cohort included 100 patients, the median age was 74 years, 48% were male, the most common colonized site was rectum (37%) and 20 patients (20%) developed subsequent CRE-associated infections. The median time from colonization to infection was 13 days and the most common site of infection was bloodstream (45%). Independent factors associated with subsequent CRE-associated infections were the number of colonization sites [adjusted odds ratio (aOR) 7.98, $P < 0.001$)], central line insertion during admission (aOR 7.97, $P = 0.009$) and receipt of vancomycin during admission (aOR 24.77, $P = 0.02$). Prolonged colonization was observed in 13 of 77 evaluable patients (17%). There were trends toward significance that the length of hospital stay and duration of antibiotic prior to colonization were associated with prolonged colonization ($P < 0.10$).

Conclusion. The findings suggest high rates of subsequent CRE-associated infections and prolonged colonization among the study population. Patients with risk factors for subsequent infections should be closely monitored and empirically-treated with antibiotics active against CRE while those with risk factors for prolonged colonization should receive continued surveillance and isolation to prevent CRE transmission.

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

500. Prevalence of Extended-Spectrum β-lactamase and Carbapenem-Resistant Gram-Negative Bacteria in Patients with Urinary Tract Infection and Urosepsis Admitted through Emergency Departments in the United States

Sukhjit Takhar, MD, MS[1]; Anusha Krishnadasan, PhD[2]; Gregory J. Moran, MD, FACEP[2]; William Mower, MD, PhD[3]; Kavitha Pathmarajah, MPH[2]; Eva Gonzalez, BA[2]; Julia Vargas, BS[2] and David A. Talan, MD[2]; [1]Mills-Peninsula Medical Center, Burlingame, California; [2]Olive View-UCLA Medical Center, Sylmar, California; [3]David Geffen School of Medicine at UCLA, Los Angeles, California

Session: 54. HAI: MDRO – GNR Epidemiology, CRE
Thursday, October 3, 2019: 12:15 PM

Background. Gram-negative infections due to extended-spectrum β-lactamase (ESBL)-producing Enterobacteriaceae, and carbapenem-resistant Enterobacteriaceae (CRE) and non-fermenting (CR-NF) strains, are increasingly encountered. Study objectives were to determine prevalence and associated risk factors and outcomes for these strains among emergency department patients hospitalized for urinary tract infection (UTI) at 11 US hospitals.

Methods. This was a prospective observational study of patients ≥18 years hospitalized for UTI. Clinical data were collected at the index visit. Urine was obtained for culture and susceptibility testing. Electronic medical record and telephone follow-up were conducted after 30 days for site laboratory results, treatment, and clinical outcomes. Positive culture was defined as 1 uropathogen with growth at $\geq 10^4$ cfu/mL, or 2 with 1 or both at $\geq 10^5$ cfu/mL, or ≥3 with 1 or 2 at $\geq 10^5$ cfu/mL. Isolates with ceftriaxone (CRO) or meropenem MIC >1 μg/mL will undergo reference laboratory (IHMA, Inc., Schaumburg, IL) susceptibility testing, including against newer antibiotics and cefiderocol.

Results. We enrolled 774 participants between 2018 and 2019; 289 (37.3%) excluded due to urine culture not done, no growth, or contamination. Of 485 culture-positive participants (median age 56 years, 62.0% female), 432 (89.1%) grew 1 uropathogen, 48 (9.9%) 2, and 5 (1.0%) ≥3. Prevalences of CRO-resistant *Enterobacteriaceae*, CRE, and CR-NF were 19.9%, 2.1%, and 10.7%, respectively. At sites, 95.7% of CRO-resistant *Enterobacteriaceae* isolates were ESBL. Among participants with any or no antibiotic resistance risk factors, i.e., antibiotics, hospitalization, long-term care, or travel within 90 days, prevalence of CRO-resistant Enterobacteriaceae was 68/228 (29.8%) and 10/155 (6.5%), respectively. Among those with CRO-resistant vs. susceptible *Enterobacteriaceae* infections, ICU admission and death occurred in 9.9% vs. 6.6% and 3.7% vs. 1.0%, with median time home over 30 days, 24 vs. 27 days, respectively.

Conclusion. Among US hospitalized patients with UTI, infections due to CRE remain uncommon; however, ESBL and CR-NF now account for a substantial proportion of cases and are associated with resistance risk factors and worse outcomes.

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

501. Risk of Infection in Persons Colonized with Carbapenemase-Producing Enterobacteriales (CPE) in Ontario, Canada

Amna Faheem, MBBS[1]; Alainna Jamal, MD-PhD Candidate[2]; Hassan Kazi, MBBS[1]; Brenda Coleman, PhD[1]; Lubna Farooqi, MBBS[1]; Jennie Johnstone, MD, FRCPC, PhD[1]; Kevin Katz, MD, MSc, FRCPC [3]; Angel Li, MSc[1]; Roberto Melano, MSc, PhD[4]; Samira Mubareka, MD, FRCPC[5]; Matthew P. Muller, MD, FRCPC, PhD[6]; Samir Patel, PhD, FCCM (D) ABMM[7]; Aimee Paterson, MSc[1]; Susan Poutanen, MD, MPH, FRCPC[1]; Anu Rebbapragada, PhD, D(ABMM), FCCM, CIC [8]; David Richardson, MD, FRCPC[9]; Alicia Sarabia, MD, FRCPC[10]; Zoe Zhong, PhD[1] and Allison McGeer, MSc,MD,FRCPC,FSHEA[2]; [1]Sinai Health System, Toronto, ON, Canada; [2]University of Toronto, Toronto, ON, Canada; [3]North York General Hospital, Toronto, ON, Canada; [4]Public Health Ontario, Toronto, ON, Canada; [5]Sunnybrook Health Sciences Centre, Toronto, ON, Canada; [6]St. Michael's Hospital, Toronto, ON, Canada; [7]Public Health Ontario Laboratory, Toronto, ON, Canada; [8]Dynacare, Brampton, ON, Canada; [9]William Osler Health System, Brampton, ON, Canada, [10]Trillium Health Partners, Mississauga, ON, Canada

Session: 54. HAI: MDRO – GNR Epidemiology, CRE
Thursday, October 3, 2019: 12:15 PM

Background. We aimed to assess the risk of subsequent infection among patients colonized by CPE.

Methods. The Toronto Invasive Bacterial Diseases Network (TIBDN) has conducted population-based surveillance for CPE colonization/infection in Toronto and Peel region, Ontario, Canada, since CPE were first identified (2007). All laboratories report all CPE isolates to TIBDN. Clinical data are collected via patient interview and hospital chart review. Initially colonized patients are followed for 5y; subsequent CPE infection is defined as an episode with onset >3 days after initial detection of CPE colonization that meets National Healthcare Safety Network criteria for infection with a clinical isolate of CPE.

Results. From 2007 to 2018, 790 persons with CPE colonization/infection were identified. Among 364 cases colonized at identification, 42 (12%) subsequently had at least one clinical isolate, and 23 (6%) had an infection: 8 with bacteremia (primary or secondary), 7 UTI, 5 pneumonia, and 3 other. The median time from identification of colonization to infection was 21 days (IQR 7–38), with a probability of developing an infection of 7% at 3 months, and 18% by 3 years (figure). In 305 cases with data available to date, older persons, those admitted to the ICU, and those with current/recent invasive medical devices were more likely to develop infection (table). Gender, underlying conditions and other procedures were not associated with risk of infection. There was a trend to infections being more likely in patients colonized with *K. pneumoniae* (52% vs. 35%, $P = 0.13$).

Conclusion. The risk of subsequent infection in our cohort was 18%, with highest risk in the first 3 months; most infections occurred in patients requiring intensive care unit admission and invasive medical devices.

Figure. Cumulative probability of subsequent CPE infection among patients colonized with CPE.

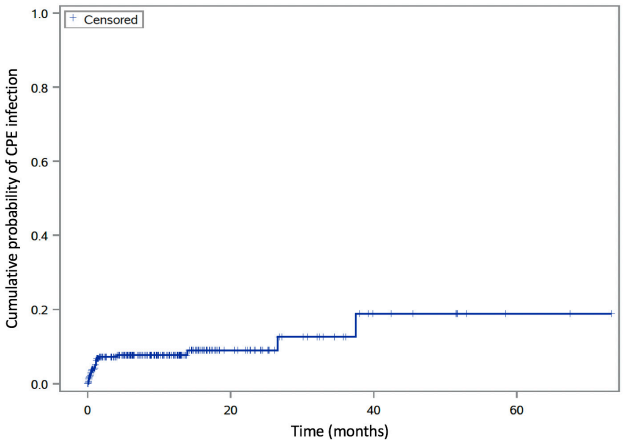

Table. Selected characteristics in patients who did and did not develop infection.

Characteristics	Developed infection n = 18	Colonized only n = 287	*p*
Age, years (median, IQR)	63 (46-72)	69 (55-78)	.03
Transferred from another hospital	7 (39%)	42 (15%)	.007
Invasive devices (current or within last year)			
Central venous line	11 (61%)	60 (21%)	<.001
Chest tube	4 (22%)	9 (3%)	<.001
Urinary catheter	14 (78%)	100 (35%)	<.001
Admitted to ICU	15 (83%)	78 (27%)	<.001
Requiring mechanical ventilation	11 (61%)	38 (13%)	<.001
Receiving hemodialysis	5 (28%)	27 (9%)	.01

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

502. *Klebsiella variicola* Infections in Service Members Who Sustained Trauma in Iraq and Afghanistan

John L. Kiley, MD[1]; Katrin Mende, PhD[2]; Miriam Beckius, MPH[3]; Susan Kaiser, BS[3]; M. Leigh. Carson, MS[4]; Dan Lu, MS[4]; Timothy Whitman, DO[5]; Joseph Petfield, MD[6]; David Tribble, MD, DrPH[7]; Dana M. Blyth, MD[1] and Dana M. Blyth, MD[1]; [1]Brooke Army Medical Center, San Antonio, Texas; [2]Infectious Disease Clinical Research Program, Bethesda, MD, The Henry M. Jackson Foundation, Bethesda, MD, and Brooke Army Medical Center, Fort Sam Houston, San Antonio, Texas; [3]Brooke Army Medical Center, JBSA Fort Sam Houston, San Antonio, Texas; [4]Infectious Disease Clinical Research Program, Department of Preventive Medicine and Biostatistics, Uniformed Services University of the Health Sciences, Bethesda, Maryland, ; [5]Walter Reed National Military Medical Center, Bethesda, Maryland, ; [6]Landstuhl Regional Medical Center, Landstuhl, Rheinland-Pfalz, Germany; [7]Uniformed Services University, Bethesda, Maryland

Session: 54. HAI: MDRO – GNR Epidemiology, CRE
Thursday, October 3, 2019: 12:15 PM

Background. Recent work has argued that genus *Klebsiella* is best divided into 3 clades: *K. pneumoniae* (Kp), *K. quasipneumoniae* (Kq), and *K. variicola* (Kv). Kv has drawn attention from reports of higher mortality and virulence. We evaluated a previously defined group of military trauma patients with *Klebsiella* infections for the presence of Kv, described clinical and isolate characteristics, and compared Kv and Kp groups.

Methods. All initial and serial (≥7 days from prior isolate) infecting Kp isolates (identified by clinical laboratories without the ability to speciate Kq and Kv)