Evaluation of *Staphylococcus aureus* and Decolonization Techniques in the Newborn ICU, Pediatric ICU, and Pediatric Cardiothoracic ICU

Jillian Fuss, Jacqueline White MPH, CIC, Amanda Valyko MPH, CIC, FAPIC, Anastasia Wasylyshyn MD
University of Michigan Health Infection Prevention and Epidemiology

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

SCHOOL OF PUBLIC HEALTH
EPIDEMIOLOGY
UNIVERSITY OF MICHIGAN

Background

- Decolonization is defined as the evidence-based reduction of colonizing pathogens on the body, sometimes in specific areas and locations.[1]
- Decolonization is an individual and community strategy for outbreak management.[2]
- A literature review revealed that evidence for *S. aureus* decolonization can help reduce the occurrence of CLABSIs, SSIs, VREs, and methicillin-resistant *Staphylococcus aureus* HAIs.[3]

Project Aims

- **Aim 1:** Determine if demographics, medical devices, and other factors have an association with patients positive with *S. aureus*, methicillin-resistant *S. aureus* (MRSA), and methicillin-susceptible *S. aureus* (MSSA).
- **Aim 2:** Calculate *S. aureus*, MSSA, MRSA prevalence rates for the calendar year 2023 for the Pediatric Cardiothoracic Intensive Unit (PCTU), the Newborn Intensive Care Unit (NICU), and the Pediatric Intensive Care Unit (PICU).
- **Aim 3:** Evaluate time from decolonization to the first clinical culture for the NICU and PCTU.
- **Aim 4:** Determine if decolonization reduces rates of clinical cultures.
- **Aim 5:** Make recommendations for the hospital's decolonization protocol based on findings.

Methods

Retrospective Observational Study

Literature Review:
Researched previously published papers on topic.

Determine Variables of Interest:
Based on the literview review, selected variables of interest.

Submit Study to IRB for Approval:
Filled out information regarding study.

Electronic Medical Record Review:
Collected information for individuals in study.

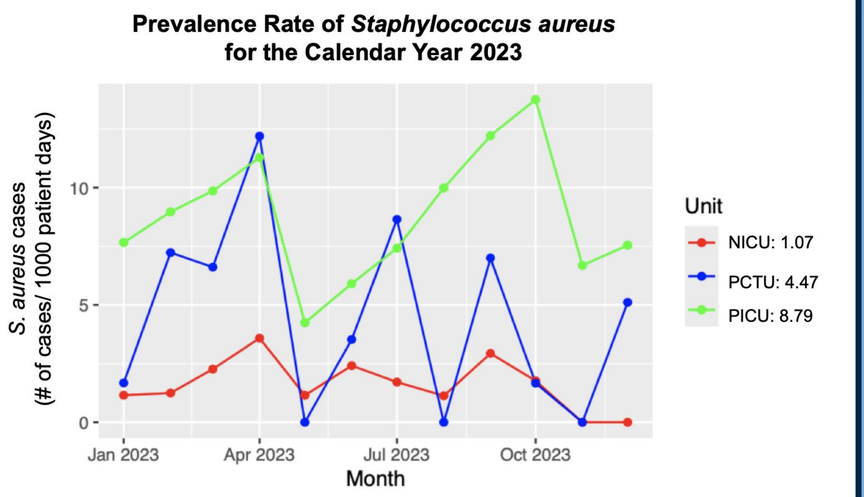
Calculations:
Calculated prevalence rates for NICU, PCTU, PICU with patient days.

Analysis:
Calculated univariate statistics and performed bivariate statistical analyses on demographics and medical factors in R.

Repeat for MSSA and MRSA.

Make Recommendations:
Determined if decolonization reduced the rates of clinical cultures in the NICU and PCTU based on findings.

Results: Graph



Acknowledgements

- Jackie White
- Dr. Betsy Foxman, PhD
- Anna Cronenwett
- Certificate in Healthcare Infection Prevention & Control Program
- University of Michigan Health Infection Prevention and Epidemiology

References

1. CDC. CDC Invests in Microbial Ecology Research. Centers for Disease Control and Prevention. Published August 4, 2022. Accessed May 10, 2024. https://www.cdc.gov/drugresistance/microbial-ecology/decolonization.html#:~:text=These%20strategies%20include%3A%201%20Pathogen%20reduction%2C%20a%20Strategy
2. Simon A, Dresbach T, Müller A. Methicillin-resistant Staphylococcus aureus Decolonization in Neonates and Children. Pediatr Infect Dis J. 2018;37(6):612-614. doi:10.1097/INF.0000000000001982
3. Denny J, Munro CL. Chlorhexidine Bathing Effects on Health-Care-Associated Infections. Biol Res Nurs. 2017;19(2):123-136. doi:10.1177/1099800416654013