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Last Updated: October 2018
Next Expected Review: October 2023

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)

CHG contraindications/alternate
- CHG not indicated in infants <44 weeks corrected age except for cardiac surgery patients
- 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

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

Surgical Site Infection Prevention Bundle Elements:
1) Preoperative bath
2) Appropriate skin antisepsis
3) No hair removal
4) Nasal decolonization
5) Warming
6) Appropriate antibiotics & redosing

Inclusion Criteria
- Bellevue Surgery Center and Main OR

Exclusion Criteria
- Procedures performed in IR, GI, Cath lab, Radiology

Start Here

Surgical skin incision?

YES

Moderate SSI Risk: Skin cleaning & antisepsis
- Night before surgery: Bathe hair and body followed by cleansing with 2% CHG wipes (inpatient) or 4% CHG solution (outpatient)
- Day of surgery: 2% CHG wipe

NO

Low Risk

Skin cleaning

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

MRSA?

NO

YES

HIGH SSI Risk

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

YES

NO

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

Exclusion Criteria:
- Procedures performed in IR, GI, Cath lab, Radiology

Inclusion Criteria:
- Bellevue Surgery Center and Main OR

Exclusion Criteria:
- Procedures performed in IR, GI, Cath lab, Radiology

Cardiac, Neuro, or surgery with implant*
Surgical Site Infection Prevention Bundle completed?

Scheduled Procedure

Ambulatory Clinics
Complete SSI Risk Form

Pre-Procedure phone call
Review or complete SSI Risk Form

Pre-operative area
Review SSI Risk Form
Complete pre-operative assessment form

Unscheduled or Add On Procedure (ED / Inpatient RN)

Scheduled for > 24 hours out
Fill out SSI Risk Form
Get orders for CHG / Mupirocin if indicated
Complete Surgical Checklist within 24 hours before surgery

Scheduled for < 24 hours
Fill out Surgical Checklist including SSI Risk tab
Complete bundle elements as time allows

Exclusion Criteria
- Procedures performed in IR, GI, Cath lab, Radiology

Inclusion Criteria
- Bellevue Surgery Center and Main OR

Pre-Operative SSI Prevention Assessment

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Last Updated: October 2018
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# Appendix A: Surgical Site Infection Prevention Bundle Elements

<table>
<thead>
<tr>
<th>SSI Bundle Element</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
<th>MRSA²,³ Decolonization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No surgical skin incision</td>
<td>Surgical Skin incision</td>
<td>Cardiac</td>
<td>intra-cranial or any surgery with an implant</td>
</tr>
<tr>
<td>If your patient is MRSA positive:</td>
<td>No action Needed Follow Recommendations Below</td>
<td>Ask provider if patient needs MRSA Decolonization</td>
<td>Follow MRSA Decolonization Recommendations</td>
<td>MRSA Decolonization Recommendations Below</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>Skin Antisepsis: Outpatient¹, ⁴</td>
<td>N/A</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Consecutive Night/s before with 4% CHG Solution</td>
<td></td>
<td></td>
<td></td>
<td></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>Skin Antisepsis: Inpatient¹, ⁴</td>
<td>N/A</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Consecutive Night/s before with 2% CHG Wipes</td>
<td></td>
<td></td>
<td></td>
<td></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>Preoperative Hair Removal: All Patients (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>Nasal Decolonization:</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 or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Povidone Iodine</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Intra-operative application</td>
</tr>
<tr>
<td>Warming Measures:</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Passive (warm blanket) or Active (forced-air)</td>
<td>N/A</td>
<td>Surgery &gt;1 hr and &gt;6 yrs old (Applied in pre-op)</td>
<td>N/A</td>
<td>Surgery &gt;1 hr and &gt;6 yrs old (Applied in pre-op)</td>
</tr>
<tr>
<td>Antibiotic Administration</td>
<td>For detailed information refer to Clinical P&amp;P: Surgical Antimicrobial Prophylaxis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹If CHG contraindicated, cleanse skin with Bath wipes or soap and water
²If CHG contraindicated, bathe with dilute bleach solution (outpatient) or plain soap (inpatient)
³If successful decolonization documented, defer to provider
⁴CHG not indicated in infants <44 weeks corrected age except for cardiac surgery patients.
⁵Povidone iodine not indicated for cardiac surgical patients.
Surgical Site Infection (SSI) Prevention Approval & Citation

Approved by the CSW Surgical Site Infection Prevention Pathway team for October 22, 2018 go live

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Executive Approval:

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**Sr. VP, Chief Nursing Officer**  Madlyn Murrey, RN, MN  
**Surgeon-in-Chief**  Bob Sawin, MD


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
- ⭐⭐ Low quality
- ⭐⭐⭐⭐ Very low quality

Guideline
Expert Opinion
• **Version 1.0 (10/22/2018):** Go live
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

Identification

Records identified through database searching (n= 1123 )

Additional records identified through other sources (n= 0)

Screening

Records after duplicates removed (n=1033)

Records screened (n= 1033)

Records excluded (n= 906)

Eligibility

Records assessed for eligibility (n= 127)

Articles excluded (n= 113)

Did not answer clinical question (n= 24)

Did not meet quality threshold (n= 81)

Outdated relative to other included study (n= 8)

Included

Studies included in pathway (n= 14)

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


