Changes in Rate of Methicillin-Resistant Staphylococcus Infection in a Community Neonatal Intensive Care Unit Before and During the COVID-19 Pandemic.

Abby Blumenfeld, B.S., Michelle Hagans, B.S.N., Christina Chan, M.D.

Background:
- Neonatal Intensive Care Unit (NICU) infants are particularly susceptible to infection and are at a higher morbidity and mortality risk.
- ~2% of NICU infants are colonized with Methicillin-Resistant Staphylococcus aureus (MRSA), with 25% developing infection.
- Incidence of MRSA infections has remained stable at 10 per 10,000 hospitalized infants over the last two decades.
- The impact of enhanced infection precautions during COVID-19 on rates of MRSA has not been well studied.

Objective:
To compare rates of NICU MRSA infection before and after enhanced infection precautions (EIP) were implemented for the COVID-19 Pandemic.

Methods:
- MRSA cases were collected using laboratory and electronic medical record review.
  - 56 MRSA+ neonates in the Pre-EIP period, January 2016 - March 2020.
  - 18 MRSA+ neonates in the With-EIP period, April 2020 - December 2022.
- Cases were reported as infections per 1,000 patient days (IP-1000).
- Statistical analysis by two-sample t-tests assuming unequal variance and chi squared tests for independence.

Results:
- Significant decrease in MRSA IP-1000 from 1.90 Pre-EIP to 0.93 With-EIP (p < 0.01).
- Significant decrease in MRSA clusters (3 infections within a 30-day period) from 0.27 Pre-EIP to 0.03 With-EIP (p < 0.01).

Conclusion:
- Significant reduction in MRSA infection rate by IP-1000 and MRSA clusters from the Pre-EIP period to the With-EIP period.
- EIP may have contributed to the reduction in MRSA infections and clusters.
- Further study is needed to determine correlation vs causation.
- Limitations: differences in cohort risk factors, small study population, variabilities in infection precautions, and retrospective cohort bias.