

samples with 1 targeted gene and 2 samples with double targeted genes, 1 NDM+/IMP+ and 1 VIM+/IMP+), and 5 were negative. Overall, 198 tests were conducted in the study, and 217 were saved compared with testing individually. The efficiency of the pooling strategy was 215%. The overall sensitivity was 1 (95% CI, 0.840–1), the specificity was 0.987 (95% CI, 0.968–0.995), the accuracy was 0.987 (95% CI, 0.970–0.996), positive predictive value was 0.838 (95% CI, 0.655–0.939), and the negative predictive value was 1 (95% CI, 0.988–1). **Conclusions:** The pooling strategy using the Xpert Carba-R assay showed good potential in screening CPO with good sensitivity and a significantly lower cost.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s26–s27

doi:10.1017/ash.2023.79

Subject Category: Multidrug-Resistant (MDR) Organisms

Abstract Number: SG-APSID1081

Healthcare cost of antibiotic resistant infections: A hospital-based study in Vietnam

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Objectives: Antimicrobial resistance is a serious threat to health and economic well-being worldwide. The impact of antibiotic-resistant infections is reflected by higher mortality, increased lengths of hospital stay (LOS), and increased healthcare costs. We analyzed the direct healthcare costs attributable to treating patients infected with methicillin-resistant *Staphylococcus aureus* (MRSA) and carbapenem-resistant Enterobacteriales (CRE) in a tertiary-care referral hospital in Vietnam. **Methods:** A retrospective descriptive cross-sectional study was conducted in an intensive care unit (ICU) in the University Medical Center in Ho Chi Minh City from June 2018 to September 2019. Participants were ICU patients diagnosed with either MRSA or CRE infection, and patients infected with non-multidrug-resistant organisms (non-MDROs) were used as the comparison group. Medical records were obtained to collect data on medical services expenditures such as medications, diagnostic testing, medical procedures, and hospital rooms. Statistical significance was determined using the Mann-Whitney and Kruskal-Wallis tests for comparing the average costs and the χ^2 test for comparing the proportions. **Results:** In total, 227 patients, including 37 MRSA-infected patients, 97 CRE-infected patients, and 93 non-MDRO-infected patients, were included in the study. The additional average healthcare costs for a treatment episode of a CRE infection case (367.7 million VND or ~US \$16,000) and of a MRSA infection case (139.1 million VND or ~US \$6,043) were 3.8 times higher ($P < .001$) and 1.5 times higher ($P < .001$), respectively, than the average cost for a non-MDRO case (94.8 million VND or ~US \$4,121). Resource use for a CRE infection was higher than that for MRSA infection, with longer antibiotic treatment (13.4 additional days), greater LOS (15.8 additional days), and higher costs (additional 228.6 million VND or ~US \$9,939). **Conclusions:** Multidrug-resistant infections create a heavy economic burden in a low- to middle-income country like Vietnam. The elevated cost was mainly due to longer antibiotic treatment and increased LOS.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s27

doi:10.1017/ash.2023.80

Subject Category: Multidrug-Resistant (MDR) Organisms

Abstract Number: SG-APSID1083

Prevalence and classification of carbapenemase-producing gram-negative bacilli at a medical center in Ho Chi Minh City, Vietnam

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Objectives: The identification and classification of carbapenemases are meaningful in clinical treatment, epidemiology, and multidrug-resistant bacteria control. We sought to identify the proportion of carbapenemase-producing and carbapenemase classifications in gram-negative bacilli in our hospital. **Methods:** Isolates of gram-negative bacilli were extracted from sputum, blood, and urine samples in a medical center in

Ho Chi Minh City. The identification of gram-negative bacilli was performed using the Phoenix M50 automated system (Becton Dickinson, Franklin Lakes, NJ). An antibiogram was conducted using the disk-diffusion method to detect meropenem-resistant gram-negative bacteria. Carbapenemase confirmation and classification of isolates resistant or intermediately resistant to meropenem were performed using the NMIC500 CPO kit on the Phoenix M50 system. **Results:** Among 599 isolates of gram-negative bacilli, 108 isolates were resistant or intermediately resistant to carbapenem (meropenem). Of these 108 isolates, 107 (99.1%) were resistant due to the carbapenemase-producing mechanism. The proportions of resistant or intermediately resistant isolates to carbapenem were as follows: 73.8% for *Acinetobacter baumannii*, 26.4% for *Klebsiella pneumoniae*, 25.9% for *Pseudomonas aeruginosa*, and 2.8% for *Escherichia coli*. Class D carbapenemase accounted for the highest proportion, with 53 (49.5%) of 107 isolates, followed by class B with 31 isolates (29%), and class A with the lowest proportion of 2 isolates (1.9%). Also, 44.4% of *Acinetobacter baumannii* isolates and 74.4% of *Klebsiella pneumoniae* isolates produced class D carbapenemase. **Conclusions:** Gram-negative bacilli are resistant to carbapenem primarily due to the carbapenemase-secreting mechanism. D-class carbapenemase accounted for the highest percentage, followed by B-class type, and A-class carbapenemase in gram-negative bacilli.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s27

doi:10.1017/ash.2023.81

Subject Category: Multidrug-Resistant (MDR) Organisms

Abstract Number: SG-APSID1159

Control of hospital-acquired carbapenemase-producing carbapenem-resistant Enterobacteriaceae colonization: A descriptive study

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Objectives: Carbapenemase-producing carbapenem-resistant Enterobacteriaceae (CP-CRE) are nosocomial pathogens, and control of CP-CRE transmission is one of the most important infection control issues healthcare organizations face today. Increasing colonization acquisition and clinical infections of CP-CRE occurred in our institution in 2019. In this observational study, we monitored CP-CRE acquisition following implementation of multimodal control measures, and we describe the impact of this intervention on clinical infections. **Methods:** Increased hospital-acquired CP-CRE colonization and clinical infections were observed in early 2019. Increased CP-CRE surveillance was implemented to include CP-CRE contacts, patients with lengths of stay >7 days, patients with a recent history of hospitalization in other hospitals, and renal dialysis patients. The following interventions were also implemented: (1) isolation or placing CP-CRE patients in cohorts in a designated multidrug-resistant organism (MDRO) ward; (2) emphasis on hand hygiene and contact precautions; (3) mandatory use of gown and gloves for predefined 'high-risk' nursing activities, including diaper changing, toilet assistance, wound dressing, and handling urine or stool; (4) enhanced environmental and equipment cleaning; (5) regular audit and feedback regarding compliance; and (6) weekly feedback on ward-level CP-CRE acquisition. CP-CRE colonization cases and clinical infections were tracked by infection prevention and control nurses. **Results:** The hospital-acquired CP-CRE colonization rate was 4.39 per 10,000 patient days in 2019; it decreased slightly to 3.61 in 2020 and remained steady at 3.77 in 2021. The predominant CP-CRE genes were NDM, OXA-48-like, and KPC. There were 12 hospital-acquired CP-CRE infections in 2019, a rate of 0.37 per 10,000 patient days. This incidence decreased to 6 infections in 2020 and 3 infections in 2021, with corresponding