Disease Society of America (IDSA) recently published guidelines for the treatment of complicated urinary tract infections (cUTI) and recommend a treatment duration of 5-7 days when using a fluroquinolone or 7-days when using a non-fluroquinolone antibiotic⁴.
- The IDSA guidelines also recommend transitioning to oral antibiotics rather than continuing parenteral therapy in patients who are improving clinically, are tolerating the oral route, and for whom an effective oral option is available⁴.
- Oral antibiotics offer benefits including lower costs, reduced carbon footprint, shorter hospital stays, less nursing workload, and fewer complications (e.g., VTE, line infections)²⁻³.
- We hypothesized that patients admitted with cUTIs at TOH receive longer than recommended courses of IV antibiotics.

AIM

Our aim is to improve adherence to guideline-recommend antibiotic duration (7-days) by 50% at 1- year for patients admitted with cUTIs.

MEASURES

- Retrospective cohort study of patients admitted to Internal Medicine and Family Medicine for cUTIs (as defined by the IDSA criteria for cUTI) between September 2024 and December 2024.
- Exclusion criteria include transition to comfort care, indwelling urinary catheters or complications such as stents, obstructions, stones or abscesses
- Data obtained from MD Clone and Epic Chart Review with preliminary descriptive statistics used to characterize the cohort.
- A survey created in REDCap was developed by a multidisciplinary team—including infectious disease specialists, pharmacists, and internists—and will be administered to general internists, hospitalists, and infectious disease physicians at TOH in the Fall 2025.
- Results will be used to inform an AMS intervention in collaboration with AMS program at TOH.
- The study has received Research Ethics Board exemption and is registered with TOH Quality Improvement Office.

RESULTS

Table 1. Baseline characteristics of patients admitted to hospital for cUTIs	
Total (n = 104)	
Male Sex % (n)	38.4 (40)
Median Age n	80.5
Culture Positive % (n)	
Urine	81.7 (85)
Blood	24 (25)
Comorbidities % (n)	
Active Chemotherapy	0.9 (1)
Immunosuppression	3.8 (4)
CKD	18.3 (19)
Urologic Cancer	9.6 (10)
Recurrent UTIs	27.9 (29)
Indwelling Catheter	1.9 (2)
Length of stay	
Median (IQR)	5 (5.75)

Table 2: Antibiotic Assessment of Random Sample of Patient	
Total (n = 104)	
Durations (days)	
Average course	8.5
Median course	8
Median Day IV to PO Switch	3
Total Extra Days in Hospital	161
Course over 7 Days	
% (days)	55 (57)
Other	
Bacteremias	26
Rate of ESBL (%)	20
Bacteremia and >7 Days Antibiotics %	77

Figure 1. Survey developed to assess clinician's perceived self-adherence to recommendations on early stepdown					
When considering a change in antibiotic therapy from IV to PO therapy for cUTIs, how important are the following clinical variables? (Rate each factor on a scale of 1-5: 1 = Not Important, 5 = Very Important)					
	1	2	3	4	5
Clinical Stability (e.g., resolution of fever, hemodynamic improvement)					
Microbiological Susceptibility Data					
Renal Function (eGFR, creatinine clearance)					
Immunosuppression (transplant recipient, neutropenia)					
Comorbidities					
Previous Hospitalizations in the Last Year					

Please consider your clinical decision making for cUTIs	
What total duration of antibiotics would you usually recommend for cUTIs?	☐ <3 days ☐ 4 – 5 days ☐ 6 – 7 days ☐ 8 – 10 days ☐ > 10 days
In general, do you usually step patients down from IV to PO antibiotics during their admission for cUTIs?	☐ Always ☐ Sometimes ☐ Never
Do you use institutional or national guidelines when deciding on antibiotic duration and step-down therapy for cUTIs?	☐ Always ☐ Sometimes ☐ Never
What additional resources or guidance would help you feel more comfortable transitioning patients to oral antibiotics for cUTIs?	☐ Education Sessions ☐ Infographics ☐ Algorithms ☐ Audit and feedback ☐ Other

PROJECT IMPACT

- Overall, our preliminary results have identified a gap between what the literature recommends and what we are doing in practice.
- The average course of antibiotics for a patient admitted with a cUTI is 8.5 days. 55% of these patients are receiving a course of over 7 days. The median switch from IV to PO antibiotics is 3 days. 161 days could be saved if appropriate duration of antibiotics were given.
- Next steps will include administering our survey to understand perceived prescribing practices amongst physicians at TOH.
- Our planned antimicrobial stewardship interventions include updating and promoting the TOH UTI pathway and algorithm to reflect the IDSA guidelines, create and present education materials on new evidence and conduct audit and feedback on physician practises.
- This has the potential to reduce unnecessary antimicrobial use and decrease the risk of resistance and drug-related complications⁷.

CONCLUSION

We have identified a gap between what the literature recommends and what we are doing in practice. Antibiotic stewardship interventions have the potential to reduce unnecessary antimicrobial use, reduce risk of resistance and drug related complications.

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Evidence of Conflict of Financial Interest

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