**Abstract**

**Purpose**

The purpose of this study is to determine the impact of implementing a health-system treatment guideline for the management of urinary tract infections (UTI), including cystitis and pyelonephritis, in pediatric patients. After treatment guideline implementation, a higher rate of antibiotic treatment regimens that match guideline-directed therapy is expected.

**Methods**

This study is institutional review board exempt. It is a single-center, quasi-experimental evaluation of pediatric patients treated for cystitis or pyelonephritis before and after implementing the health-system’s pediatric treatment guideline for UTI. The guideline was approved by the Antimicrobial Subcommittee and Pharmacy and Therapeutics Committee in April 2020, and subsequently distributed among pediatric healthcare providers. The pre-group includes patients identified from June 2019 to March 2020 and treated for a UTI prior to implementation of the treatment guideline. The post-group includes patients identified from June 2020 to March 2021. Inclusion criteria are age between 60 days and 18 years, and a hospital encounter with treatment for UTI. Exclusion criteria are patients not treated for a UTI, oncology patients, and those with neutropenia, an immunocompromised state, urinary tract abnormality, neurogenic bladder, or recent genitourinary surgery. Baseline characteristics and primary and secondary outcomes will be evaluated with descriptive statistics, student t-test, and Chi-square test using Microsoft Excel.

The primary endpoint is the rate of antibiotic treatment regimens prescribed that match guideline-directed therapy including appropriate drug, dose, and duration. The secondary endpoints are sub-group analyses of the rate of appropriate antibiotic drug, dose, duration, and discharge antibiotic that match guideline-directed therapy, the rate of patients with 30-day hospital readmission for a UTI, and the rate of discharge prescriptions verified by a pharmacist.

**Results**

There was no difference in the rate of antibiotic treatment regimens that matched the guideline between the pre- and post-group (40% vs. 34%, P=0.65). Additionally, there was no difference in the rate of drug, dose, and duration that matched the guideline. Discharge antibiotics matched the guideline at a rate of 30% in the pre-group and 38% in the post-group (P=0.49). The 30-day readmission was the same between both groups (10% vs. 14%, P=0.62). Pharmacist verification of discharge antibiotics significantly increased during the study period (7% vs. 32%, P=0.01).

**Conclusion**

Variability in guideline adherence was primarily due to dosing and duration, especially with the adolescent age group. The treatment duration for cystitis and pyelonephritis differs for pediatrics by age groups. Future plans involve updating and implementing electronic health record (EHR) ordersets and discharge smartsets to improve adherence to recommended dosing and durations.