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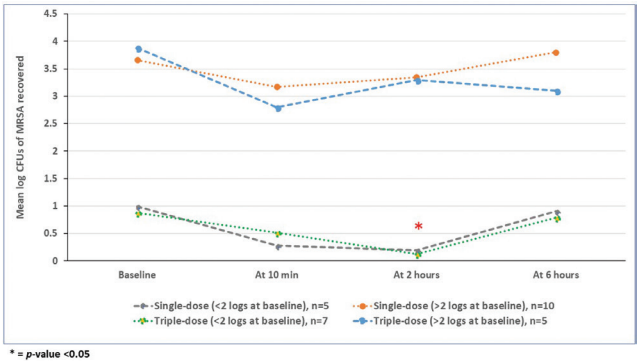
Background. Due to concerns for emergence of mupirocin resistance, there is an interest in use of topical antiseptics for nasal decolonization of *Staphylococcus aureus*. Alcohol-based nasal antiseptics have recently been developed as an alternative to mupirocin, but there is limited data on efficacy, particularly among patients where the burden of carriage is often high.

Methods. We evaluated the effectiveness of a one-time application of a commercial alcohol-based nasal sanitizer for reduction in nasal methicillin-resistant *Staphylococcus aureus* (MRSA) in MRSA-colonized patients. Patients received either a single dose or triple dose over 3 minutes; the triple dose is recommended for preoperative dosing. Swabs were used for quantitative culture of MRSA from the anterior nares and vestibule prior to and 10 minutes, 2 hours, and 6 hours after application. For a subset of patients, cultures for MRSA were collected from hands, clothing, groin, and chest/axilla.

Results. Of 34 MRSA carriers enrolled, 27 (79%) had MRSA detected in nares, 32 (94%) were male, and the mean age was 65. Of the 27 carriers positive for nasal MRSA, 15 (56%) received a single alcohol dose and 12 (44%) received a triple dose over 3 minutes. As shown in the figure, the single and triple dose applications significantly reduced MRSA concentrations at 2 hours post-treatment when the initial burden was low (i.e., <2 $\log_{10}$colonies per swab), but there was no significant reduction at 6 hours; there was no significant reduction with either dose when the initial burden was high (≥2 $\log_{10}$colonies per swab).

Conclusion. A single application of an alcohol nasal sanitizer significantly reduced nasal MRSA at 2 hours post-application when the initial burden of colonization was low, but not when a high burden of carriage was present. Additional studies are needed to determine whether higher alcohol doses or repeated applications might result in improved efficacy.

Figure. Efficacy of one-time application of a single- or triple-dose of alcohol-based nasal sanitizer on the burden of nasal MRSA.



* = *p*-value <0.05

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

1214. High Frequency of Genes Encoding Resistance to Heavy Metals in Methicillin-Resistant *Staphylococcus aureus* (MRSA) Endemic Lineages From South America

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Background. MRSA-USA300 is a community-associated clone that has spread worldwide, becoming the most successful clone in the USA. Since 2005, the MRSA-USA300 Latin-American Variant (USA300-LV) has disseminated in community and hospitals in Northern South America. Phylogenetic analysis revealed that USA300-LV is not derived from the USA300 (NA-USA300) but rather, the two clones diverged from a common ancestor. During their evolution, NA-USA300 strains incorporated the ACME element and USA300-LV acquired a copper and mercury resistance mobile element designated COMER. Interestingly, contamination by heavy metals in South American has been recently highlighted and could be driving the selection of resistant genetic lineages. We investigated the frequency of *merA, merB,* and *copB* in genomes of clinical isolates of *S. aureus* from Latin America (LA).

Methods. The presence of *merA*/*merB* and *copB* encoding mercury and copper resistance, respectively, were investigated in 515 *S. aureus* sequenced genomes recovered from bacteremic patients in hospitals from nine Latin American hospitals trough BLAST searches.

Results. The prevalence of *merAB* in *S. aureus* was 35% (181 out of 515 genomes). Interestingly, among 181 *merAB*-positive *S. aureus*, 174 were MRSA (96%). Moreover, 71%, 60%, 59%, and 51% of MRSA genomes from Peru, Ecuador, Colombia, and Venezuela, respectively, harbored mercury resistance genes. Similarly, 65%, 60%, and 22% of MRSA genomes from Ecuador, Colombia, and Venezuela, contained the *copB* gene. Among 174 MRSA harboring *merAB*, ST8 and ST5 were the most predominant lineages in (43% and 45% of genomes, respectively). In contrast, among 95 MRSA carrying *copB,* ST8 was the most frequent lineage (96% of isolates). MRSA from countries with high prevalence of mercury genes showed association with ST5 and ST8. 88% of Colombian and 87% of Ecuadorian MRSA harboring *merAB* belonged to ST8 lineage, whereas ST5 was predominant in 88% of Peruvian MRSA. In Venezuela, ST5 and ST8 were found in 44% and 33%, respectively, of MRSA positive for *merAB*.

Conclusion. High levels of mercury in rivers of Colombia, Ecuador and Peru has been reported. Thus, the prevalence of heavy metal resistance genes in MRSA clinical isolates suggest an adaptation of endemic genotypes to heavy metal contamination caused by activities like metal mining.

Disclosures. **J. M. Munita**, Pfizer: Grant Investigator, Research grant. **C. Arias**, Merck & Co., Inc.: Grant Investigator, Research support. MeMed: Grant Investigator, Research support. Allergan: Grant Investigator, Research support.

1215. Geographic Distribution of *Staphylococcus aureus* With Reduced Sensitivity and Resistance to Vancomycin in the Dominican Republic

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Background. Resistant *Staphylococcus aureus* (SA) poses a major challenge to clinicians. The prevalence of methicillin-resistant SA (MRSA) has increased over the past decades, while vancomycin resistance remains rare. Only 14 cases of vancomycin-resistant SA (VRSA) have been described in the United States since 2002. VRSA and SA with reduced susceptibility to vancomycin (VISA) cause high morbidity and mortality. There is a paucity of data on VRSA in developing nations. We seek to define the prevalence and resistance profile of SA in the Dominican Republic (DR).

Methods. This is a retrospective review of resistance patterns of SA isolates from a clinical laboratory in the DR (Amadita Laboratories). Amadita provides services nationwide. Data collected from 2016 to 2017 included SA phenotypic sensitivity patterns and geographic location and income level. VISA and VRSA were defined as having minimum inhibitory (MIC) concentrations between 4 and 8 and MIC >16.

Results. Of 5,372 SA samples, 2,735 (51%) were MRSA, 21 were VISA and 39 were VRSA. VRSA samples were more commonly from Santo Domingo (SD) (Figure 1). Communities in SD with mixed and low incomes had greater burden of VRSA (Figure 2). Antimicrobial susceptibilities are shown in Table 1.

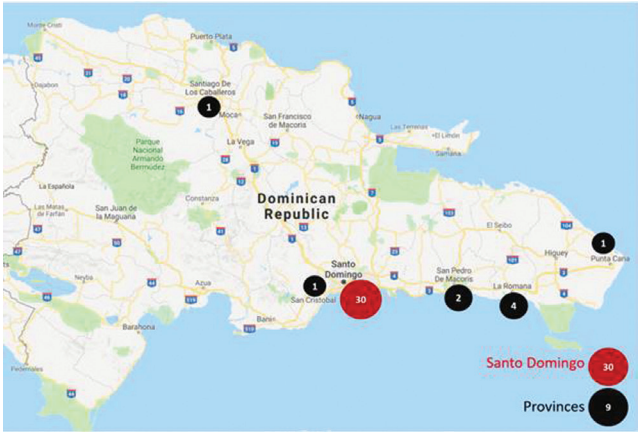

Figure 1. VRSA samples in the DR by location.

Table 1: Antimicrobial Susceptibility for SA Isolates by Drug Resistance Category (%)

	Ciprofloxacin	Clindamycin	Erythromycin	Gentamicin	Levofloxacin	Linezolid	Oxacillin	Quinupristin-Dalfopristin	Penicillin G	Trimethoprim Sulfamethoxazole (TMP-SMX)	Rifampin	Tetracyclines	Tigecycline
VISA	81	23	33	90	80	100	52	100	0	100	100	57	100
VRSA	87	43	51	94	87	94	64	100	6	92	97	71	100

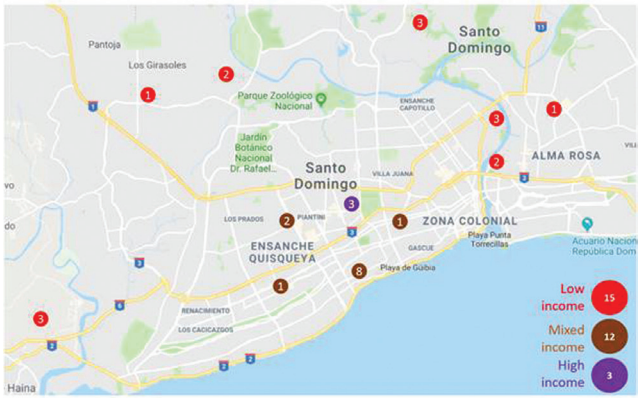

Figure 2 VRSA samples in Metropolitan SD based on income level of communities.

Conclusion. In this nationwide sample, we found an alarming number of VISA and VRSA. Most cases were in metropolitan SD, with lower income communities carrying a higher case burden. Linezolid and TMP-SMX retain activity against VISA and VRSA in the DR. The rise of vancomycin resistance in developing countries and the disproportionate burden on communities of low income is concerning and requires further study. Infection control measures and antimicrobial stewardship interventions may help prevent further spread of resistant strains.

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

1216. Cost-Effectiveness of Penicillin Skin Allergy Testing in Methicillin-Sensitive *Staphylococcus aureus* (MSSA) Bacteremia

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Background. β-Lactams remain the gold standard for treatment of MSSA bacteremia due to superior outcomes compared with vancomycin. Approximately nine in 10 patients receiving penicillin skin testing (PST) will be de-labeled of a penicillin allergy and able to receive a β-lactam antibiotic. The study aims to evaluate the cost-effectiveness of penicillin allergy confirmation during acute care admission for methicillin-sensitive staphylococcus aureus (MSSA) bacteremia through a PST service.

Methods. A decision tree analysis was used to compare a PST intervention in patients with a registeredpenicillin allergy during an inpatient admission for MSSA bacteremia vs. usual care (No PST). The model was created from the health sector perspective with a 1-year time horizon. Patients with a penicillin allergy label were expected to receive vancomycin while patients with no penicillin allergy were expected to receive cefazolin. Potential inpatient, outpatient, and adverse reaction costs were considered in all arms of the model. The effects were measured in quality adjusted life years (QALY) and were calculated for patients who were cured, hospitalized, experienced severe adverse events, or died from MSSA infection.

Results. Patients who received PST services had a mean yearly cost of $12,802, mean quality adjusted life years (QALY) of 0.70, and mean cost/QALY of $18,311. The comparator group not receiving PST services had a mean yearly cost of $12,264, mean quality adjusted life years (QALY) of 0.64, and mean cost/QALY of $19,192. The model produced a final base case ICERof $8,966/QALY for receiving a PST during a hospital admission for the treatment of methicillin-sensitive staphylococcus aureus (MSSA) bacteremia.

Conclusion. Penicillin allergy confirmation through PST services was cost-effective for patients with a reported penicillin allergy admitted for MSSA bacteremia. Additional research to determine potential benefits of PST services beyond one year could further improve the cost-effectiveness of this intervention.

Disclosures. **S. Meninger**, ALK-Abelló: Grant Investigator, Research grant. **E. Heil**, ALK-Abelló: Grant Investigator, Research grant. **T. J. Mattingly II**, ALK-Abelló: Grant Investigator, Research grant.

1217. *Staphylococcus* Protein A (spa) Typing Demonstrates Genetic Heterogeneity of Methicillin-Susceptible *Staphyloccus aureus* (MSSA) in a Neonatal Intensive Care Unit (NICU)

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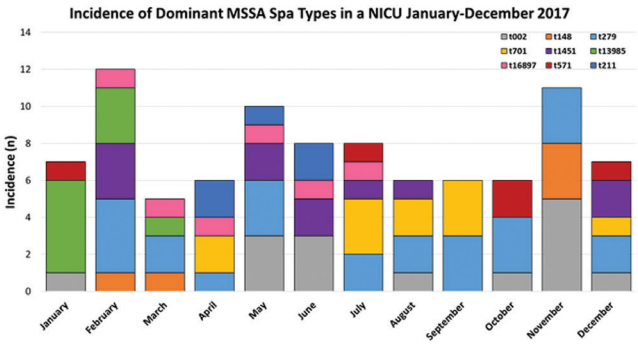
Background. In the NICU, MSSA is a more prevalent pathogen than MRSA, but optimal infection prevention and control strategies for MSSA are not yet well understood. There are likely multiple routes of MSSA acquisition given its role as normal flora and its detection in the anovaginal tract of pregnant women. We describe the molecular epidemiology of MSSA in our NICU during a yearlong surveillance effort.

Methods. Included infants were hospitalized in a university-affiliated level III-IV NICU from January to December 2017 (1032 admissions) and had positive clinical and/or surveillance cultures for MSSA. Infants admitted at ≥7 days of age were screened for MSSA colonization by culturing the anterior nares and three skin sites. All infants in the NICU were screened twice monthly. Spa typing was performed to genetically characterize isolates.

Results. During the study period, MSSA was identified in 187 infants (18 at admission, 145 by twice monthly surveillance, and 24 from clinical cultures). In all, 269 MSSA isolates (245 surveillance and 24 clinical isolates) from 166 infants were spa typed. Sixty-two MSSA spa types were identified; 31 (50%) were each detected in only one infant. The incidence of the nine most common spa types is shown (Figure 1); t279 (13%), t002 (8%), and t1451 (6%) had the highest incidence. t1451 and t571 belong to ST398, a common MSSA clone in the local community. The epidemiology of spa types varied; e.g., incident cases of t279 was detected in 10 months, t1451 was detected in 6 months and t148 in 3 months. Among the 14 sets of twins and triplets with MSSA isolates, 12 (86%) shared the same spa type as their sibling(s). Of the 58 infants with >1 MSSA isolate, 12 (21%) acquired new spa-types. No spa type(s) predominated in the 19 episodes of invasive infections. In 6 infants with both colonizing and invasive isolates, colonizing and invasive isolates were the same spa type(s) in 5.

Conclusion. Spa typing demonstrated that MSSA isolates in our NICU exhibited substantial genetic heterogeneity. While these data do not elucidate acquisition route(s), they suggest infants are acquiring MSSA from multiple sources, likely including family members and the local community. Ongoing sequencing studies are examining common spa types to further understand transmission dynamics.

Figure 1.



Disclosures. **A. C. Uhlemann**, Merck: Investigator, Grant recipient

1218. Retapamulin as a Potential Decolonizing Agent: Activity against Mupirocin-Resistant Strains From Pediatric Patients With Methicillin-Resistant *Staphylococcus aureus* Infection

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