

**Table 2 Univariable and multivariable analyses for 28-day mortality**

Univariable	Factor	P value	Odds ratio	95% CI
Age	Continuous	0.053	1.054	0.999–1.112
Sex	Male	0.621	0.752	0.243–2.328
<b>Performance status</b>	Continuous	<b>0.005</b>	1.794	1.190–2.705
Urolithiasis	Positive	0.173	0.239	0.030–1.875
<b>DIC</b>	Positive	<b>0.005</b>	4.848	1.594–14.75
<b>SIRS score</b>	Continuous	<b>0.210</b>	1.475	0.803–2.710
<b>qSOFA score</b>	Continuous	<b>&lt;0.001</b>	4.230	2.103–8.506
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Multivariable	Factor	P value	Odds ratio	95% CI
<b>Performance status</b>	Continuous	<b>0.043</b>	1.575	1.014–2.447
DIC	Positive	0.128	2.827	0.741–10.79
<b>SIRS score</b>	Continuous	<b>0.877</b>	1.050	0.566–1.949
<b>qSOFA score</b>	Continuous	<b>0.018</b>	2.612	1.177–5.797

Source of Funding: None

**IP48-05  
EXTENDED-SPECTRUM BETA-LACTAMASE-PRODUCING E. COLI IN PYELONEPHRITIS: TRIPLING HOSPITAL STAY—THE CLINICAL AND SYSTEMIC COST OF ANTIMICROBIAL RESISTANCE**

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**INTRODUCTION AND OBJECTIVES:** The effective management of Acute Pyelonephritis (APN) is compromised by the escalating prevalence of multidrug-resistant uropathogens. The production of Extended-Spectrum Beta-Lactamases (ESBL) by E. coli has invalidated standard empirical regimens, demanding a critical reassessment of our therapeutic paradigm. Inadequate therapy is demonstrably linked to increased morbidity. Therefore, our primary objective was to rigorously quantify the clinical impact of ESBL resistance by analyzing microbiological profiles and the critical effect on the duration of hospital stay within a cohort of hospitalized APN patients.

**METHODS:** A retrospective, observational study was conducted on a cohort of 40 consecutive patients hospitalized with a confirmed diagnosis of APN. Data collection included demographic variables, comorbidities, laboratory parameters, and results from urine cultures. We documented the isolated microorganism, susceptibility profile, and ESBL status. Furthermore, we recorded radiological findings, with specific reference to the Huang classification, administered antimicrobial therapy, and the recorded duration of hospital stay in days. Descriptive statistical analysis compared outcomes based on antimicrobial susceptibility.

**RESULTS:** The analysis showed a high 70% culture positivity rate. ESBL-producing E. coli was the predominant uropathogen, isolated in 22 cases (55% of isolates). The resistance profile was severe: 100% resistance to fluoroquinolones and 81.8% to third-generation cephalosporins. Clinical severity was high, reflected by 92.5% incidence of Emphysematous Pyelonephritis (Huang I) and a 65% prevalence of Diabetes Mellitus. While carbapenems were the empirical choice in 67.5% of cases, the average hospital stay was 12.7 days. Crucially, resistance significantly prolonged the stay: 16.3 days for resistant organisms versus 5.9 days for susceptible strains. This disparity demonstrates that antimicrobial resistance nearly triples the length of patient hospitalization.

**CONCLUSIONS:** The exceptionally high 55% prevalence of APN caused by ESBL-E. coli necessitates the cessation of empirical cephalosporin and quinolone use. Antimicrobial resistance is the most significant independent factor determining resource utilization and patient recovery time, resulting in a threefold increase in hospital stay duration. These findings unequivocally support the immediate,

empirical use of carbapenems in patients with APN, particularly those with established risk factors for resistance. This strategy is essential for reducing patient morbidity and mitigating the substantial systemic burden.

Source of Funding: None

**IP48-06  
VARIABILITY IN PRE- AND POST-OPERATIVE ANTIBIOTIC PRESCRIPTION RATES AND IMPACT ON INFECTION OUTCOMES AFTER URETEROSCOPY**

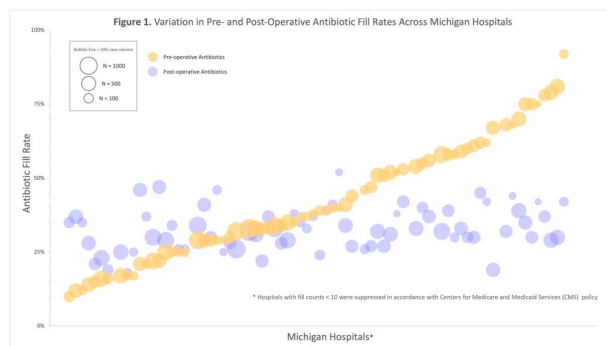
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**INTRODUCTION AND OBJECTIVES:** Antibiotics are often prescribed before or after ureteroscopy (URS) to prevent postoperative infections. However, practice patterns vary widely due to limited high quality evidence and unclear guidelines. We aimed to characterize hospital-level variability in antibiotic prescription rates and examine their associations with infection-related outcomes.

**METHODS:** Using Michigan statewide claims data, patients who underwent URS from January 2018 to December 2023 were identified. Antibiotic prescription rates were calculated 30 days pre-operatively and 14 days post-operatively. We examined hospital-level associations between prescription rates and 30-day urinary tract infection (UTI) related admissions using weighted regression and compared outcomes between hospitals in the highest versus lowest quartiles of prescription rates.

**RESULTS:** A total of 24,058 ureteroscopies were performed across 57 hospitals, with URS volumes ranging from 101 to 1,380 cases. Antibiotic use varied widely, with preoperative prescription rates ranging from 18.3% to 46.9%, and postoperatively from 10% to 81.0% (Figure 1). Thirty-day UTI-related admissions occurred in 418 patients (1.7%). Prescription rates were not associated with 30-day UTI admissions for either pre- or postoperative antibiotics (Figure 2). Hospital URS volume was not associated with pre- or postoperative antibiotic fill rates ( $R^2 = 0.016$  and  $0.054$ , respectively). There was no evidence of differences in admission rates between hospitals in the highest and lowest prescription quartiles (pre-op 1.8% vs 1.7%; post-op 1.5% vs 1.8%).

**CONCLUSIONS:** Antibiotic prescription practice patterns before and after URS varies widely across Michigan. Higher hospital-level antibiotic prescription rates were not associated with reduced 30-day UTI-related admissions. These results suggest that many patients may be exposed to unnecessary antibiotics, underscoring the need for more evidence-based prescribing protocols and antimicrobial stewardship efforts in the perioperative setting.



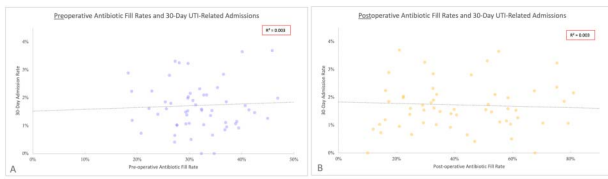


Figure 2. Hospital-level associations between preoperative (A) and postoperative (B) antibiotic fill rates and 30-day UTI-related admissions

**Source of Funding:** Data was provided by the Michigan Value Collaborate which is funded by Blue Cross Blue Shield of Michigan

**IP48-07  
ADJUVANT IMMUNOMODULATION FOR THE PREVENTION OF RECURRENT URINARY TRACT INFECTIONS. (AIPIRUTI PILOT STUDY)**

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**INTRODUCTION AND OBJECTIVES:** Recurrent urinary tract infections (rUTIs) are a common challenge, often requiring repeated antibiotic use and significantly impacting quality of life. This study aimed to evaluate the impact of adding immunomodulation with an oral formulation of inactivated bacterial lysates (Contains inactivated lysates of 14 types of bacteria) to standard antibiotic regimens and adjunctive therapies in patients with rUTIs, assessing recurrence reduction, symptom improvement, and quality of life.

**METHODS:** This ambispective cohort study included 25 patients (87.5% female; age 38–78) with documented rUTIs. All had received repeated antibiotic therapy plus D-mannose (2100 mg/day) and Phytonutrient, symbiotic, immunonutrient over 18 months. In March 2024, immunomodulation with inactivated bacterial lysates was initiated and continued for 5 months. Patients were hospitalized for two days for intravenous antibiotic initiation, followed by 5 days of oral therapy, then transitioned to outpatient care with immunomodulation and adjunctive therapy. Evaluations before and after immunomodulation included UTI frequency, dysuria, lower urinary tract symptoms (LUTS), urinalysis (nitrites, leukocyturia, bacteriuria), urine culture results, hospitalizations, and quality of life (ICIQ-UI SF). Statistical analysis included McNemar tests for categorical variables and paired t-tests for continuous outcomes.

**RESULTS:** After 5 months of immunomodulation: Mean UTI episodes dropped from 4 to 0.5 per patient ( $p < 0.001$ ). Dysuria decreased from 80% to 20% ( $p = 0.004$ ). LUTS fell from 85% to 15%. Urine culture positivity reduced from 88% to 16% ( $p < 0.0001$ ), mainly involving *E. coli* (68%) and *K. pneumoniae* (20%). Abnormal urinalysis decreased from 76% to 24%. Quality of life improved in 80% of patients (vs. 28% before;  $p < 0.001$ ). Hospitalizations fell from 32% to 4%.

**CONCLUSIONS:** The introduction of immunomodulation with inactivated bacterial lysates significantly reduced rUTI episodes, improved urinary symptomatology, and enhanced quality of life in this patient cohort. These findings suggest that immunomodulatory therapy is a promising adjunct to standard care and may represent a shift in the management paradigm of rUTIs. Further randomized controlled trials are warranted to confirm these results.

**Source of Funding:** No disclosures to report

**IP48-08  
AN OUTBREAK OF MULTI-DRUG RESISTANT PSEUDOMONAS AERUGINOSA INFECTIONS FOLLOWING FLEXIBLE URETEROSCOPIC STONE REMOVAL**

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**INTRODUCTION AND OBJECTIVES:** This study aims to report an outbreak of urinary tract infections associated with *Pseudomonas aeruginosa* (PA) patients who underwent surgery using flexible ureteroscopes (FURS) at a single institution.

**METHODS:** Out of 23 patients who underwent FURS by the same surgeon at a single institution between September and December 2024, five patients experienced postoperative febrile episodes necessitating further treatment. Urine cultures revealed an outbreak of multidrug-resistant *Pseudomonas aeruginosa*, leading to an investigation initiated by the hospital's infection control department. The Infection Control Committee initiated a comprehensive environmental culture investigation encompassing surgical instruments, the reprocessing and storage workflow, and the operating room environment.

**RESULTS:** All urine cultures from the febrile patients demonstrated identical antibiotic susceptibility profiles, with three cases occurring in close temporal proximity (Table 1). Although the identical strain was not isolated from the FURS equipment during environmental cultures, PA was detected on the sink and handle in the endoscope cleaning room. Furthermore, deficiencies were identified in the reprocessing procedures, and recommendations were made to improve the FURS reprocessing protocol. After each use, FURS underwent ethylene oxide gas sterilization, and all brushes used during the disinfection process were immersed and dried together with the instrument. The sink where PA was identified was disinfected twice daily, and the handles and brushes were replaced with new ones. The diluted solution bottle, in which a different strain was detected, was immersed in a detergent solution for five minutes each day and then thoroughly dried. In addition, educational efforts for personnel responsible for instrument management were strengthened.

**CONCLUSIONS:** After implementing improvements to the reprocessing protocol, no further infections were reported over the subsequent six months. Given the complexity and difficulty of the FURS reprocessing process, systematic management by trained personnel is essential and ongoing monitoring is necessary to prevent device-associated infections.

Table 1. Overview of 5 patients in order of subsequent post-operative febrile infection

Number	Patient				
	1	2	3	4	5
Age/sex	M/40	M/76	M/59	M/52	M/41
Past history	DM	HTN, DM	None	HTN	None
Operation time (min)	153	110	55	60	30
Position of urinary stone	Impacted upper ureter 15mm	Impacted upper ureter 12mm	Upper ureter 9mm	Impacted upper/mid multiple stone (<11mm)	Upper ureter 6mm
Access sheath use (Y)	Y	Y	Y	N	Y
Date of operation	2024/08/29	2024/09/05	2024/11/21	2024/12/12	2024/12/19
Date of fever/re-admission (ER)	2024/08/31 (fever) 2024/09/19 (ER)	2024/09/09 (ER)	2024/11/25 (ER)	2024/12/16 (ER)	2024/12/22 (ER)
Post-OP urine/blood culture	<i>P. aeruginosa</i> / NG	<i>P. aeruginosa</i> / NG	<i>P. aeruginosa</i> / NG	<i>P. aeruginosa</i> / NG	<i>P. aeruginosa</i> / NG
Treatment	Ciprofloxacin → Ceftazidime / Abibactam	Tazobactam → Ciprofloxacin	Ciprofloxacin	Tazobactam → Ciprofloxacin	Tazobactam → Ciprofloxacin
Hospitalization duration (day)	14	7	0	7	5
<b>Antibiotic susceptibility</b>					
Ciprofloxacin (MIC)	S (0.5)	R (≥4)	S (0.5)	(-)	S (0.5)
Imipenem (MIC)	R (≥16)	R (≥16)	R (≥16)	(-)	R (≥16)
Meropenem (MIC)	I (4)	R (≥16)	I (4)	(-)	I (4)
Piperacillin/Tazobactam (MIC)	S (≤4)	R (≥128)	S (≤4)	(-)	S (≤4)

MIC : minimum inhibitory concentration, S :susceptible, I: intermediate, R: resistance

**Source of Funding:** None