Surgical Site Infection Prevention Pathway v3.0

Perioperative Warming Measures
(Not applicable to cases where cooling is indicated)

- Patients ≥ six years with a surgery longer than an hour should have active warming (forced air – Main OR only)
- All other patients should be provided with passive warming (warm blanket)
  GOC: Perioperative Warming

CHG contraindications/alternate

- CHG not indicated in infants <35 weeks corrected age except for cardiac surgery patients (*If 35-44 weeks: 4% CHG is contraindicated, use 2% CHG wipes only)
- For inpatients with CHG allergy bathe with bath wipes or soap and water
- For outpatients with CHG allergy provide family instructions for pre-op dilute bleach bath
  Job Aid: CHG Wipes

Implant* Exceptions
include stents in the urinary tract, hormonal implants, trachs, and G-tubes.

Inclusion Criteria
All invasive surgical procedures at SCH

Exclusion Criteria
Non-invasive procedures performed in IR, GI, Cath lab, Radiology

Surgical skin incision?

Skin cleaning
Night before surgery: Bath and shampoo
If patient is MRSA+, no decolonization needed

Cardiac, Neuro, or surgery with implant*

MRSA?

Ask provider if MRSA decolonization is needed for this procedure

HIGH RISK/NO MRSA: Skin cleaning & antisepsis

- Five days prior to surgery: Initiate nasal decolonization with Mupirocin applied in the nostrils 2 times daily
- Two consecutive nights before surgery: Bathe hair and body followed by cleansing with 2% CHG wipes (inpatient) or 4% CHG solution* (outpatient)
- Day of surgery: 2% CHG wipes

HIGH RISK & MRSA Decolonization: Skin cleaning & antisepsis

- Five days prior to surgery: Initiate nasal decolonization with Mupirocin applied in the nostrils 2 times daily for 5 consecutive days
- Five consecutive nights before surgery: Bathe hair and body followed by cleansing with 2% CHG wipes (inpatient) or 4% CHG solution* (outpatient)
- Day of surgery: 2% CHG wipes

Keep no form of hair removal 7 days prior to surgery
**Inclusion Criteria**
All invasive surgical procedures at SCH.

**Exclusion Criteria**
Non-invasive procedures performed in IR, GI, Cath lab, Radiology.

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**SSI Prevention Documentation**

- **Pre-operative RN**
  - Identify Risk Level Surgeon Assigned to Procedure in Preprocedure Tab Under Future Cases
  - Complete SSI Prevention Documentation in Preprocedure Navigator

- **Inpatient/ ED**
  - Identify Risk Level Surgeon Assigned to Procedure in Preprocedure Navigator Under Future Cases
  - Complete bundle elements as time allows
  - If not enough time to perform all elements once surgery time is known, document that in the SSI Prevention section of EHR. (For example: if craniotomy is scheduled day before surgery, it doesn’t allow enough time for 5 days of CHG)

- **Complete SSI Prevention Documentation in Preprocedure Navigator**

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**SSI Risk Assigned by Surgeon**

**Preoperative RN**

1. Identify Risk Level Surgeon Assigned to Procedure in Preprocedure Tab Under Future Cases
2. Complete SSI Prevention Documentation in Preprocedure Navigator

**Return to SSI Prevention**

Refer to P&P: SSI Prevention for escalation of incomplete nasal decolonization or pre-op antibiotics.

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For questions concerning this pathway, contact: SSIPathway@seattlechildrens.org

Medical Disclaimer

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## SSI Prevention Bundle Elements Table

<table>
<thead>
<tr>
<th>SSI Bundle Element</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
<th>MRSA&lt;sup&gt;2,3&lt;/sup&gt; Decolonization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSI Bundle Element</strong></td>
<td><strong>Low Risk</strong></td>
<td><strong>Moderate Risk</strong></td>
<td><strong>High Risk</strong></td>
<td><strong>MRSA&lt;sup&gt;2,3&lt;/sup&gt; Decolonization</strong></td>
</tr>
<tr>
<td>No surgical skin incision</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Surgical Skin Incision</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>If your patient is MRSA positive:</strong></td>
<td><strong>No action Needed Follow Recommendations Below</strong></td>
<td><strong>Ask provider if patient needs MRSA Decolonization</strong></td>
<td><strong>Follow MRSA Decolonization Recommendations</strong></td>
<td><strong>MRSA Decolonization Recommendations Below</strong></td>
</tr>
<tr>
<td>Skin Cleansing: All Patients Bath &amp; Shampoo night before</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Skin Antisepsis: Outpatient</strong>&lt;sup&gt;1, 4, 5&lt;/sup&gt; Consecutive Night/s before with 4% CHG Solution</td>
<td>N/A</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Day of Surgery with 2% CHG Wipes</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Skin Antisepsis: Inpatient</strong>&lt;sup&gt;1, 4&lt;/sup&gt; Consecutive Night/s before with 2% CHG Wipes</td>
<td>N/A</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Day of Surgery with 2% CHG Wipes</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Preoperative Hair Removal: All Patients</strong> (shaving, laser, depilatory, waxing)</td>
<td>N/A</td>
<td>No hair removal for 7 days prior to surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nasal Decolonization:</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>5 consecutive days prior to surgery</td>
<td>5 consecutive days prior to surgery</td>
</tr>
<tr>
<td>Mupirocin</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>or Povidone Iodine</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Warming Measures:</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Passive (warm blanket) or Active (torcen-air)</td>
<td>N/A</td>
<td>Surgery &gt;1 b&lt;sub&gt;c&lt;/sub&gt; and &gt; 6yrs old (Applied in pre-op)</td>
<td>N/A</td>
<td>Surgery &gt;1 b&lt;sub&gt;c&lt;/sub&gt; and &gt; 6yrs old (Applied in pre-op)</td>
</tr>
</tbody>
</table>

*For detailed information refer to Clinical P&P P&P: Surgical Antimicrobial Prophylaxis*

1. If CHG contraindicated, cleanse skin with Bath wipes or soap and water
2. If CHG contraindicated, bathe with dilute bleach solution (outpatient) or plain soap (inpatient)
3. If successful decolonization documented, defer to provider
4. CHG not indicated in infants <35 weeks corrected age except for cardiac surgery patients.
5. 4% CHG is not indicated for infants 35-44 weeks corrected age, use 2% CHG only
6. Povidone Iodine not indicated for cardiac surgical patients.
Approved by the CSW Surgical Site Infection Prevention Pathway team for October 22, 2018 go live

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Surgeon-in-Chief  Bob Sawin, MD

Retrieval Website:  http://www.seattlechildrens.org/pdf/SSI-pathway.pdf

Please cite as:
Evidence Ratings

This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children’s. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94.):

Quality ratings are **downgraded** if studies:
- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are **upgraded** if it is felt that:
- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Guideline – Recommendation is from a published guideline that used methodology deemed acceptable by the team.

Expert Opinion – Our expert opinion is based on available evidence that does not meet GRADE criteria (for example, case-control studies).

**Quality of Evidence:**
- 🌟🌟🌟🌟 High quality
- 🌟🌟🌟 Moderate quality
- 🌟🌟 Low quality
- 🌟🌟🌟 Very low quality

Guideline
Expert Opinion

Return to SSI Prevention  Return to Nursing Workflow  To Bibliography
Summary of Version Changes

Version 1.0 (10/22/2018): Go live
Version 2.0 (01/31/2019): Updated Pre-Operative SSI Prevention Assessment
Version 3.0 (09/07/2021): Pathway materials were updated as follows:
   Pathway Algorithm
   • Inclusion criteria updated
   • Updated the CHG ages in the box on the left side
   • Updated to EPIC workflow & updated the screen shots of EPIC & the table
   • Changed footer definition #4 (CHG not indicated in infants <35 weeks corrected age except for cardiac surgery patients)
   • Added a footer definition #5 (4% CHG is not indicated for infants 35-44 weeks corrected age, use 2% CHG only)
   • Updated the referenced #s throughout SSI Prevention

Patient and Family Education
   • Patient & Family Education: Hibiclens Bathing And Antibiotic Ointment Instructions: Prevent Surgical Site Infections
   • Patient & Family Education: Cleaning the Skin with Sage CHG Wipes Before Surgery
Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

However, in view of the possibility of human error or changes in medical sciences, neither the authors nor Seattle Children’s Healthcare System nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers should confirm the information contained herein with other sources and are encouraged to consult with their health care provider before making any health care decision.
Search Methods, Surgical Site Infection Clinical Standard Work

Literature searches were conducted in two phases and executed by a medical librarian, Jackie Morton. The initial search, in December 2017, targeted synthesized literature on surgical site infections. It was executed in Ovid Medline, Cochrane Database of Systematic Reviews, Embase, National Guideline Clearinghouse and TRIP. All searches were limited to items published in English, from 2014 to current. The second search, in January 2018, was conducted in Medline and Embase to retrieve primary studies for 20 years, focusing on nasal decolonization. The team included results from two searches, pre-operative bathing and peri-operative hypothermia, conducted by other clinical support teams. Results were exported to RefWorks for system de-duplication, then to Excel for the screening process.

May 18, 2018

Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535


Bibliography

