

### Understanding Ureteral Access Sheath Use Within a Statewide Collaborative and Its Effects on Surgical Outcomes and Complications

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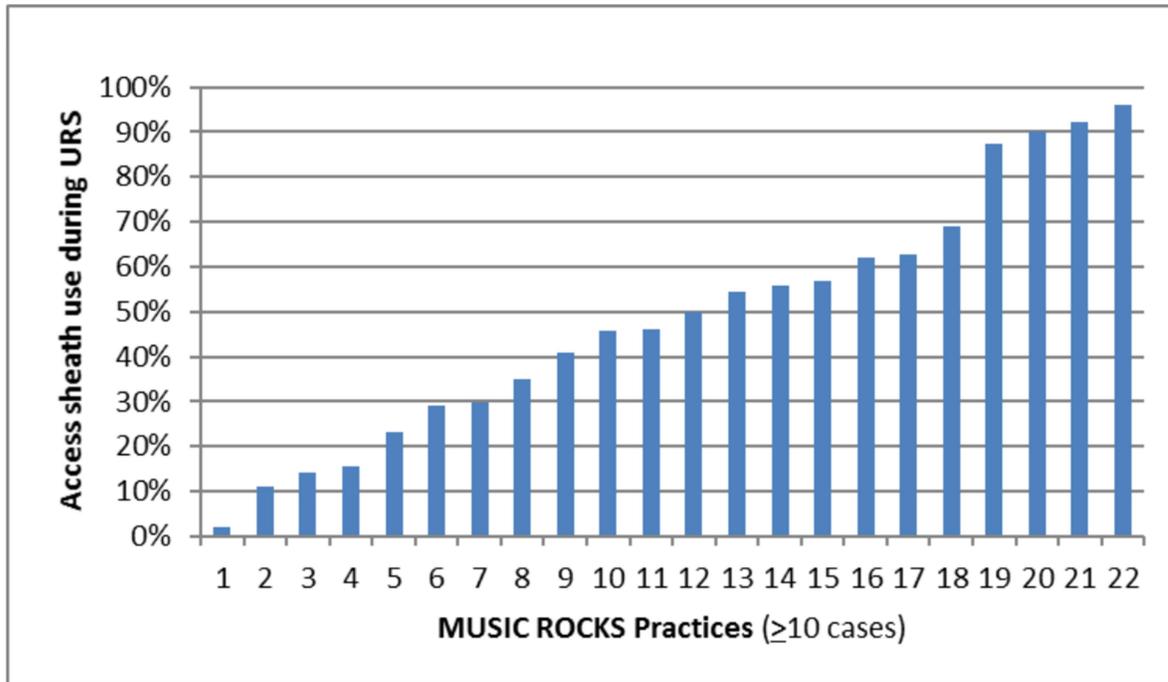
**INTRODUCTION AND OBJECTIVES:** Ureteral Access Sheaths (UAS) represent a major advance in ureteroscopy (URS), but their use is not without risk, cost, and operating room time. UAS have been shown to be safe and beneficial in URS though indications on optimal patient selection may vary. We investigated practice patterns and outcomes for UAS usage within the state of Michigan utilizing data from the Michigan Urological Surgery Improvement Collaborative (MUSIC).

**METHODS:** The MUSIC Reducing Operative Complications from Kidney Stones (ROCKS) initiative focuses on improving patient care by decreasing modifiable emergency department (ED) visits following URS. The ROCKS registry uses trained abstractors who record prospective standardized data for urinary stone patients undergoing URS. We analyzed all patients who underwent a primary URS between June 2016 and July 2018, examining data related to UAS use, complications, readmission rates, and ED visits. Multiple variables were reviewed and subjected to bivariate analysis. Outcomes were analyzed, adjusting for risk factors.

**RESULTS:** The analysis included 5316 URS cases with UAS use in 1969 cases (37.7%). Of that, 47.3% of UAS were used for renal stones and 39.6% for ureteral stones. Frequency of UAS use varied greatly across practices (Figure 1). There were no significant differences in intraoperative complications with UAS usage versus no UAS (1.78% vs 1.51%  $p=0.447$ ). After adjusting for risk factors, there was no difference in hospitalization rates (OR 1.41, 95% CI 0.94-2.10,  $p=0.09$ ) or Stone Free Rates (SFR) (OR 0.79, 95% CI 0.61-1.04,  $p=0.089$ ) between UAS and non UAS groups. There were a higher number of ED visits with UAS use (10.16% vs 7.98%,  $p=0.007$ ) even after adjusting for risk factors (OR 1.37, 95% CI 1.05-1.79,  $p=0.020$ ).

**CONCLUSIONS:** Though a difference in intraoperative complications was not found, higher rates of ED visits were noted in patients undergoing URS with a UAS. Our findings demonstrate the use of UAS in URS is not without risk and should be used judiciously. Optimal patient selection parameters have not yet been determined, but this data helps to craft guidance on UAS use.

**Source of Funding:** Blue Cross Blue Shield of Michigan



**Figure 1:** Access sheath usage among practices ( $\geq 10$  cases) during URS