Methods. The National Inpatient Sample (NIS) was used to identify all hospitalizations during 2002 to 2014; all primary and secondary diagnoses were searched to identify-resistant infection that utilized the ICD-9 code "V091." All hospitalizations were stratified based on the indication of resistant infection, and comparisons were made with the chi-square test and linear regression for categorical and continuous variables, respectively. A multivariable binary logistic regression model was used to examine survival for those with ESBL infection. All analyses were conducted with SAS version 9.4; $P < 0.005$ was considered significant.

Results. The analysis identified 320,888,511 hospitalizations with 17,732 identified with ESBL infection. Significant differences for those with and without an ESBL infection were found based on the US region with the pertinent results as follows; Northeast: 19.95% vs. 23.30%, Midwest: 14.71% vs. 16.81%, South: 25.14% vs. 40.53%, and West: 40.20% vs. 19.35%; $P < 0.001$. Results indicated the US region as a significant predictor of mortality for those with ESBL infection. Regions identified in Figure 1.

Conclusion. Notable findings from this study include a statistically significant variation in mortality risk between US regions. Comparatively lower risk of mortality as related to ESBL infection was noted in the Midwest region when compared with the West region. A greater understanding of the regional epidemiology of β-lactamases is needed to clarify why this disparity exists.

Figure 1

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

1196. *Serratia marcescens* Strains Carrying *bla*$^{KPC-2}$ and *bla*$^{KPC-3}$ Carbapenemase Associated With Chronic Mechanical Ventilation

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Background. Carbapenem resistance (CR) in *Enterobacteriaceae* is a growing concern which the CDC has designated as an urgent threat. At our institution we have noted emergence of CR strains in clinical isolates including a growing number of *Serratia marcescens.* CR in *Serratia marcescens* in the United States is mostly reported to be encoded by the SME family of chromosomally encoded carbapenemases, while in Asia it has been described being mediated by transmissible plasmids such as KPC. Here we describe the emergence and characteristics of CR *Serratia marcescens* at an academic tertiary care hospital in New York.

Methods. *Serratia marcescens* isolates demonstrating *in vitro* carbapenem resistance were recovered over a 12-month period from six distinct patients. Antibiotic resistance was determined by standard methods. Real-time PCR for bla(KPC), mcr gene, bla(NDM-1), bla(VIM), and bla(OXA-48) was performed. Patient comorbidities, source of culture, location in the hospital, and co-infection with other CR organisms were investigated.

Results. Fourteen *S. marcescens* isolates demonstrating *in vitro* carbapenem resistance were recovered from six individual patients. All six patients had a history of chronic respiratory failure with tracheostomy and at least partial ventilator dependence. Five of the patients were located on the pulmonary intermediate care unit, and one in the pediatric intensive care unit. Twelve of the 14 isolates were tracheal or sputum cultures. Five of the sputum cultures from two patients were co-infected with CR *Pseudomonas*, and one sputum culture was simultaneously positive for CR *Klebsiella pneumoniae* and *Enterobacter Cloacae*. Nine out of 14 isolates were positive for *bla*$^{KPC-3}$, two were *bla*$^{KPC-2}$ positive, and three were *bla*^{KPC}-negative, with no mechanism of carbapenem resistance determined yet. None of the other genes were detected.

Conclusion. Most carbapenem-resistant *Serratia* isolates were derived from respiratory tract and were found to be positive for *bla*$^{KPC-3}$. This suggests that plasmid encoded carbapenemases are emerging among *Serratia* in the United States, which is already being reported in China. Genomic sequencing may establish whether this represents a clonal expansion and whether the *bla*^{KPC} plasmid was transferred from *Klebsiella* or *Enterobacter* to *Serratia* in one of the patients.

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

1197. Microbiological Surveillance of Duodenoscopes Before and After High-Level Disinfection Following Endoscopic Retrograde Cholangiopancreatography (ERCP)

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Background. Transmission of antibiotic-resistant bacteria during endoscopic retrograde cholangiopancreatography (ERCP) has been linked to the complex design of the duodenoscope (scope) elevator channel and cantilever. We implemented a scope culturing program to monitor the efficacy of disinfection and to identify frequency of pre-disinfection exposure to antibiotic-resistant bacteria.

Methods. Facilities performing ERCPs within the Intermountain Healthcare system voluntarily submit scope cultures to the Infectious Diseases Epidemiology Laboratory. Cultures are collected at designated intervals based on procedure volumes at each site. Samples are submitted by endoscopy techs trained to collect flush and swab samples of the distal end of the scope using a previously described method before (PRE) and after (POST) high-level disinfection. Selective media is used to screen for Gram-negative bacilli-resistant to third-generation cephalosporins (ESBL) and vancomycin-resistant Enterococcus (VRE).

Results. Between March 7, 2016 and April 18, 2018, 1,255 scope samples from 10 facilities were cultured (533 PRE samples and 722 POST samples). 483 (90.6%) PRE samples were positive, with 75 (15.5%) screening positive for an antibiotic-resistant organism (60 ESBL and 15 VRE). 19 (2.6%) POST samples were positive, with 4 (21.1%) screening positive for ESBL. One of the four ESBL positive POST samples had a corresponding PRE sample for comparison; *E. coli* and *Klebsiella variicola* were isolated in both indicating residual contamination. Two of the ESBL-positive POST cultures did not have corresponding PRE samples and one had a PRE culture negative for ESBL. No POST samples contained VRE. Endoscopy personnel were contacted for each positive POST culture and endoscopy reprocessing practices were reviewed. Additionally, scopes were quarantined, reprocessed and re-cultured. Scopes were returned to use once POST cultures were negative.

Conclusion. Contamination of scopes with antibiotic-resistant bacteria during ERCP is common. High-level disinfection is effective at reducing bacterial burden but is imperfect. Routine surveillance for post-reprocessing bacterial colonization has been helpful to minimize patient exposure and to maintain focus on the importance of reprocessing.

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

1198. Clinical Characteristics and Outcomes of *Klebsiella pneumoniae* Infections in Service Members Who Sustained Trauma in Iraq and Afghanistan

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Background. *Klebsiella pneumoniae* infections present a challenge to the clinician due to increasing resistance. *K. pneumoniae* was the third most common species of multidrug-resistant (MDR) Gram-negative organism in trauma patients sustaining injuries in Iraq and Afghanistan from 2009 to 2014. This study aims to elucidate the epidemiology of these infections by characterizing clinical aspects, risk for MDR infections, and outcomes.

Methods. All initial and serial (≥7 days from prior isolate) infecting *K. pneumoniae* isolates were collected from the Trauma Infectious Disease Outcomes Study (TIDOS) (6/09-12/14). Antimicrobial susceptibilities were determined using the BD Phoenix Automated Microbiology System and CLSI criteria. MDR was defined as either resistance to ≥3 classes of aminoglycosides, β-lactams, carbapenems and/or fluoroquinolones or production of an ESBL or KPC.

Results. Of 588 *K. pneumoniae* isolates in the TIDOS registry, 141 infecting isolates (98 initial) from 51 patients met inclusion criteria. Initial isolates were respiratory (31%), wound (25%), blood (20%), urine (10%), intra-abdominal (8%) and other (6%). All patients were male with a median age of 23 years (IQR 21–28). The majority