

JOHNS HOPKINS ALL CHILDREN'S HOSPITAL

*Staphylococcus aureus*  
Surveillance and  
Decolonization in the  
Neonatal Intensive Care  
Unit Clinical Pathway

Johns Hopkins All Children's Hospital

# ***Staphylococcus aureus* Surveillance and Decolonization in the Neonatal Intensive Care Unit Clinical Pathway**

## **Table of Contents**

1. [Rationale](#)
2. [Background / Published Data and Levels of Evidence](#)
3. [Clinical Management](#)
4. [Summary](#)
5. [Pathway / Algorithm](#)
6. [Glossary](#)
7. [References](#)
8. [Outcome Measures](#)
9. [Appendix](#)
10. [Clinical Pathways Team Information](#)

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Owner & Primary author: Noura Nickel, MD

*This pathway is intended as a guide for physicians, physician assistants, nurse practitioners and other healthcare providers. It should be adapted to the care of specific patient based on the patient's individualized circumstances and the practitioner's professional judgment.*

# ***Staphylococcus aureus* Surveillance and Decolonization in the Neonatal Intensive Care Unit Clinical Pathway**

## **Rationale**

*Staphylococcus aureus* (SA) is a pertinent healthcare-associated pathogen within the neonatal intensive care unit (NICU). SA colonization, including Methicillin-Resistant *Staphylococcus aureus* (MRSA) and Methicillin-sensitive *Staphylococcus aureus* (MSSA), has been shown to increase risk of SA infections in neonates especially low birthweight infants. Mechanisms for surveillance and decolonization of SA have been proven to decrease rates of colonization and infection in this population. In the Johns Hopkins All Children's Hospital (JHACH) NICU, frequent MRSA and MSSA surveillance and decolonization is recommended and outlined in this guideline.

## **Background / Published Data and Levels of Evidence**

*Staphylococcus aureus* (SA) is a common causative pathogen of healthcare-associated infections in hospitalized neonates associated with significant morbidity, mortality, and financial burden (1-5). Risk of infection is increased with lower birth weight, younger gestational age, the presence of invasive supportive devices, as well as SA colonization (3, 6-9). Colonization with either methicillin-sensitive SA (MSSA) or methicillin-resistant SA (MRSA) occurs perinatally through vertical transmission from mother to infant, or postnatally by horizontal transmission from healthcare workers, visitors, or objects in the environment (8, 10-14). Rates of SA colonization within the NICU literature are reported to be between 8-50% (3, 6, 11, 13).

Effective measures for decreasing the risk of nosocomial SA transmission include the use of proper hand hygiene, personal protective equipment (PPE), and occasionally cohorting of MRSA-colonized patients. Additionally, frequent surveillance for SA and decolonization has proven to be effective in preventing invasive SA infections in neonates (15-19). Decolonization includes the use of topical mupirocin and antiseptic baths. While successful decolonization occurs in about 94% of patients after the first attempt, persistent decolonization at the time of discharge is between 49-69% (20-23)

## Clinical Management

### Staph aureus screening:

Staph aureus swab: Should include the nares, oropharynx, and a body swab (a continuous swab from the axilla, to around the umbilicus, and ending in the rectal area).

### Screening frequency:

- Within 48 hours of admission
- Weekly for infants admitted to NICU A and NICU B
- Monthly for infants admitted to NICU C

If a patient undergoes decolonization, rescreen should occur after 24 hours of the last application of mupirocin or CHG bath, whichever happened latest.

For MRSA colonized patients: If a patient has undergone 3 courses of decolonization for MRSA and remains colonized with MRSA on screening, further screens may be discontinued throughout the admission and patient is to remain on contact isolation throughout the duration of the admission.

For MSSA colonized patients: If a patient has undergone 3 courses of decolonization for MSSA and remains colonized with MSSA on screening, further screens should continue throughout the admission in the event that the patient becomes MRSA colonized in order to place the patient on contact isolation.

For concurrent MRSA and MSSA colonized patients: If a patient has undergone 3 courses of decolonization for MRSA or MSSA and remains colonized with either, further screens may be discontinued throughout the admission and patient is to remain on contact isolation throughout the duration of the admission.

### Staph aureus decolonization:

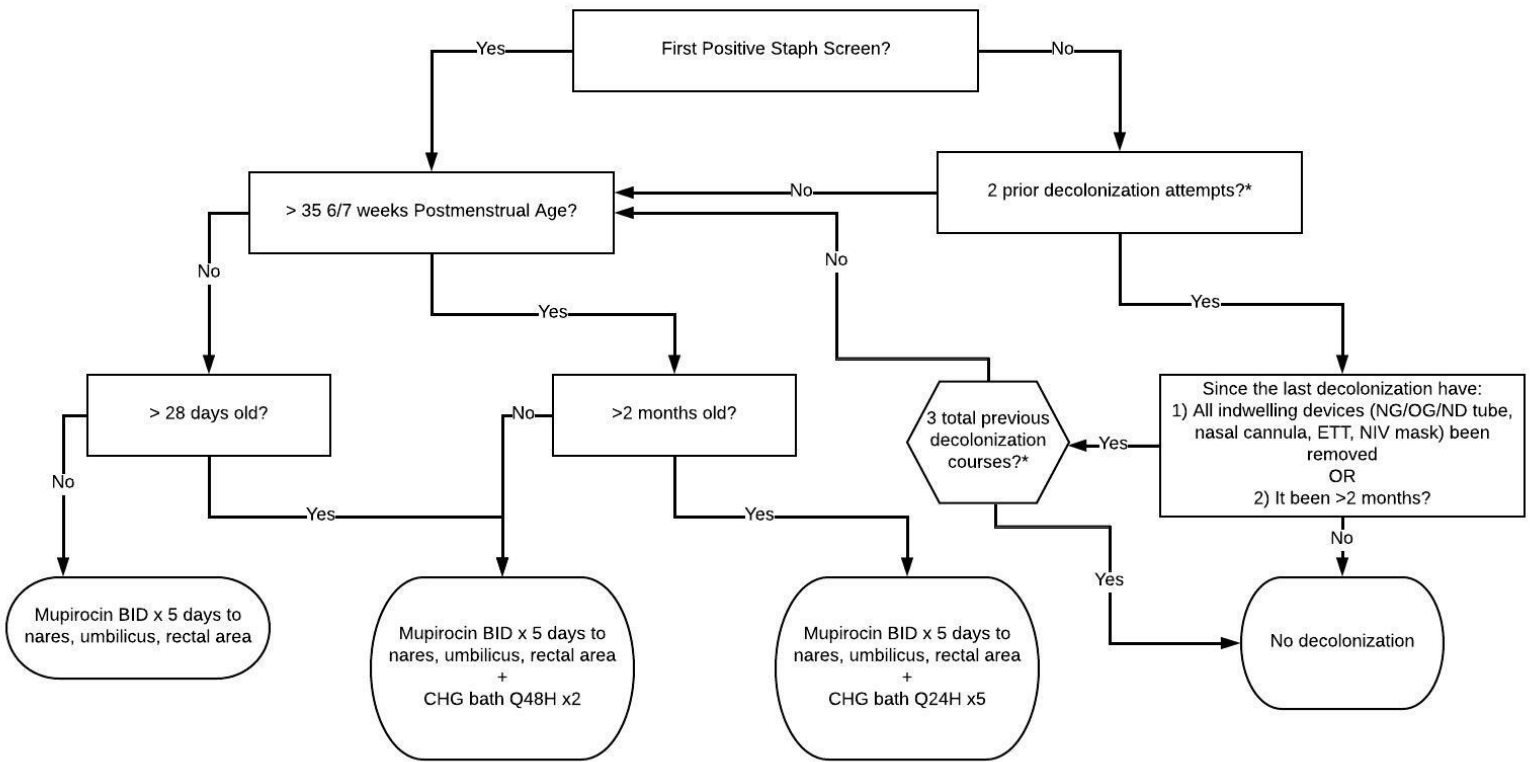
Infants who are Staph aureus colonized should undergo decolonization with mupirocin and antiseptic baths (if they qualify). See the below algorithm. A total of 3 decolonization attempts may be performed during an admission. Decolonization attempts are based on the cumulative positive Staph screens (both MRSA and MSSA) at any point during admission, regardless if the patient has had negatives in between.

### Isolation:

All patients who are colonized with MRSA are to stay in contact isolation throughout the duration of the NICU stay, regardless of successful decolonization.

## Staphylococcus aureus surveillance and decolonization in the Neonatal Intensive Care Unit Algorithm / Pathway

### Staph Decolonization Algorithm



• Frequency of screens:  
 • NICU South: QWeek  
 • NICU North: QMonth

If a patient undergoes decolonization, rescreen should occur after 24 hours of the last application of mupirocin or CHG bath, whichever happened latest.

\*Algorithm based on cumulative positive Staph screens during admission, regardless of any negative screens in between positive screens

## Glossary

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Clinical Pathway Team

Staphylococcus aureus Surveillance and Decolonization in the Neonatal Intensive Care Unit  
Clinical Pathway

*Johns Hopkins All Children's Hospital*

Owner & Primary author: Noura Nickel, MD

Guideline Review Panel:

Sandra Brooks, MD MPH

Kristel Lassiter, NNP

Beth King, NNP

Kathy Molina, NNP

Also Reviewed by:

Infectious Diseases: Allison Messina, MD

Chris Mize, RN

Clinical Pathway Management Team: Joseph Perno, MD; Courtney Titus, PA-C

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**Disclaimer**

*Clinical Pathways are intended to assist physicians, physician assistants, nurse practitioners and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient.*

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