

**Supplementary Table 1.** Association between patient and geographic characteristics and receipt of MET among eligible visits, multivariable model (nationally representative estimates).

Characteristic	Receipt of MET Odds Ratio (95% CI)	<i>P</i> Value
Age	1.01 (0.997—1.02)	0.14
Female	0.47 (0.30—0.73)	<0.001
Region		
Northeast	reference	
Midwest	1.66 (0.81—3.39)	0.36
South	1.15 (0.60—2.21)	
West	0.81 (0.37—1.79)	
Household Income		
Quartile 1	reference	
Quartile 2	1.32 (0.62—2.82)	0.78
Quartile 3	1.19 (0.58—2.43)	
Quartile 4	1.00 (0.44—2.25)	
Education <sup>a</sup>		
Quartile 1	reference	
Quartile 2	1.08 (0.58—2.01)	0.69
Quartile 3	1.20 (0.61—2.37)	
Quartile 4	1.46 (0.76—2.80)	

<sup>a</sup>% adults with Bachelor's degree in patient's ZIP code, quartile

## **eMethods**

### *Outcome Definition*

To assess guideline adherence, we examined three discrete outcomes implicit in current guidelines. These guidelines recommend urinalysis, assessment for signs of infection or sepsis (i.e., leukocytosis), and assessment of renal function.<sup>1</sup> We defined adherence with laboratory testing guidelines as an encounter where a patient underwent a complete blood count (assess for signs of sepsis<sup>1</sup>), measurement of serum creatinine (assess renal function<sup>1</sup>) and urinalysis (assess for bacteriuria).<sup>1</sup> The NHAMCS-ED survey specifically records for every visit in the survey sample whether each of these services was provided.<sup>2</sup> We then created a composite endpoint defined as 'yes' if the encounter included all of the specified laboratory testing, and 'no' if any of the three tests was omitted.

We measured adherence to imaging guidelines<sup>3</sup> by the performance of a CT scan during the visit. The NHAMCS-ED data do not specify the CT scan site (e.g., chest, abdomen, pelvis), other than recording that it was not a CT scan of the head.<sup>2</sup> Those encounters which included a CT scan of a system other than the head were considered guideline-adherent. As a pre-specified sensitivity analysis, we identified visits in which an ultrasound or plain x-ray was performed; guidelines suggest these may be appropriate in certain circumstances.<sup>3</sup>

We identified MET utilization as prescription of an alpha-blocker or a calcium channel blocker, using established algorithms for this dataset.<sup>4,5</sup> The NHAMCS-ED dataset

records up to 8 medications prescribed during the encounter or at discharge, including an indicator variable to specify medications prescribed at discharge. MET represents an off-label use of these medications, and therefore patients with diagnostic codes for hypertension or benign prostatic hyperplasia were excluded from the eligible population for this endpoint.<sup>4</sup> Likewise, guidelines state that patients given a trial of MET should have preserved renal function and no signs of sepsis. Therefore, we excluded ineligible patients using established algorithms.<sup>4,5</sup> We also excluded patients with recorded temperatures >101.0 degrees Fahrenheit and those admitted to the hospital. As a pre-specified sensitivity analysis, we repeated the analysis only among those with a highly specific ICD-9 code (592.1) for ureteral stones.<sup>6</sup> No patients in the MET cohort were admitted to hospital or underwent procedural intervention.

### *Sensitivity Analyses*

We performed two pre-specified sensitivity analyses to address the potential influence of information from prior encounters on guideline adherence for the encounters included in the present analysis. First, we repeated the analysis only among those subjects experiencing the first episode of care for the suspected kidney stone, as reported by NHAMCS. A second sensitivity analysis was performed among those patients undergoing their first episode of care for the suspected stone, and who had not been seen for any reason within 72 hours prior to the recorded encounter. In addition, we performed two additional *post-hoc* sensitivity analyses. First, we repeated the analysis among only those subjects with a principal diagnosis for a urinary stone. Second, we repeated the entire analysis only among those patients with a diagnostic code of 592.1,

which is specific, but not sensitive, for ureteral stones.<sup>6</sup> Given that the results were not substantially different from the main analysis, and these subgroups reduced statistical power and the number of covariates available for analysis (due to NCHS guidelines), we report results for the main cohort, or the MET-eligible cohort, as applicable (eMethods Table).

**eMethods Table.** Comparison of adherence, by sensitivity analysis subgroup.

<b>Subgroup</b>	<b>Labs</b>	<b>Imaging</b>	<b>MET</b>
Any episode of care (Main analysis)	40%	63%	14%
First episode for complaint	40%	66%	14%
First episode for complaint & not seen within 72 hour prior	41%	66%	14%
Principal stone diagnosis	40%	64%	14%
Diagnosis code 592.1 only	46%	75%	17%

## References

1. Preminger GM, Tiselius HG, Assimos DG, et al. 2007 guideline for the management of ureteral calculi. *J Urol*. Dec 2007;178(6):2418-2434.
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