

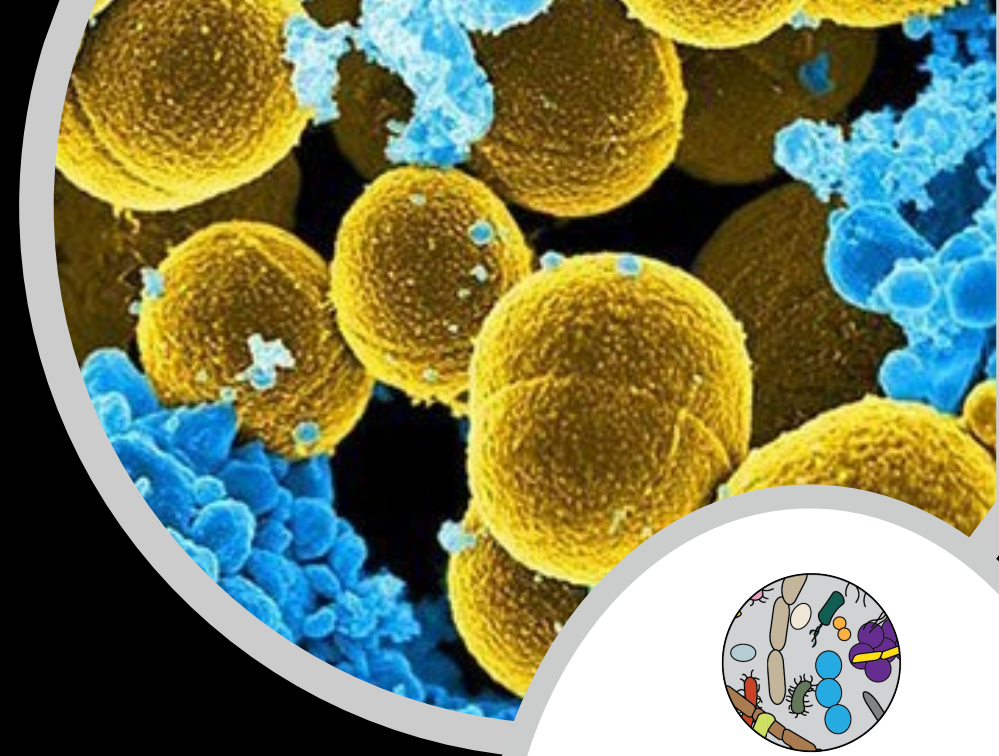
# **Social elements of carriage and transmission of *Staphylococcus aureus* in the Yuma region**

**Part of the Southwest Health Equity Research  
Collaborative (SHERC)**

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# Symbiotic relationship

- Gram-positive bacterium
- Commensal
  - Colonization is asymptomatic
  - Upper respiratory tract
  - Skin
- Pathogen
  - Infection – penetrates outer layer of skin or mucosa



# A high burden on patients and healthcare system

- Skin and soft tissue infections
  - Impetigo, Boils, Cellulitis, Scalded skin syndrome
- Pneumonia, Endocarditis, Osteomyelitis, Food poisoning, Toxic shock, Sepsis
- In 2017: 120,000 bloodstream infections & 20,000 deaths





# Hospital and community settings

- Hospital acquired (HA)
  - Prolonged hospitalization
  - Immunocompromised patients
  - Surgery
  - Widespread antibiotics
- Community acquired (CA)
  - Transmission among healthy people
- Distinct lineages no more
- HA rates decreased but are now steady
- CA rates are climbing



# Controlling the spread

- About 30% of people are colonized
- Staph can be transmitted between people (indirectly and directly)
- We usually infect ourselves





# Questions

- What are carriage rates in Yuma?
  - By socioeconomic status
  - By ethnicity
- What types of social relationships lead to transmission?
- Are clinical strains representative of what is circulating in the community?



# Recruitment & Sampling

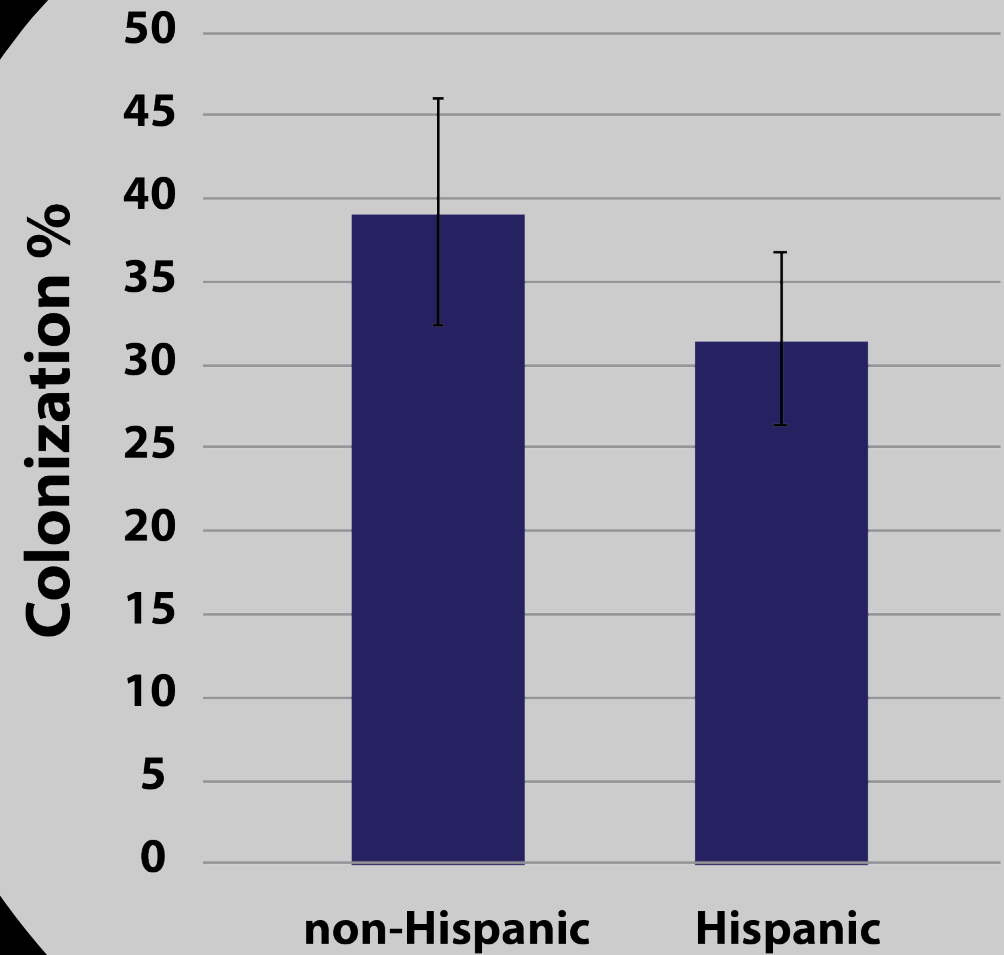
- Spring and early summers since 2018
- Yuma, San Luis, and Somerton
- Public places: parks, mall, farmer's market, festivals...
- Private places: homes, workplaces
- Social groups of 2-9 people
- Biological sample collection
- Survey



# Results

## Ethnicity and Colonization

- Subset from 1<sup>st</sup> two years
  - Non-Hispanic white (n=246)
  - Hispanic white (n=367)
- Non-Hispanic whites have a slightly higher rate of colonization ( $P=0.068$ ).





# Results

## SES and colonization

- Education attainment

	Overall (n = 613)		Hispanic (n = 367)		Non-Hispanic White (n = 246)	
	IRR	95% CI	IRR	95% CI	IRR	95% CI
Education	0.99	(0.88, 1.10)	1.02	(0.88, 1.18)	0.89	(0.77, 1.03)

- Home ownership

	Overall (n = 600)		Hispanic (n = 361)		Non-Hispanic White (n = 239)	
	IRR	95% CI	IRR	95% CI	IRR	95% CI
Owns home	1.13	(0.88, 1.46)	1.17	(0.85, 1.60)	0.99	(0.67, 1.45)

# Conclusions

- No statistically significant difference in colonization rates between non-Hispanics and Hispanics.
- Colonization is not linked to SES.
  - No educational gradient
  - No association with home ownership
- Colonization may be a less preventable risk factor

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YUMA REGIONAL MEDICAL CENTER

