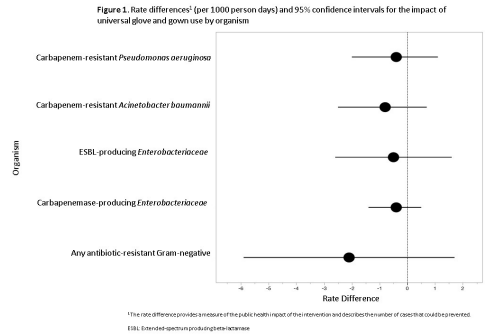

Figure 1. Rate differences[1] (per 1000 person days) and 95% confidence intervals for the impact of universal glove and gown use by organism

[1]The rate difference provides a measure of the public health impact of the intervention and describes the number of cases that could be prevented.

ESBL: Extended-spectrum producing beta-lactamase

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

516. Social Network Analysis to Study MDRO Transmission in VA Community Living Centers and Spinal Cord Injury Units

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Session: 55. HAI: MDRO – GNR Transmission

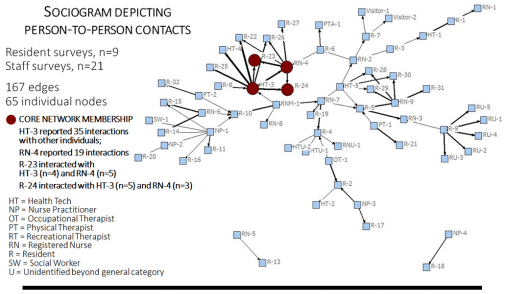
Thursday, October 3, 2019: 12:15 PM

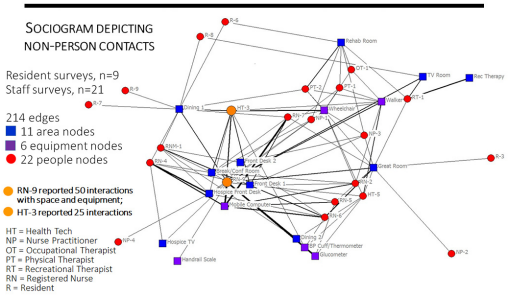
Background. Residents of VA Community Living Centers (CLC) and Spinal Cord Injury units (SCI) are commonly colonized or infected with multidrug-resistant organisms (MDROs). The mechanisms by which MDROs are spread between residents in CLC/SCI settings remain poorly understood. Our objective was to develop methods to better understand how MDROs are spread in VA CLCs/SCIs.

Methods. Preliminary data from two of the four VA medical centers participating in an ongoing study are included in these analyses. A structured sociometric survey was employed to collect data on interactions between residents, staff and environmental surfaces in study units. UCINET was used to construct a sociogram and calculate network characteristics (density, centrality) using responses to the surveys administered in one of the participating facilities.

Results. A total of 136 surveys were completed by 49 staff and 45 residents at the two VA sites. Staff reported more interactions with residents than with other staff. Residents reported more interactions with staff than with other residents, the latter tending to only occur during group activities. Sociograms generated from preliminary surveys collected at one site suggest a four-core-person social network pattern connecting two staff with two specific residents and showed that the dining room was the group setting most frequently visited by residents. Mobile computers, blood pressure cuffs/thermometers and glucometers were the equipment used most heavily during resident care activities (figure). Challenges in identifying contact patterns include recall bias and inability of some residents to identify names of individuals with whom they interacted. Residents were still able to reliably identify staff roles.

Conclusion. This preliminary work shows heterogeneous contact patterns between persons and surfaces in VA CLCs/SCIs. Characterizing this heterogeneity and its influence on MDRO spread via this type of social network analysis is feasible in the VA CLC/SCI setting, albeit with some limitations. Next steps in our studies include adding data from two additional sites and using observation techniques supplemented with microbiological sampling of targeted environmental surfaces to further understand potential transmission patterns.





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

517. Treatment Patterns of Hospitalized Adults with Infections Due to Carbapenem Non-Susceptible Gram-Negative Organisms in a Large Electronic Health Record Database in the United States

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Session: 56. HAI: MDRO – GNR Treatment

Thursday, October 3, 2019: 12:15 PM

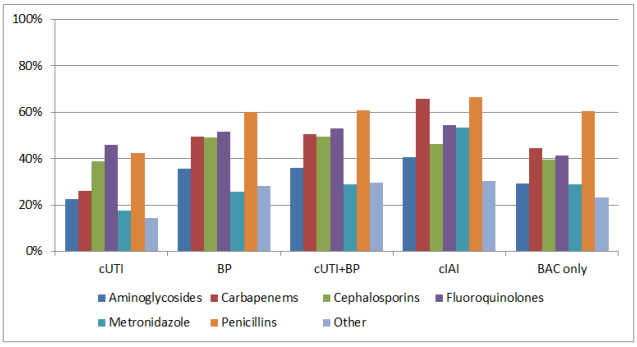
Background. Infections caused by carbapenem non-susceptible (C-NS) Gram-negative (GN) organisms pose a major threat, due in part to limited treatment options. The aim of this study was to assess treatment patterns for these infections in a large US electronic health record database.

Methods. A retrospective cohort study of hospitalized adults with complicated intra-abdominal infection (cIAI), complicated urinary tract infection (cUTI), bacterial pneumonia (BP), or bacteremia (BAC) due to C-NS (resistant/intermediate susceptibility to carbapenem) GN organisms from January 2013 to March 2018. Patients with inherently C-NS organisms (e.g., *Pseudomonas aeruginosa* to ertapenem) were only included if resistance to another carbapenem was identified. The index date was the date of first C-NS culture in a qualifying hospitalization (±3 days from admission/discharge). Clinical characteristics and administered treatments were assessed from admission to discharge with variables summarized descriptively and stratified by infection type.

Results. 7,702 patients met inclusion criteria: 31% cUTI ± BAC, 24% BP ± BAC, 21% cUTI + BP ± BAC, 17% cIAI ± BAC, cUTI, or BP, 7% BAC only. The median age was 66 years, ranging from 60 (BAC) to 69 (cUTI) years; male, 57%. The most common pathogens were *Pseudomonas aeruginosa* (64%) and *Klebsiella pneumoniae* (15%). Antibiotics were administered to the majority of patients (87%); of which, 79% received combination therapy (median classes: 3, maximum: 7), the remainder received monotherapy. For antibiotic-treated patients, 93% initiated an antibiotic before the non-susceptibility status of the underlying organism was known. The most common classes given during the index hospitalization were: penicillin (49%), fluoroquinolone (44%), carbapenem (40%), cephalosporin (39%), aminoglycoside (28%) (by infection type, Figure 1). Eleven percent of patients received colistin/polymyxin B.

Conclusion. Varied antibiotic use was observed in this cohort, with carbapenems frequently detected despite the C-NS nature of the underlying GN organisms. The use of antibiotics to which organisms are non-susceptible could lead to poor health outcomes, supporting the need for new targeted therapies to treat C-NS infections.

Figure 1. Antibiotic Use by Infection Type



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

518. Comparing the Mortality of Carbapenemase-Producing and Non-Carbapenemase-Producing Carbapenem-Resistant *Enterobacteriaceae* Bacteremia

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Session: 56. HAI: MDRO – GNR Treatment

Thursday, October 3, 2019: 12:15 PM

Background. Carbapenem-resistant *Enterobacteriaceae* (CRE) infection is an emerging clinical issue. One of the mechanisms of carbapenem-resistance is carbapenemase production. This study aimed to identify whether clinical outcomes differ by CRE resistance mechanism and to evaluate risk factors for mortality in patients with CRE bacteremia.

Methods. We conducted a retrospective cohort study comparing 14-day mortality between patients with carbapenemase-producing (CP)-CRE and non-CP-CRE bacteremia during January 2011 to October 2018. Only monomicrobial *Escherichia coli* or *Klebsiella pneumoniae* bacteremia were included in the study. A modified