

Reducing Operative Complications from Kidney Stones (ROCKS): Understanding emergency department visits after ureteroscopy in a statewide collaborative

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INTRODUCTION AND OBJECTIVES: Emergency department (ED) visits after ureteroscopy (URS) for urinary stones are significant events for patients and providers. To inform future efforts targeted at reducing ED visits, we assessed their frequency and drivers using clinical registry data from the Michigan Urological Surgery Improvement Collaborative (MUSIC).

METHODS: Reducing Operative Complications from Kidney Stones (ROCKS) is a quality improvement (QI) initiative from MUSIC involving 11 diverse urology practices consisting of 64 urologists in Michigan. For patients with upper tract stones undergoing URS, trained abstractors prospectively record standardized data elements from the health record in a web-based registry including demographics, comorbidity, stone characteristics, and surgical details. We identified all patients undergoing a primary URS treated between August 2016 and September 2017. We determined the proportion that had an ED visit within 30 days of surgery, and we evaluated preoperative and operative factors associated with such a visit.

RESULTS: 1278 URS procedures were analyzed. At the time of surgery, 36% had an indwelling ureteral stent. Usage of ureteral access sheaths and fragment retrieval were 39% and 60%, respectively. Post-operative ureteral stents were placed in 74% (practice variation 44% to 98%). The overall ED visit rate was 9.2%. Frequency of ED visits among 9 practices performing >10 cases varied from 2.5% to 12.2% (Fig. 1a). Most (73%) ED visits occurred in the first 7 days. Factors significantly associated ($p<0.01$) with higher rates of ED visits included patient comorbidity, positive preoperative urine culture, renal (vs ureteral) stone location, ureteral dilation at time of surgery, placement of stent on string, and presence of residual fragments. Flank pain/hematuria/urinary symptoms accounted for 42% of ED visits, and of these, 73% had a stent placed after URS (Fig. 1b).

CONCLUSIONS: Nearly 1 in 10 patients among diverse urology practices in Michigan visit the ED within 30 days after URS. Our analysis reveals that nearly half of these encounters are related to stent-related symptoms and postoperative pain. QI efforts to educate patients on what to expect after surgery and those that optimize medical management may help reduce these visits.

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Figure 1a. ED visit rate after URS in MUSIC practices
(line indicates overall rate of 9.2%)

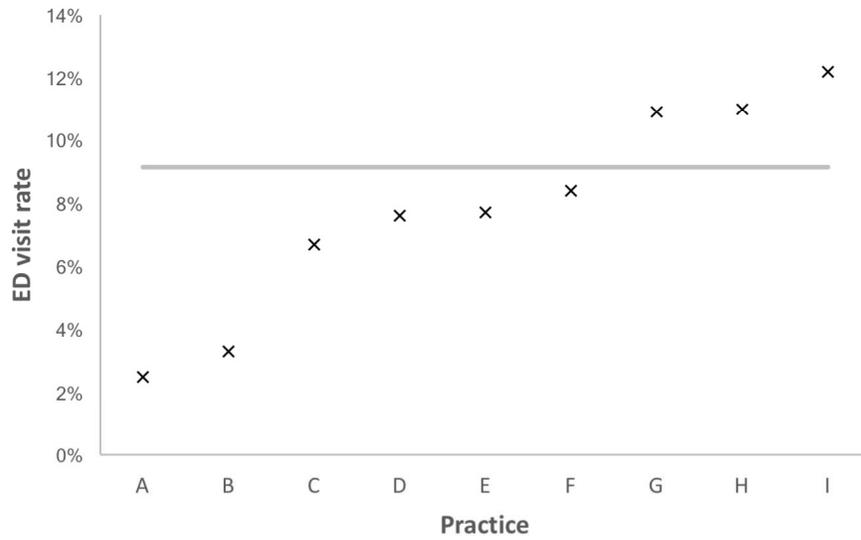


Figure 1b. Reasons for ED visits in MUSIC practices

