



ESSENTIAL BUNDLE ELEMENT	STRATEGIES FOR APPLICATION OF BUNDLE ELEMENT
<p><b>Pre-operative Mechanical Bowel Preparation Combined with Oral Antibiotics*</b></p>	<ul style="list-style-type: none"> <li>For patients undergoing elective bowel surgery, establish standardized preoperative mechanical bowel preparation regimen combined with preoperative oral antibiotics the day prior to surgery.</li> <li>Mechanical bowel preparation in combination with oral antibiotics prior to surgery should be used in addition to standard intravenous antibiotic prophylaxis pre-operatively.</li> </ul>
<p><b>Antimicrobial Prophylaxis</b> Maintain therapeutic levels of the prophylactic antimicrobial agent in serum and tissues throughout the operation, using weight-based dosing and re-dosing as appropriate.</p>	<ul style="list-style-type: none"> <li>Standardize prophylactic antibiotic protocols, with additional guidance on weightbased dosing and re-dosing for long cases based on the half-life of the selected antibiotic.</li> <li>Administer weight-based antibiotics within 1 hour prior to surgical incision.(N.B. Vancomycin or a fluoroquinolone should be administered within 60-120 minutes before the initial incision due to the longer infusion time required for these antimicrobials).</li> <li>Re-dosing for long cases based on half-life of drug used or when there is excessive blood loss.</li> <li>Prophylactic antibiotics discontinued within 24 hours after surgery end time (48 hours for cardiac surgery).</li> </ul>
<p><b>Skin Preparation</b> Use an antiseptic agent with alcohol for skin preparation unless contraindicated</p>	<ul style="list-style-type: none"> <li>Use chlorhexidine gluconate with isopropyl alcohol or iodine povacrylex with alcohol (70%) to prepare skin prior to surgery.</li> <li>Allow skin to dry completely prior to application of adhesive drapes to ensure good adhesion and to reduce fire risk.</li> <li>Standardize processes for hair removal prior to surgery. If hair removal is required, use clippers. (N.B. razor or depilatory creams should not be used.)</li> </ul>
<p><b>Normothermia</b> Maintain core temperature <math>\geq 36^{\circ}\text{C}</math> during the perioperative period</p>	<ul style="list-style-type: none"> <li>Standardize warming interventions and protocols in both the pre-operative holding area, OR, and PACU.</li> <li>Active warming of patients (e.g., Bair hugger) in the holding area to reduce risk of inadvertent hypothermia for patients with temperature <math>\leq 36^{\circ}\text{C}</math>.</li> <li>Check temperature prior to entering the operating room. Check every 15 minutes intra-operatively. Check immediately upon arrival in PACU and every 30 minutes until discharge from PACU.</li> <li>Use of warmed IV fluids in the OR.</li> </ul>

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<p><b>Glucose Control</b> Maintain blood glucose level &lt; 200 mg/dl on the day of surgery and through the postoperative period</p>	<ul style="list-style-type: none"> <li>Establish glucose control protocols for use throughout peri-operative process.</li> <li>Identify known diabetics and potential hyper-glycemics in the Pre-admission testing (PAT). Work with endocrinologist to reduce HbA-1C for known diabetics.</li> <li>Frequent monitoring of blood glucose (all patients, both known diabetics and nondiabetics) beginning in the pre-operative holding area, in the OR, in the PACU, and on all units. Institute glucose management protocol (e.g. Basal bolus or standard protocol insulin delivery for blood glucose &gt; 200 mg/dl).</li> </ul>
<p><b>Increased Perioperative Oxygenation</b> Maintain optimal tissue oxygenation throughout perioperative period by administering supplemental oxygen at intra-operatively and post-operatively</p>	<ul style="list-style-type: none"> <li>In patients with normal pulmonary function administer increased FiO<sub>2</sub>, (e.g., up to 0.80 FiO<sub>2</sub>) intra-operatively and post-operatively while in PACU or for 2 hours in the receiving unit, in combination with strategies to optimize tissue oxygenation through maintenance of perioperative normothermia and adequate volume replacement.</li> </ul>
<p><b>Clean Standardized Fascia Close</b> Change gown, gloves, and surgical instruments for closure of fascia</p>	<ul style="list-style-type: none"> <li>Surgeon announces time to close to indicate necessity for change of gowns, gloves, and closing trays.</li> <li>Ensure clean closing trays and instruments are available for closing of fascia.</li> <li>Standardize closing of abdominal wound (e.g. with a subcuticular closure except type IV cases, where skin is left partially open).</li> </ul>
<p><b>Wound Management</b> Standardize wound management strategy for all types of colorectal surgeries.</p>	<ul style="list-style-type: none"> <li>Standardize intra-operative application of wound dressing to reduce risk of contamination and maximize wound healing.</li> <li>Standardize post-operative wound dressing, such as continuation of wound dressing for 24-48 hours and dressing removal on POD 2.</li> <li>Instructions for cleansing agent use based on open or closed status of wound.</li> <li>Provide patient and caregiver education on optimal post-discharge wound care.</li> </ul>

**SSI Prevention Basics**

- Hand Hygiene (for staff, patient, and family)
- Environmental Cleanliness (maintaining aseptic environment in the OR)
- Basic Safe Surgery Bundle

\* The only bundle element that is specific for colon surgery. All colon bundle elements can be used to reduce SSI in all surgeries.

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