Reduction of Cesarean Section Surgical Site Infections (SSI): Progression and Implementation of Evidence Based Practice

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**Background**

• A cesarean section SSI may affect a woman physically, mentally, and/or emotionally while adding to increased healthcare costs and effecting the bonding of mother and child.

• CentraCare Health is committed to patient experience; providing the highest quality of care and resources to improve health, cost, patient safety, and equity of care for all.

• Beginning July 2012, identified increase in overall incidence of SSIs following cesarean sections.

• To decrease the incidence rate of SSIs following a cesarean section, hospitals need to assess current infection prevention practices and implement recommended best practices.

**Purpose Statement**

To improve cesarean section patient experience by reduction of postoperative SSI

**Synthesis of Evidence**

• “SSIs are serious operative complications that occur in approximately 2% of surgical procedures and account for some 20% of health care-associated infections” (De Lissovoy et al., 2009, p. 387).

• Ancef 3g recommended for weight >120kg (American College of Obstetricians & Gynecologists, 2011).

• Chlorhexidine gluconate (CHG) effective for reduction in number bacteria on the skin. Standardized patient education helps improve compliance and efficacy of CHG product.

• Silver silicone foam boarder re-sealable dressing (foam Ag dressing) provides extended broad-spectrum antimicrobial activity, along with bacterial and viral barrier.

• Mayo Clinic Collaborative evidence indicated 50% reduction in SSIs following implementation of closing protocol (Robbins & Bakkum-Gamez, 2014).

**Evidence Based Practice Change**

<table>
<thead>
<tr>
<th>Year</th>
<th>Change</th>
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</thead>
<tbody>
<tr>
<td>2012</td>
<td>Spring: Reduction in OR traffic (traffic control) September: Implement preoperative use of CHG wipes in the home for scheduled and before all cesarean sections within the hospital Fall: Antibiotic dosing at cord clamping</td>
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<tr>
<td>2013</td>
<td>Standardize OR environmental cleaning Multidisciplinary team meeting case reviews</td>
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<tr>
<td>2014</td>
<td>Emphasis on proper OR attire and traffic control February: Weight based dosing of pre-procedure antibiotics October: Standardize wound care; criteria for foam Ag dressing use</td>
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<td>2015</td>
<td>April-May: CHG Prep use in the OR (formally used iodine paint) May 2015: CHG showering and wipe use for unplanned cesarean sections May: Foam Ag dressing standard for all cesarean sections June: Exclusive use of iodine infused drape July: Trial closing trays via Plan-Do-Study-Act (PDSA) model August: Red-dosing of antibiotics if blood loss &gt; 1500mL or case longer than half life of pre-operative antibiotics</td>
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<tr>
<td>2016</td>
<td>Glucose control non-diabetic patient Pre and post surgical multidisciplinary briefings (April 2016) Yeast and skin moisture Panniculus retractor OR environmental cleaning (Time and Technique)</td>
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</tbody>
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**Discussion/Conclusion**

• Surgical Care Improvement Project (SCIP) measures >90%.

• Consideration of changing from CHG wipes to CHG liquid due to cost of wipes at $4.66/patient; a department expense. CHG liquid is available over the counter costing $4-$7.

• Pre procedure call made to scheduled cesarean section patient to educate on use of CHG and prevention measures prior to arrival at hospital, 90% compliance identified with CHG wipe use.

• Learned that CHG and the fenestrated drape do not adhere; lead to standardization of iodine infused drape.

• Costs of foam Ag dressing $18K (all patients) compared to average infection cost of $20K/one patient.

• Standardized patient education developed for CHG bathing and foam Ag dressing.

• Time for implementation of closing trays adds 60 to 120 seconds to each case.

• Review of FY2015 superficial infections identified concerns with antibiotic dosing post procedure, patient education related to wound dressings and cultural barriers, and pannus yeast development driving future EBP initiatives.

**Acknowledgments/Funding**

• Grant funding from Minnesota Hospital Association (MHA).

• Mayo Collaborative/ Mayo Clinic Health System for sharing their work and allowing a site visit.

• Collaborative HealthCare Associated Infection Network (CHAIN) best practice recommendations.

• Supporting Departments/Teams: Obstetrics and Gynecology (medical providers and staff), Surgery, Perioperative Services, Environmental Services, Infection Prevention and Control, Pharmacy, Certified Wound, Ostomy, Continence, and Contracting, Products and Procurement.

References: (All links are available by Access)

- De Lissovoy, G., Fraeman, K., Hutchins, V., Murphy, D., Song D., Vaughn, B. (June 2009). Surgical site infection: incidence and impact on hospital utilization and treatment costs. The MN slashing SSI bundle: Raising the bar to lower the rate [Presentation slide].
- Spring: OR traffic control
- September: Implement CHG wipe use in the home for scheduled procedures and before all within the hospital
- Fall: Antibiotic dosing at cord clamping

- February: Weight based dosing of pre-procedure antibiotics
- October: Standardized post-operative incision care
- OR attire

- April-May: CHG Prep use in the OR (formally used Duraprep)
- May 2015: CHG showering and wipe use
- May: Foam Ag dressing standard for all procedures
- June: Exclusive use of Ioban Drape
- July: Trial closing trays via PDSA model
- August: Re-dosing of antibiotics if blood loss > 1500mL or case longer than half life of pre-operative antibiotics

- Glucose control non-diabetic patient
- Yeast and skin moisture
- Paniculus retractors

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