Efficacy Characteristics of MRSA Nasal Screening by Culture Site

| Type       | Number | Male | Age | Sensitivity | Specificity | Positive Predictive Value | Negative Predictive Value | P value |
|------------|--------|------|-----|-------------|-------------|--------------------------|----------------------------|---------|
| Whole cohort | 447,570 | 430,156 (96.2%) | 68.1 | 67.4% | 83.9% | 31.4% | 95.7% | 0.0001 |

**Conclusion.** Higher concentrations of CHG were associated with less frequent recovery of gram-positive bacteria and Candida species on the skin of MICU patients who were bathed routinely with CHG. For microbial inhibition, we did not identify a threshold concentration of CHG on the skin; rather, increasing CHG skin concentrations led to additional gains in inhibition. For infection prevention, aiming for high CHG skin levels may be beneficial.

**Table 1:** Prevalence of Microorganisms Recovered by Culture from Skin of Medical Intensive Care Unit Patients and/or 7 Hospitals

| Organism                        | Nort   | Axilla | Inginal | Total |
|---------------------------------|--------|--------|---------|-------|
| Gram-Positive Bacteria          |        |        |         |       |
| Staphylococcus aureus           |        |        |         |       |
| Methicillin-resistant S. aureus |        |        |         |       |
| Enterococcus                    |        |        |         |       |
| Vancomycin-resistant enterococci|        |        |         |       |
| Gram-Negative Bacteria          |        |        |         |       |

Note. Cells represent n/1% = number of positive skin sites / number of skin sites sampled for target microorganism. Total represents all three body sites combined.

**Table 2:** Linear Effects of Chlorhexidine Gluconate Skin Concentration on Microbial Recovery by Culture from Skin

| Organism                        | Change in odds/log CHG unit | P value |
|---------------------------------|-----------------------------|---------|
| Gram-Positive Bacteria          | -0.20                       | <0.001  |
| Staphylococcus aureus           | -0.18                       | <0.001  |
| Methicillin-resistant S. aureus | -0.19                       | <0.001  |
| Enterococcus                    | -0.07                       | <0.001  |
| Vancomycin-resistant enterococci| -0.06                       | 0.12    |
| Gram-Negative Bacteria          | -0.05                       | 0.054   |

Note. Slope represents change in log CHG skin concentration (i.e., for each doubling of CHG skin concentration).

**Disclosures.** No reported disclosures.

573. Enterococcal Bacteremia in a Tertiary Care Center in Mexico: A Retrospective Analysis Focus on Vancomycin-Resistant E. faecium and Ampicillin-Resistant E. faecalis

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- Edgar Ortiz-Brizuela, MD,1 Andrea Ramirez-Fuentes, MD,2

**Background.** Enterococcal bacteremia (EoB) remains an important public health concern in the intensive care unit (ICU). Increases in resistance rates are also associated with increased mortality.

**Methods.** We conducted a retrospective analysis of Enterococcus species cultured in our hospital's 2716-bed medical ICU between January 2015 and March 2018. EoB was defined as positive blood cultures in the absence of catheter-related bloodstream infection. Resistance rates were calculated by dividing the number of resistant isolates by the total number of isolates for each species and antibiotic class. Mortality was defined as death within 28 days of the positive blood culture.

**Results.** We identified 128 E. faecalis (62.6%), 34 E. faecium (17.4%), and 20 other species (10.5%) isolates. Resistance rates were as follows: 98.4% for E. faecalis, 52.9% for E. faecium, and 47.5% for other species. Mortality rates were 38.0%, 52.9%, and 55.0%, respectively. Of the 128 E. faecalis isolates, 126 (98.4%) were susceptible to vancomycin, and 2 (1.6%) were resistant. Of the 34 E. faecium isolates, 17 (50.0%) were susceptible to vancomycin, and 17 (50.0%) were resistant. The resistance rate to ampicillin was 52.9% for E. faecalis and 17.6% for E. faecium.

**Conclusions.** Our findings highlight the need for effective antibiotic stewardship and surveillance of resistance trends in EoB.

**Disclosures.** No reported disclosures.
The only factors for 30-day mortality for VRE bacteremia were determined by univariate and multivariate analysis. The molecular mechanism of VRE was performed by PCR.

Results. There were 192 patients with E. faecalis of which 107(56%) patients had VRE bacteremia with 94% VRE strains expressing vanA gene. The index bacteremic episodes were classified as nosocomial or healthcare associated in 99%, 102(95%) had hospitalization 1 year before and 101(94%) history of use of antibiotics 3 months earlier, the multivariate analysis was categorized as duration of the previous hospitalization ≥10 days (OR, 0.18; 95% CI, 1.81–634), use of central venous catheter (OR, 11.15; 95% CI, 2.48–50.2), and endotracheal cannula (OR, 17.91; 95% CI, 1.22–262) as significant associated variables. The mortality for VRE was greater than susceptible E. faecium (60% vs. 0% P < 0.0001). The only factors for 30-day mortality for E. faecalis in the multivariate analysis was APACHE II score (OR,1.45; 95% CI, 1.26–1.66) and patients with chemotherapy of cancer (OR, 3.52; 95% CI, 1.09–11.39). 147 patients had E. faecalis of which 18 (11%) patients had ARE, we did not find relevant clinical differences of ARE in comparison with ampicillin-susceptible E. faecalis. Another risk factor for acquisition of ARE nor 30-day mortality [7.93%) vs. 829%), P = 0.58] in uni and multivariate analysis

Conclusion. Our evaluation showed in a period of 10 years that VRE expressing vanA gene has a strong association with patients with previous nosocomial exposure. Severely ill patients and cancer patients on chemotherapy during the bacteremic episode were the variables more associated with 30-day mortality. ARE is yet of low prevalence and less known, constant surveillance about it is warranted

Disclosures. All authors: No reported disclosures.

574. Reporting of Vancomycin-Resistant Enterococcus Bacteremia among National Healthcare Safety Network Acute Care Hospitals

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Session: 63. HAI: VRE Epidemiology
Thursday, October 3, 2019: 12:15 PM

Background. The National Healthcare Safety Network’s (NHSN) Multidrug-resistant Organism/Clostridioides difficile (MDRO/CDI) Module serves as a surveillance platform for tracking antibiotic-resistant laboratory-identified (LabID) organisms. LabID event surveillance, which does not require submission of clinical data to NHSN, provides proxy measures for MDRO burden. While surveillance of some organisms is federally mandated, these requirements do not extend to vancomycin-resistant Enterococcus (VRE). We sought to describe the extent of acute care hospital (ACH) participation in NHSN VRE surveillance and identify facility-level factors associated with VRE bacteremia. These could explain differences in VRE incidence and be used in preparation for a national risk-adjusted benchmark.

Methods. ACHs that reported at least one month of facility-wide inpatient (FacWideIN) VRE bacteremia LabID Event data to NHSN in 2017 were included in the analysis. LabID event data were categorized as healthcare facility-onset (FacWideIN) defined as a bacteremia with the diagnosis “FacWideIN” listed in the medical record of patients and the CO VRE bacteremia rate was 0.58 per 10,000 admissions. Major medical school affiliation, hospital type, larger number of beds and ICU beds, longer average length of stay and the presence of an oncology unit were significantly associated with VRE bacteremia (Table 1).

Conclusion. Based on the VRE data reported to NHSN, certain facility-level factors may contribute to a higher incidence of HO VRE bacteremia. Future analyses can allow us to determine whether these factors are independently associated with VRE. Risk-adjusted surveillance data can help guide facilities and states to compare their burden of VRE to a national benchmark.

Table 1: Facility factors associated with healthcare facility-onset VRE bacteremia

| Facility factors | Healthcare facility-onset VRE Bacteremia Incidence Rate per 10,000 patient days | 95% Confidence interval | P-value |
|------------------|---------------------------------|------------------------|--------|
| Hospital type    |                                 |                        |        |
| General acute care | 0.276                           | 0.253–0.300            | 0.0088 |
| Pediatric or other specialty | 0.076 | 0.035–0.145 | Referent |
| Total bed size   |                                 |                        |        |
| < 75 beds        | 0.186                           | 0.156–0.219            | 0.0051 |
| 76–135 beds      | 0.161                           | 0.129–0.204            | 0.0013 |
| 356–383 beds     | 0.205                           | 0.166–0.246            | 0.0265 |
| ≥384 beds        | 0.337                           | 0.305–0.372            | Referent |
| Medical school affiliation |                   |                        |        |
| Major teaching   | 0.341                           | 0.314–0.382            | Referent |
| Graduate teaching | 0.164                           | 0.126–0.209            | 0.4490 |
| Undergraduate teaching | 0.144                           | 0.094–0.213            | 0.1848 |
| None             | 0.231                           | 0.177–0.282            | Referent |
| Oncology unit    |                                 |                        |        |
| Present          | 0.190                           | 0.165–0.217            | 0.0001 |
| Absent           | 0.187                           | 0.164–0.212            | Referent |

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575. Evaluation of Risk Factors and Clinical Outcomes of Patients with Vancomycin-Resistant Enterococcus Infections

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Background. Vancomycin-resistant Enterococci (VRE) occurs with enhanced frequency in hospitalized patients and are usually associated with poor clinical outcomes. The purpose of this study was to evaluate the risk factors and clinical outcomes of patients with VRE infections.

Methods. This was an IRB-approved multi-center retrospective chart review conducted at a three-hospital health system between August 2016-November 2018. Inclusion criteria were patients ≥18 years and admitted for ≥24 hours with cultures positive for VRE. Patients pregnant or colonized with VRE were excluded. The primary endpoint was to analyze the association of potential risk factors with all-cause in-hospital mortality (ACM) and 30-day readmission. The subgroup analysis focused on the association of risk factors with VRE bacteremia. The secondary endpoint was to evaluate the impact of different treatment groups of high dose daptomycin (HDD) (210 mg/kg/day) vs. low dose daptomycin (LDD) (< 10 mg/kg/day) vs. linezolid (LZD) on ACM and 30 day readmission. Subgroup analysis focused on the difference of length of stay (LOS), length of therapy (LOT), duration of bacteremia (DOB) and clinical success (CS) between the treatment groups.

Results. There were 81 patients included for analysis; overall mortality was observed at 16%. Utilizing multivariable logistic regression analyses, patients presenting from long-term care facilities (LTWF) had a strong association with patients with previous nosocomial exposure. Severely ill patients and cancer patients on chemotherapy during the bacteremic episode were the variables more associated with 30-day mortality. ARE is yet of low prevalence and less known, constant surveillance about it is warranted

Disclosures. All authors: No reported disclosures.

576. A Multicenter Epidemiology Study on Risk Factors of Vancomycin-Resistant Enterococcus Infections in China: Results from the China Antimicrobial Surveillance Network (CHINET) in 2016

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Poster Abstracts • OFID 2019:6 (Suppl 2) • 5721