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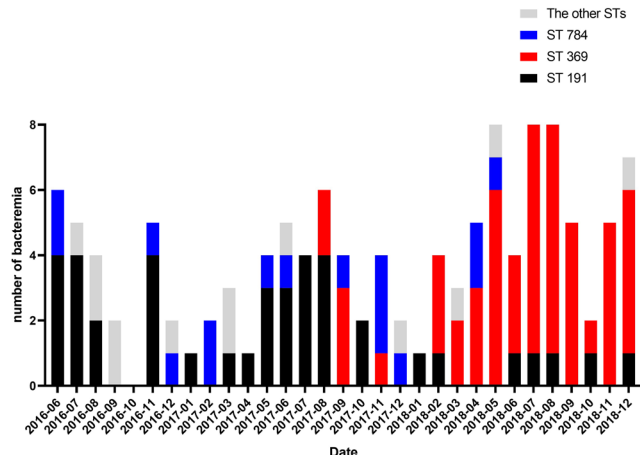
Session: 60. HAI: MDRO – GNR Epidemiology, Acinetobacter
 Thursday, October 3, 2019: 12:15 PM

Background. The dissemination of carbapenem-resistant *Acinetobacter baumannii* (CRAB) became an urgent public health concern. A specific sequence type (ST) of *A. baumannii* has been reported to be associated with severity of disease or mortality. This study aimed to determine the genetic relatedness of CRAB blood isolates cultured from patients at a tertiary care hospital and to investigate clinical characteristics and outcome of CRAB bacteremia.

Methods. CRAB blood isolates were collected between June 2016 and December 2018, and their clinical data were obtained. Multi-locus sequence test (MLST) was performed using the Oxford scheme, and the STs were assigned using the MLST database.

Results. Of the 126 CRAB blood isolates, 123 isolates which could be typed by MLST all belonged to clonal complex (CC) 92. During the entire period, ST369 (42.3%) was the most dominant, followed by ST191 (32.5%), ST784 (13.8%) and ST451 (4.1%). ST369 was firstly introduced in August 2017. ST191 (61.4%) was the most abundant during June 2016 to July 2017, whereas ST369 (65.8%) replaced ST191 (16.5%) since August 2017. The time interval between intensive care unit admission and bacteremia was shorter in ST369 than ST191 in multivariate analysis (day, median (Q1, Q3), ST369 6 (3, 9.8), ST191 9 (6, 17), Odds Ratio 0.87 (95% CI 0.76–0.99) $P = 0.048$ logistic regression). According to the ST, the 7-day and 30-day mortality rates were as follows; 46% and 65% in ST191, 50% and 62% in ST369, and 10.7% and 46.4% in the other STs. Patients infected by ST191 or 369 had significant higher 7-day mortality rates (ST191/369, 48.3% vs. the other STs 10.7%, $P = 0.001$ by log-rank test) and 30-day mortality rates (ST191/369, 63.2% vs. the other STs, 46.4%, $P = 0.045$ by log-rank test).

Conclusion. This study demonstrates the clonal spread of two STs at a tertiary care hospital in South Korea over 2.5 years. After the introduction of ST369, it replaced ST 191 and widely disseminated within a hospital. Two predominant STs were associated with poor outcome. Continuous surveillance are necessary to monitor the dissemination of these strains.



Disclosures. All authors: No reported disclosures.

545. Incidence of Carbapenem Non-Susceptible *Acinetobacter* spp. and Carbapenem-Resistant *Pseudomonas aeruginosa* Clinical Cultures among Patients in US Acute Care Hospitals, 2012–2017

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Background. Carbapenem-nonsusceptible *Acinetobacter* spp. (CNAB) and carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) are recognized causes of severe and difficult to treat healthcare-associated infections. This study estimated and compared the incidence of CNAB and CRPA among patients admitted to US acute care hospitals in 2012–2017.

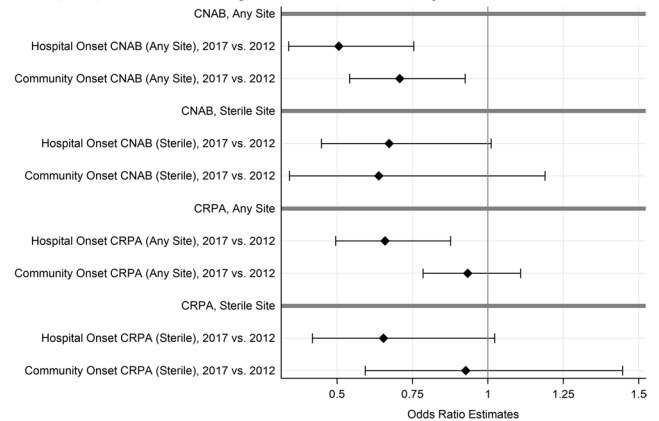
Methods. We measured the incidence of positive clinical cultures from inpatient encounters in a cohort of over 300 hospitals submitting data to the Premier Healthcare Database and Cerner Health Facts in 2012–2017. We included clinical cultures from any body site yielding *Acinetobacter* spp./*P. aeruginosa* non-susceptible/resistant to imipenem, meropenem, or doripenem. Cultures collected on days 1–3 of hospitalization were considered community-onset (CO) and cultures from later were hospital-onset (HO). Duplicate isolates identified within 14 days of an incident culture and surveillance cultures were excluded. For each year, a raking procedure

generated weights to extrapolate the sample estimate to match the American Hospital Association distributions based on US census division, hospital bed capacity, teaching status, and urban designation. We compared estimated rates in 2017 vs. 2012 using weighted multivariable logistic regression adjusting for hospital characteristics and hospital-level clustering.

Results. In 2017, the estimated rates of HO and CO CNAB rates were 0.77 and 1.39/10,000 discharges, and HO and CO CRPA rates were 3.14 and 6.57, respectively. Compared with 2017, rates of HO CNAB decreased 49% (Odds Ratio (OR) 0.51; 95% CI: 0.34–0.75) and rates of CO CNAB decreased 29% (OR 0.71; 95% CI: 0.54–0.92). For CRPA, the incidence of HO decreased (OR 0.66; CI: 0.49–0.88) with no change in CO rates (OR 0.93; CI: 0.79–1.11). Assessment of cultures from sterile sites alone showed similar results, but they did not reach statistical significance, Figure 1.

Conclusion. We estimate significant national decreases in the rates of HO and CO CNAB, and HO CRPA. Risk factors and effective interventions to reduce CO CRPA might differ from CNAB and HO CRPA. Additional prevention strategies are needed to address CO CRPA.

Figure 1. Relative Change in the Estimated Incidence of Carbapenem Non-susceptible *Acinetobacter* spp. (CNAB) and carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) Clinical Cultures among Patients in U.S. Acute Care Hospitals Between 2012 and 2017



Disclosures. All authors: No reported disclosures.

546. Seasonal Changes in the Prevalence of Antibiotic-Susceptible *Acinetobacter baumannii* Results in Increased Multidrug Resistance Rates During Winter Months

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Background. Understanding the seasonal behavior of infections (“seasonality”) caused by Gram-negative pathogens, including *Acinetobacter baumannii*, is essential for the design of effective healthcare policies; however, the factors mediating seasonality remain elusive.

Methods. Over 2,000 *A. baumannii* cases identified in the BJC Health System between 2007 and 2017, were retrospectively analyzed according to isolation month, hospital acquisition, anatomical source, and antibiotic susceptibility profile.

Results. Compared with quarter 1 (Q1, December–February), *A. baumannii* case incidence was similar in Q2 (March–May) but significantly higher in Q3 (June–August) and Q4 (September–November). This seasonality was exhibited by antibiotic-susceptible but not antibiotic-resistant isolates. This was independent of tested antibiotic, anatomic source, or hospital vs. community acquisition.

Conclusion. Seasonality is absent from antibiotic-resistant *A. baumannii* cases. Selective decrease of antibiotic-susceptible cases in Q1/Q2 results in 50–100% increase in resistance rates compared with Q3/Q4. *A. baumannii* seasonality is possibly linked to the increased use of antibiotics during winter. As resistance determinants tend to be genetically linked in *A. baumannii*, pressure from community antibiotics may have the inadvertent effect of selecting for multidrug resistance. This link must be further studied, as it may also explain seasonality in other, more antibiotic-susceptible Gram-negative pathogens.

Disclosures. All authors: No reported disclosures.

547. Multidrug-Resistant *Pseudomonas aeruginosa* in an Academic Regional Burn Intensive Care Unit

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