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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 2016-17 included SA phenotypic sensitivity patterns and geographic location and income level.
- VISA and VRSA were defined as having minimum inhibitory (MIC) concentrations between 4-8 and MIC >16.

## Results

- Of 5372 SA samples, 2735 (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

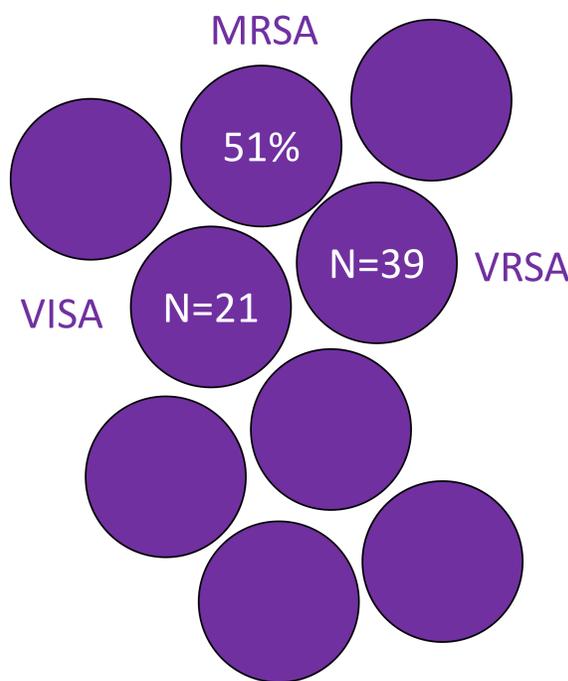
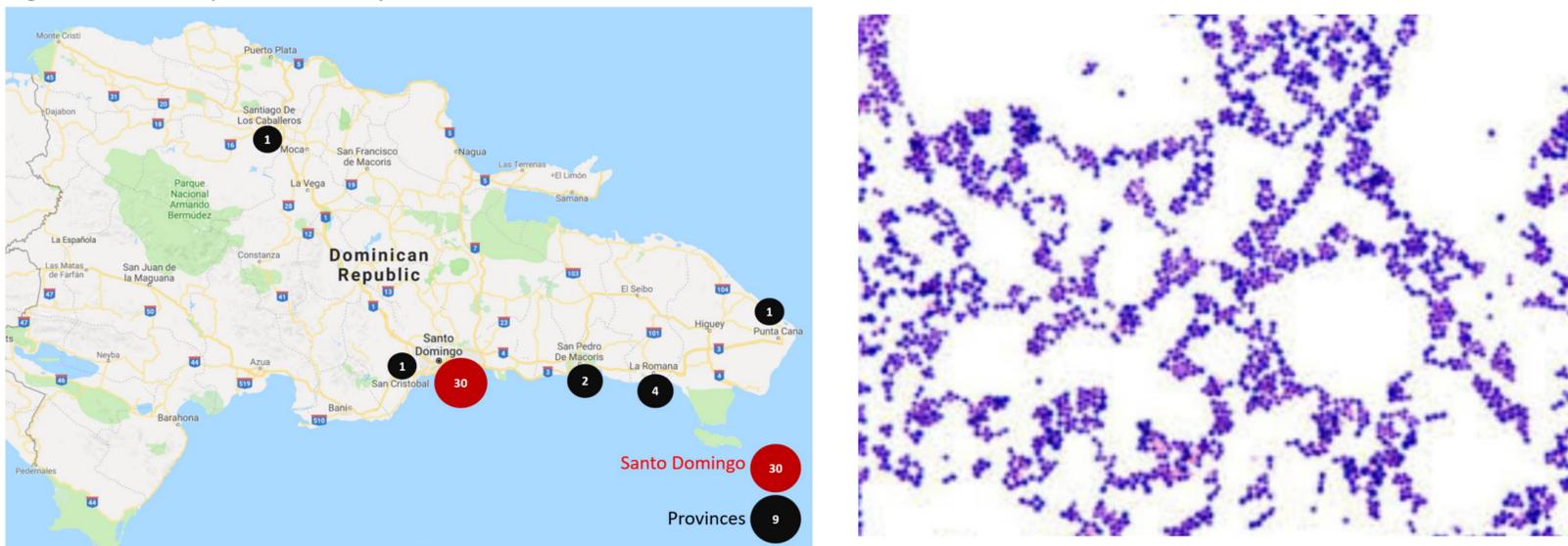
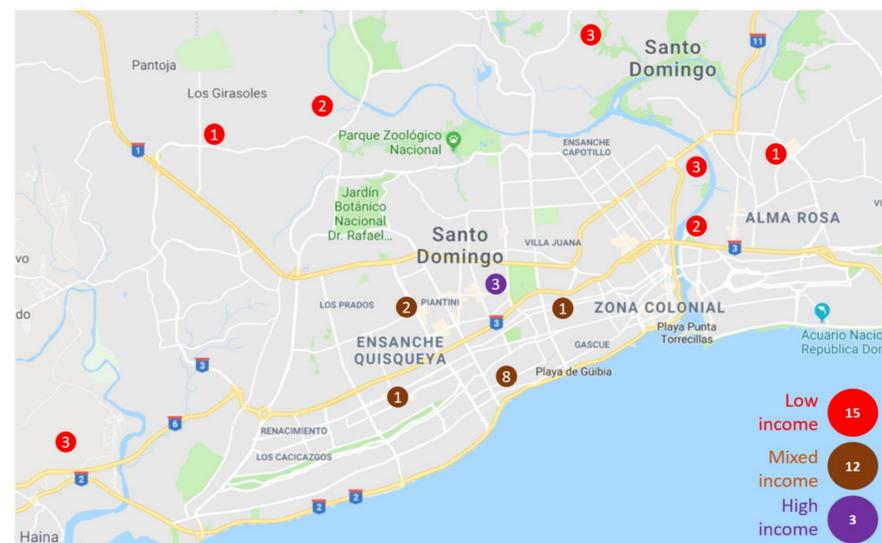


Figure 2. VRSA samples in Metropolitan SD based on income level of communities



## Conclusions

- 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.

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