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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 affecting 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.
- Supported by specialized patient education developed for scheduled cesarean section patient to educate on use of CHG and prevention measures prior to arrival at hospital.
- Post-procedure call made to scheduled cesarean section patient to educate on use of CHG and prevention measures.

Evidence Based Practice Change

<table>
<thead>
<tr>
<th>Year</th>
<th>Change</th>
</tr>
</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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<tr>
<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: Re-dosing of antibiotics if blood loss &gt; 1500mL or case longer than half life of pre-operative antibiotics</td>
</tr>
<tr>
<td>2016</td>
<td>Glucose control non-diabetic patient Pre and post surgical multidisciplinary briefings (April 2016) Yeast and skin moisture Panniculus retractors OR environmental cleaning (Time and Technique)</td>
</tr>
</tbody>
</table>

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.
- 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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