

## Pre-operative urine testing strategy and infection after ureteroscopy: results from a quality improvement collaborative

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### Introduction and Objectives

Surgical management of stones guidelines from the American Urological Association recommend urinalysis (UA) before ureteroscopy (URS), and urine culture (UC) only if there are clinical or laboratory signs of urinary tract infection (UTI). Some surgeons believe that UA testing alone is insufficient. In the absence of evidence cited in the guidelines, or any large scale real-world practice data on this subject, we sought to characterize post-operative UTI rates and perioperative antibiotic prescribing patterns based on pre-operative urine testing for URS in a surgical collaborative.

### Methods

We identified patients undergoing URS for stones using the Michigan Urological Surgery Improvement Collaborative prospective clinical registry between January 2021 and July 2023. Data abstractors collect information on UA/UC performed within 60 days of URS, prescription for pre-operative and post-operative antibiotics, post-operative UTI, and sepsis. Multivariable logistic regression was used to assess the association between UTI and UA and/or UC testing groups adjusting for patient and surgery factors and antibiotic use.

### Results

15,528 URS procedures were performed across 32 practices. Pre-operative urine testing was performed in 13,975 patients. Of this cohort, UA was done in 5,084 (36%), UC only in 819 (6%), and both UA/UC in 8,072 (58%) patients. Testing with UA only, when positive, was associated with lower rates of pre-operative antibiotic prescription than was positive testing with UC or UA/UC (54% vs. 82% vs 81%,  $p < 0.001$ ), but similar rates of post-operative antibiotics. Post-operative UTI was more common in patients initially tested with UA/UC than those tested with UA alone (2.2 vs. 1.3%,  $p < 0.001$ ; Table). This difference was not statistically significant after controlling for pre- and post-operative antibiotic use and patient characteristics.

### Conclusions

Pre-operative testing with UA only is not associated with an increased risk of UTI or sepsis following URS as compared to UC only or both UA/UC. Our findings validate the AUA guidelines.

	UA only	UC only	Both UA/UC	Chi-Square p-value
Patients	5,084 (36%)	819 (6%)	8,072 (58%)	
Antibiotics				
Pre-operative*	124 (54%)	188 (82%)	2,229 (81%)	<0.001
Discharge	1,879 (37%)	302 (37%)	3,268 (41%)	<0.001
Post-operative				
UTI	64 (1.3%)	13 (1.6%)	178 (2.2%)	<0.001
Sepsis	32 (0.63%)	4 (0.49%)	68 (0.84%)	0.3

**Table:** Antibiotic prescribing and post-operative UTI stratified by pre-operative urine testing strategy.

\*when UA or UC positive

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