EC from UTIs in the United States and 11 countries in Europe (EU) in 2017 and the impact of co-resistance to oral agents used to treat UTIs.

Methods. 2422 unique EC from UTIs in the United States and EU in the SENTRY Surveillance program were evaluated for susceptibility to various agents. All isolates were consecutively collected and centrally tested by CLSI methods and interpretive criteria. Isolates that met ESBL MIC screening criteria were characterized for the presence of β-lactamase genes.

Results. Among the 2422 isolates of EC from UTI's in the United States and EU the resistance (R) rates for cefuroxime (CEF), levofloxacin (LEV) and TMP-SMX were 17.9%, 25.6% and 33.2%, respectively. The overall prevalence of ESBL phenotypes was 18.2% (18.7% in the United States and 21.0% in EU). Among the 411 ESBL phenotypes, R to CEF, LEV and TMP-SMX were: 94.3%, 70.6%, and 61.6%, respectively. In contrast, <0.1% of all EC or 0.2% of ESBL EC were meropenem (MER)-R. Only two carbapenemase-producing organisms were identified, an NDM-5- and a KPC-2-producing EC from Turkey and Greece, respectively. The CTX-M-15 was the most prevalent ESBL and identified among 167 isolates; with co-resistance to CEF, LEV and TMP-SMX noted in 100%, 82.6% and 70.7%, respectively. All CTX-M-15 isolates were susceptible to MER.

Conclusion. Oral agents such as CEF, LEV, and TMP-SMX exhibit R rates ≥17.9%. Co-resistance to CEF, LEV, and TMP-SMX were considerably higher among ESBL phenotypes (>61.1%) and confirmed $bla_{\text{CTX-M-15}}$ genotypes (70.7%). In contrast, the carbapenems remained active against ESBL phenotypes and genotypes, such as $bla_{\text{CTX-M-15}}$. New oral agents with the spectrum and potency of the carbapenems would address an unmet need for new options to treat multi-drug-resistant EC UTIs.

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1466. Alkaline Urine: A Cause for Urinary Tract Infection Recurrence

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Background. Urinary tract infections (UTIs) are one of the most common indications for antibiotics in both the inpatient and outpatient setting. The purpose of this study was to examine the impact of urinary pH on recurrence of UTIs. A recent review article stated imaging should be considered for patients with a urinary pH of 7 or higher. This study examines the impact of pH on outcomes of patients with UTI to determine whether pH plays a role in recurrent infection and representations to the healthcare facility.

Methods. This was a retrospective chart review via the computerized patient record system. Patients over the age of 18 years who presented to the healthcare facility between January 1, 2005 to January 1, 2019 for treatment of UTIs were included in this study. Alkaline urine was defined as a urinary pH greater than or equal to 7, while acidic urine was defined as a urinary pH less than 7. Urease splitting organisms included *Proteus* spp., *Providencia* spp., and *Morganella* spp. Outcomes included recurrence and re-presentation to the healthcare facility within 30 days.

Results. A total of 793 patients were included in this study, of which 21.3% had alkaline urine. Patients with alkaline urine were more likely to have recurrence of UTI (8.3% vs. 4.3%). Patients with a catheter were more likely to have alkaline urine (30% vs 18%; $P = 0.0005$). As expected, alkaline urine was associated with a higher frequency of urease splitting organisms (19% in alkaline urine vs. 3% in acidic urine). Renal calculi were found in 3.6% of patients with alkaline urine; however, only 34.3% of patients with alkaline urine had imaging completed. The use of drugs which can alkalinize the urine did not differ significantly between groups.

Conclusion. Patients with an alkaline urinary pH were more likely to experience recurrence and readmission within 30 days. Imaging was performed in a minority of patients which may represent a potential target for stewardship programs. Alkaline urine may be a marker for urease splitting organisms and calculi formation. More widespread imaging may be able to detect stones, allowing for potential urologic intervention, preventing subsequent antibiotic courses and repeated healthcare presentations.

Disclosures. **All authors:** No reported disclosures.

1467. Antimicrobial Susceptibility and Molecular Characterization of Extended-Spectrum β-Lactamase of *Escherichia coli* and *Klebsiella pneumoniae* of Urine Samples Isolated from Community Patients in South Brazil

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Background. Enterobacteriaceae is the main pathogens of UTI. It is important to be aware the local epidemiological data for an appropriate initial treatment. Resistance to antimicrobial agents has increased, especially to first-choice antibiotics in the treatment of cystitis. Our objective is to asses the antimicrobial susceptibility profile from uropathogens isolated in community and evaluated the dissemination of extended-spectrum ß lactamase (ESBL), in *E. coli* and *K. pneumoniae* in south of Brazil.

Methods. From June 2016 to June 2017, all urine samples collected in the Basic Health Units and Emergency Departments were sent to a Central Laboratory. Identification and susceptibility tests were performed on the VITEK® 2 (bioMérieux, France) system. Clinical Laboratory Standards Institute (CLSI) breakpoints were used for the interpretation of susceptibility. Positive cultures were defined as those demonstrating $\geq 10^5$ CFU / mL (colony-forming units). The presence of ESBL was also subjected to the Chrom ID BLEE® agar plate test (bioMérieux- Marcyl'Etoile, France). PCR technique uses specific primers for genes bla_{TEM} and bla_{SHV}. Detection of the $bla_{\text{CTX-M}}$ genes was performed by multiplex PCR.

Results. A total of 56,555 microbiologic tests were performed, 8189 were positive. Women were responsible for 89.4%, and 10% were pregnant. Table 1 shows uropathogens isolated. Graphic 1 shows antimicrobial susceptibility. Extended-spectrum ß lactamase production was present in 6.7% (n = 489). People older than 60 years had ESBL more frequent (P <0.05) as well as being pregnant is not related to ESBL (P <0.05). Table 2 shows the distribution of the *bla* genotypes.

Table 3: Distribution of blaCTX-M. Among *bla*CTX-M1 genotype, *bla*CTX-M15 was the most frequent.

Conclusion. In this study, the most frequent uropathogen isolated was *E.* coli followed by *K. pneumoniae.* Cotrimoxazol had high rates of resistance and nitrofurantoin the lowest. Quinolone resistance is more than 10%. Sensitivity to aminoglycosides and carbapenems remains high.We found relevant frequency of ESBL, CTX-M-1-group most commonly found. Among CTX-M-1, *bla*CTX-M15 was the most isolated.

Table 1: Uropathogens isolated

Gram negative		
Uropathogen	**n**	**%**
Escherichia coli	5830	80,2
Klebsiella pneumoniae	696	9,6
Proteus mirabilis	335	4,6
Citrobacter koseri	106	1,5
Enterobacter sp	148	2,0
Morganella morganii	49	0,7
Klebisiella oxytoca	33	*0,5*
Citrobacter freundii	23	0,3
Serratia marcescens	20	0,3
Others	27	1.0
TOTAL	**7267**	**87,8**
Gram positive		
Uropathogen	**n**	**%**
Staphylococcus saprophyticus	375	4.4
Staphylococcus aureus	82	1.0
Streptococcus agalactiae	203	2.4
Enterococcus faecalis	178	2.1
Others	168	2.0
TOTAL	**1005**	**12,1**
Non-fermenter		
Uropathogen	**n**	**%**
Pseudomonas aeruginosa	75	0.8
Acinetobacter baumannii	4	0.0
TOTAL	**78**	**0,8**

GRAPHIC 1- Antimicrobial susceptibility

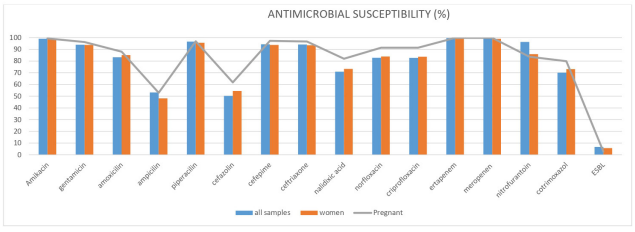

Table 2. Distribuition of the *bla* genotypes of 489 isolates, between ESBL producing *E. coli* and *K. pneumoniae* positive urine samples.

bla genotypes	*E. coli* (n=330)		*K. pneumoniae* (n=159)		TOTAL (n=489)	
	Frequency	%	Frequency	%	Frequency	%
blaTEM	4	1.2	6	3.8	10	2.0
*bla*SHV	9	2.8	1	0.6	10	2.0
*bla*TEM + *bla*SHV	12	3.6	1	0.6	13	2.7
*bla*CTX-M	137	41.5	75	47.2	212	43.4
*bla*TEM + *bla*CTX-M	43	13.0	23	14.5	66	13.5
*bla*SHV + *bla*CTX-M	58	17.6	8	5.0	66	13.5
*bla*TEM + *bla*SHV + *bla*CTX-M	39	11.8	28	17.6	67	13.7
ND	28	8.5	17	10.7	45	9.2

ND: Not determined. Total (*E. coli*) *bla*TEM= 98; *bla*SHV= 118; *bla*CTX-M= 277. Total (*K. pneumoniae*) *bla*TEM= 58; *bla*SHV= 38; *bla*CTX-M=134.

Table 3. Distribuition of the blaCTX-M genotypes from ESBL-producing E. coli and K. pneumoniae.

*bla*CTX-M genotypes	*E. coli* (n=330)		*K. pneumoniae* (n=159)	
	Frequency	%	Frequency	%
*bla*CTX-M1	165	50.0	86	54.1
*bla*CTX-M1 + *bla*CTX-M2	4	1.2	1	0.6
*bla*CTX-M1 + *bla*CTX-M2 + *bla*CTX-M9	1	0.3	0	0
*bla*CTX-M1 + *bla*CTX-M25	3	0.9	0	0
*bla*CTX-M1 + *bla*CTX-M9	8	2.4	3	1.9
*bla*CTX-M2	22	6.6	3	1.9
*bla*CTX-M2+ *bla*CTX-M9	8	2.4	4	2.5
*bla*CTX-M25	1	0.3	4	2.5
*bla*CTX-M8	1	0.3	1	0.6
*bla*CTX-M8 + *bla*CTX-M9	0	0	1	0.6
*bla*CTX-M9	65	19.7	29	18.2
*bla*CTX-M9 + *bla*CTX-M25	0	0	1	0.6

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1468. Determination of Antibiotic Susceptibilities in *Aerococcus urinae* Urinary Isolates

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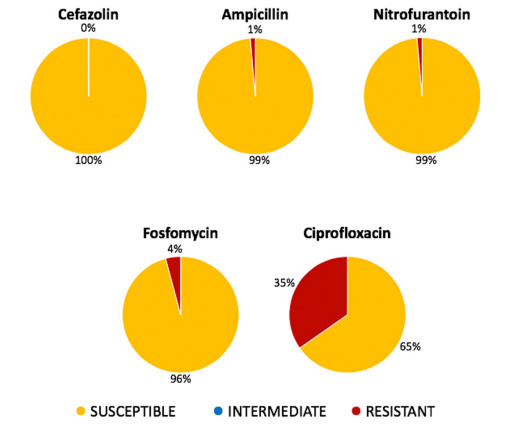
Background. *Aerococcus urinae* is a Gram-positive organism, initially identified in 1992. It is known to cause urinary tract infections (UTIs), bacteremia, and endocarditis in humans. There is limited data regarding the susceptibility of *A. urinae* to first-line antimicrobials indicated for the treatment of UTIs. In 2016, *A. urinae* was isolated in 125 urine samples processed by the Integrated Hospital Laboratories Service, which services four hospitals in Southwestern Ontario, Canada. The unfamiliarity with this organism and the lack of local antimicrobial susceptibility rates presents a challenge for clinicians and often results in the unnecessary use of broad-spectrum antibiotics. The primary objective of this study was to establish the susceptibility rate of *A. urinae* urinary isolates to cefazolin, ampicillin, nitrofurantoin, fosfomycin, and ciprofloxacin. The secondary objective was to identify demographic characteristics associated with *A. urinae* bacteriuria in our patient population.

Methods. Urinary samples received by the laboratory from October 2017 to June 2018 underwent routine identification as per physician orders. Samples that grew *A. urinae* were included in this study and subjected to susceptibility testing. Susceptibility testing was conducted via disk diffusion and results were interpreted based on published breakpoints for zone diameters.

Results. A total of 72 isolates were included. Susceptibility rates for cefazolin, ampicillin, nitrofurantoin, fosfomycin, and ciprofloxacin were 100%, 99%, 99%, 96%, and 65%, respectively. The average age of patients was 79 years, 63.9% were female, 31.9% were recently hospitalized, and 44.4% were residents of a long-term care facility.

Conclusion. Cefazolin, ampicillin, nitrofurantoin, and fosfomycin demonstrated good *in vitro* activity against *A. urinae*. In contrast, ciprofloxacin demonstrated decreased activity against this organism. Currently recommended first-line agents for the management of uncomplicated UTIs could be utilized to treat this organism. Characteristics of patients with *A. urinae* bacteriuria are consistent with risk factors predisposing to UTIs.

Figure 1. *Aerococcus urinae* susceptibility rates (n = 72)



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1469. Effect of Treatment Duration on Outcomes in Septic Patients Admitted for Urinary Tract Infections from Extended Care Facilities

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Background. Adults in extended care facilities (ECFs) are at an increased risk of urinary tract infections (UTIs) with sepsis and there are little data on effective antibiotic duration. The purpose of this project was to assess the impact of inpatient antibiotic duration on clinical outcomes in these patients.

Methods. A single-center, retrospective study of adult, ECF, septic UTI patients from 5/1/16 to 4/30/18 were included. In-hospital mortality, 30-day readmission rate, and length-of-stay (LOS) were compared based on the effective antibiotic duration of short- and long-term therapies (≤ 5 and > 5 days, respectively). Pregnant and asymptomatic bacteriuria patients were excluded. Demographics, Charlson Weighted Index of Comorbidity (CWIC), presence of indwelling catheter, SIRS criteria, microbiologic results and antibiotic regimen were collected. Continuous variables were analyzed using Student's t-test and categorical variables with Chi-square test.

Results. 105 of 1,158 ECF patients met the inclusion criteria. 38 patients received ≤ 5 days of effective antibiotic therapy, and 67 received > 5 days. Baseline demographics were similar, except the ≤ 5 days group were older and less likely to have fever (see table). In-hospital mortality was 18.4% in the short-term antibiotic group and 6.0% in the long-term group. Overall 30-day readmission was not significantly different. LOS was significantly greater in the > 5 day overall and non-bacteremia group.

Conclusion. Duration of antibiotics (≤ 5 and > 5 days) did not significantly affect 30-day readmission and in-hospital mortality; however, LOS was significantly longer in the > 5 days group. Further studies are needed to confirm these findings.

	Antibiotic duration ≤ 5 days (n = 38)	**Antibiotic duration > 5 days** (n = 67)	**p-value**
Mean Age ± SD	72.9 ± 14.2	67.2 ± 13.5	**0.044**
Males, n (%)	24 (63.2)	40 (59.7)	0.888
Mean CWIC ± SD	2.1 ± 1.6	2.1 ± 1.7	0.187
SIRS Criteria, n (%)			
Tachycardia	29 (76.3)	59 (88.1)	0.196
Fever	12 (31.6)	37 (55.2)	**0.033**
Hypotension	5 (13.2)	7 (10.4)	0.920
Tachypnea	30 (78.9)	50 (74.6)	0.794
WBC count	32 (84.2)	46 (68.7)	0.129
Foley Catheter, n (%)	28 (73.7)	40 (59.7)	0.219
Urine Cultures, n (%)			
E. Coli	12 (31.6)	27 (40.3)	
Proteus Mirabilis	2 (5.3)	8 (11.9)	
Pseudomonas	5 (13.2)	6 (9.0)	
Klebsiella pneumoniae	2 (5.3)	5 (7.5)	
Other	18 (47.4)	17 (25.4)	
Bacteremia, n (%)	8 (21.1)	28 (41.8)	0.053
Secondary to UTI, n (%)	5 (13.2)	19 (28.4)	0.123
Mean duration of effective therapy	3.1 ± 1.9	11.2 ± 6.2	**<0.0001**
LOS (days) ± SD	6.2 ± 4.5	9.2 ± 6.0	**0.009**
Bacteremia	9.5 ± 6.9	8.3 ± 5.4	0.606
Non-Bacteremia	5.3 ± 3.2	9.8 ± 6.3	**0.0007**
In-Hospital Mortality, n (%)	7 (18.4)	4 (6.0)	0.095
Bacteremia	2 (28.6)	2 (50.0)	0.436
Non-Bacteremia	5 (71.4)	2 (50.0)	0.241
30-day Readmission, n (%)	12 (31.6)	17 (25.4)	0.648
Bacteremia	3 (25.0)	5 (29.4)	0.486
Non-Bacteremia	9 (75.0)	12 (70.6)	0.945

Disclosures. **All authors:** No reported disclosures.