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Objectives: In Vietnam, although surveillance and control of multidrug-resistant organisms is a national priority, information on the burden of these pathogens remains scarce. At the University Medical Center in Ho Chi Minh City, we assessed the proportion of carbapenemase-producing carbapenem-resistant organisms (CP-CRO) and evaluated an intervention package to prevent transmission of carbapenemase-producing carbapenem-resistant Enterobacteriaceae (CP-CRE) in the intensive care unit (ICU). **Methods:** All gram-negative isolates collected between November 2018 to April 2019 were tested for carbapenem resistance using the disc-diffusion method. Carbapenem-resistant bacteria, defined as meropenem resistant, were tested for phenotypic carbapenemase-production using the Becton Dickinson Phoenix CPO Detect assay. An intervention package, including placement of patients in cohorts, enhanced barrier precautions, enhanced discharge environmental cleaning, and CP-CRE rectal screening, was implemented from July 2019 through December 2020. During this period, all ICU patients were screened on admission, and negative patients were rescreened every 2 days or 7 days until discharge, death, or CRE-positive result. Admission prevalence and incidence of CP-CRE transmission was calculated among CP-CRE infected or colonized patients. **Results:** Among 599 gram-negative isolates collected, 108 were carbapenem-resistant isolates, of which 107 (99%) were CP-CRO by the phenotypic method. Most CP-CRO were *Acinetobacter baumannii* (42%) and *Klebsiella pneumoniae* (36%). Of 1,206 patients, 433 (35.9%) were already colonized or infected with CP-CRE before admission to the ICU. The incidence rate (cases per 100 risk days) of CP-CRE colonization or infection during ICU treatment decreased from 11.5 before the intervention to 2.9 after the implementation of the intervention package. The average number of days to change from a negative to positive screening result in the intervention phase was 7.4, compared with 4.9 days during preintervention phase. **Conclusions:** Nearly all CROs isolated from our ICU are carbapenemase-producing CROs, with high presence on admission as well as new acquisition during an ICU stay. An intervention package containing enhanced infection control measures was effective in reducing CP-CRE transmission.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s22–s23
doi:10.1017/ash.2023.69

Subject Category: Multidrug-Resistant (MDR) Organisms

Abstract Number: SG-APSID1095

Acquisition rate of carbapenemase-producing organisms (CPOs) among hospital contacts of CPO patients: An interim subgroup analysis of a cohort study

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Objectives: The increase in carbapenemase-producing organism (CPO) transmission among hospitalized patients is a growing concern. Studies investigating the transmission of CPO to epidemiologically linked contacts are scarce. We conducted an interim subgroup analysis of the ongoing multicenter household transmission of CPO in Singapore (CaPES-C) study to identify the acquisition rate of CPO among epidemiologically linked contacts of hospitalized CPO patients. **Methods:** This multicenter prospective cohort study was conducted between January and December 2021. We recruited CPO-positive patients and their epidemiologically linked contacts. Stool samples were collected from the patients at baseline, day 3, day 7, and at weeks 2, 3, 4, 5, 6, 12, 24, 36, and 48. Additionally, a sample was collected at the time of discharge from the hospital. Xpert Carba-R test was used to detect CPO genotypes in the stool samples. In this interim analysis, we calculated the acquisition rate of CPO among the epidemiologically linked hospital contacts of CPO positive patients using Stata version 15 software. **Results:** We recruited 22 (56.4%) CPO-positive index patients [*bla*NDM, n = 7 (31.8%); *bla*IMP, n = 3 (13.6%); *bla*OXA-48, n = 10 (45.5%), others, n = 2 (9.1%)] and 14 (35.9%) epidemiologically linked hospital contacts. The median age of CPO-positive patients was 72.5 years (IQR, 62–82) and 15 (68.2%) were female. The median age for the epidemiologically linked contacts was 82.5 years (IQR, 70–85) and 4 (28.6%) were female. After 1,082 patient days, 2 (14.3%) epidemiologically linked contacts tested positive for CPO giving an acquisition rate of 1.85 per 1,000 patient days (95% CI, 0.46–7.39). One of these participants acquired a concordant genotype (*bla*OXA-48) at day 7 and the other acquired a discordant genotype (CPO positive index, *bla*IMP; epidemiologically linked contact, *bla*NDM) at week 12 of follow-up. **Conclusions:** This small interim analysis revealed a high conversion rate among epidemiologically linked hospital contacts. A larger study is needed to understand the influence of genotypes, hospital environment, and human behavior on the transmission of CPO in hospitals.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s23
doi:10.1017/ash.2023.70

Subject Category: Multidrug-Resistant (MDR) Organisms

Abstract Number: SG-APSID1073

Incidence and predictors of *Escherichia coli*-producing extended-spectrum beta-lactamase (ESBL-Ec) in Queensland, Australia, from 2010 to 2019: A population-based spatial analysis

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Objectives: The dissemination of *Escherichia coli*-producing extended-spectrum β-lactamase (ESBL-Ec) is evident in the community. In this population-based spatial analysis, we sought to describe the distribution of ESBL-Ec and to identify predictors of incidence in the community. **Methods:** The study population was defined as individuals with the ESBL-Ec isolate in Queensland, Australia, from 2010 to 2019. Annual choropleth maps and a global Moran index were constructed to describe ESBL-Ec distribution. Getis-Ord Gi* was performed to identify “hot spots” of statistical significance. Using demographic factors and incidence per postal area from 2016, multivariable analyses with or without spatially structured random effects were performed. **Results:** In total, 12,786 individuals with ESBL-Ec isolate were identified. The incidence rate increased annually from 9.1 per 100,000 residents in 2010 to 49.8 per 100,000 residents in 2019. The geographical distribution changed from random to clustered in 2014. Hot spots were more frequently identified in the Outback and Far North Queensland, where remote communities and hotter weather are prevalent. Multivariable spatial analysis suggests that communities with higher socioeconomic status (RR, 0.66; 95% CI, 0.55–0.79 per 100 units) and employment in the agricultural industry