Using Sero-epidemiology of SARS-CoV-2 anti-S Antibodies in the Dominican Republic to Inform Regional Public Health Response

Beatris Mario Martin[1], Angela Cadavid Restrepo[1], Helen Mayfield[1,2], Eric J. Nilles[3], Colleen L. Lau[1]

1-School of Public Health, the University of Queensland, 2-School of Earth and Environmental Sciences, The University of Queensland, 3-Havard University

Background

Latin America and the Caribbean Islands have been heavily affected by the COVID-19 pandemic

- Serosurveys can be used to estimate the spread of SARS-CoV-2
- Spatial methods can be used to estimate COVID-19 burden and distribution
- Analysis on subnational data is still needed.

Aims

1. Estimate antibody anti-Spike protein (anti-S) prevalence at regional and village levels
2. Map the anti-S regional prevalence
3. Identify risk factors for anti-S seropositivity at regional level

Contact: b.mariomartin@uq.net.au
@beatris_mmartin

Methods

3-stage cross-sectional serosurvey
All household members ≥5yo

Blood-sample
Questionnaires
GPS

Statistical analysis

Outcome:
Anti-S

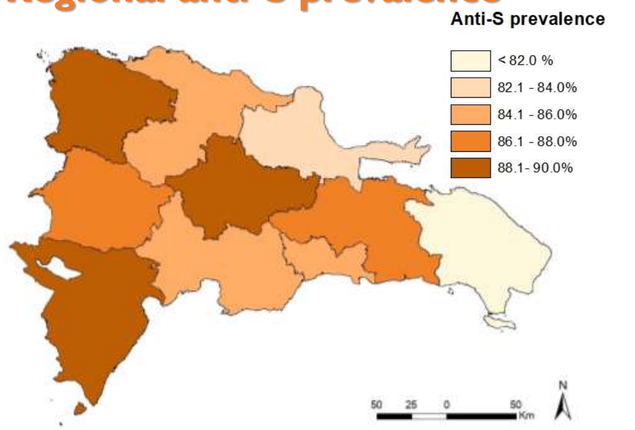
Covariates
Age
Gender
Residence area
Work environment
Smoking status
Vaccine uptake

Seroprevalence
Regional level
Barrio/paraje level

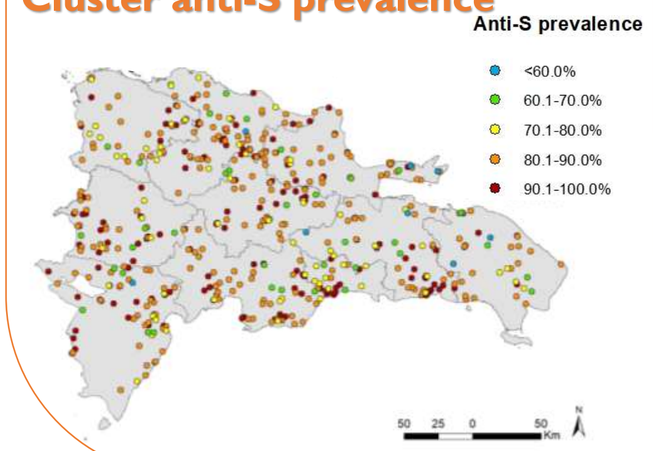
Logistic Regression
National level
Regional level

Results

Regional anti-S prevalence



Cluster anti-S prevalence



Significant odds ratio at National Level

Urban (OR=1.5)

Age
15-64 years-old (**OR=3.6**)
≥65 years-old (**OR=3.4**)

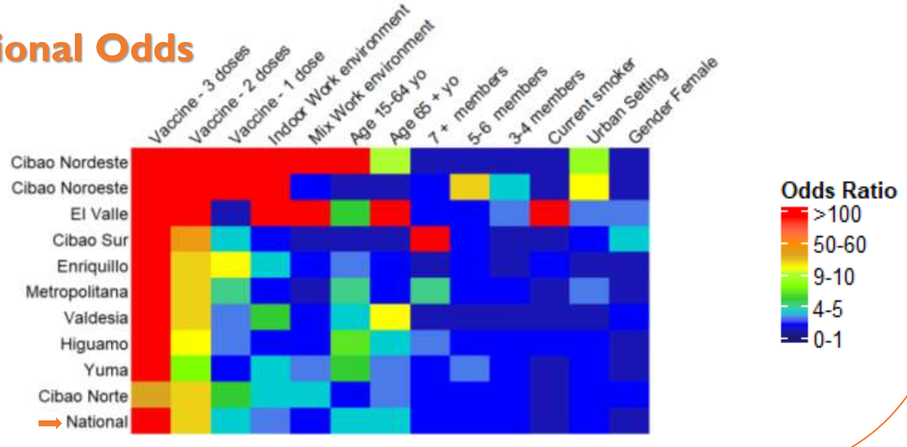
Work environment (OR=2.8)

Vaccine
1 dose (**OR= 3.3**)
2 doses (**OR= 22.0**)
3 doses (**OR=121.6**)

Household members
5-6 (**OR=1.5**)
≥ 7 (**OR=1.8**)

Smoking status (OR=0.7)

Regional Odds



Conclusions

- COVID-19 seroprevalence was heterogeneously distributed
- Identified vulnerable areas that might benefit of target response
- Higher vaccine coverage was associated with anti-S positivity
- Indoor work environment increased the odds of anti-S positive result

Limitations

Anti-S:
- Cannot distinguish infection and vaccine
- Wanes over time
- Limited data for Omicron and other new strains.