Objectives

• Describe and discuss best practices in SSI reduction through leadership, culture, physician and team member support.

• Discuss SSI prevention strategies
Two Hospitals

TriPoint Medical Center
Concord, OH

West Medical Center
Willoughby, OH
Best Practices in HAI Prevention

• Strong Physician and Executive Leadership

• Physician Champions

• “Zero Harm” Patient Safety Culture

• Strategic Initiatives include HAI Prevention

• Leadership Goals include Reducing Patient Harm

• Use of High Level Risk Reduction Strategies

• Use of Lean Methodologies
• Daily Patient Safety Huddles for Leadership

• Simpler Lean Methodology

• Managing for Daily Improvement Boards

• High Level Risk Reduction Strategies
PRE-OPERATIVE INITIATIVES
Pre-operative Patient Education

- Pre-operative education for all joint patients
  - Booklets, classes
- Case manager follows all total joint patients; reinforces education
  - Starts when surgery is scheduled
  - Ends 90 post-op
- Pre-Admission Testing provides pre-op CHG bathing instructions to patients
- Pre-Admission Testing provides education on nasal decolonization
MAGNESIUM CITRATE BOWEL PREPARATION INSTRUCTIONS

Continue taking all your regular medications up to the day of your procedure with the following exceptions.

FIVE DAYS BEFORE EXAM

Discontinue iron, Aspirin, Aleve, Advil, blood thinners, (Plavix, Coumadin) and NSAIDS (Celebrex).

A FEW DAYS BEFORE EXAM
Purchase 2 10oz bottles of Magnesium Citrate
This is an over the counter product and does not require a prescription.

THE DAY BEFORE THE EXAM

8:00 am- Have a clear liquid diet. Refer to the instructions on the back of this page. Have as many clear liquids as desired. The more clear liquids consumed the better. Be sure to have at least 8 ounces before starting the Magnesium Citrate (otherwise you may become dehydrated).

Do not take diuretics.
Diabetic patients – No oral medication the night before or the morning of the exam.
Insulin dependent patients – use ½ dose the night before, none the Morning of the exam. Continue to monitor your blood sugar and adjust medication as needed.

8AM - the day before exam.
Mix 1 bottle of Magnesium Citrate with a clear liquid. You may use ginger ale, apple juice, sprite, 7-up or water. Follow with at least one glass of clear liquid, but more if desired.

6PM - the night before exam.
Mix 2nd bottle of Magnesium Citrate with a clear liquid and drink.

Nothing by mouth after midnight.
Expect to be at the facility for approximately 2 hours from the time you arrive.
You must have transportation home after the procedure. You should not drive or work until the day after your procedure.
• Oral antibiotics prior to surgery

ANTIBIOTIC INSTRUCTIONS PRIOR TO SURGERY

YOU MUST TAKE 3 DOSES OF THE ANTIBIOTICS THE DAY AND NIGHT BEFORE YOUR SURGERY.

- DOSE 1  1:00 P.M.  1 FLAGYL AND 2 NEOHYCIN
- DOSE 2  2:00 P.M.  1 FLAGYL AND 2 NEOHYCIN
- DOSE 3  11:00 P.M.  1 FLAGYL AND 2 NEOHYCIN

PLEASE REMEMBER ONLY CLEAR LIQUIDS 24 HOURS BEFORE YOUR SURGERY AND NOTHING BY MOUTH AFTER MIDNIGHT THE NIGHT BEFORE SURGERY.
• Total joint and colon surgeries
  – 5% Povidone-Iodine Solution with swabs
• Cardiac surgeries
  – Mupirocin ointment
• Developed education for operating room staff and staff on medical/surgical floors
• Pre-Admission testing gives education to patients
• For elective surgeries (CABG, total joints, colon surgeries):
  – CHG bath night before surgery & and morning of procedure
  – Detailed instructions provided to patients in Pre-Admission Testing
• **IMPORTANT**: CHG shower should include the whole body “from the neck down” to avoid getting into eyes, ears, nose or mouth.

• If patient desires to wash their hair then they must use regular shampoo. Wash hair as usual then rinse hair and body thoroughly to remove any shampoo residue.

• Wash your face with regular soap and water only and rinse. **Do not use Exidine on your face.**

• External genital area may be washed with Exidine. (do not use internally in vagina or rectum)

• Thoroughly rinse your body with warm water from the neck down.

• **Turn off the water.** Pour the minimum amount of Exidine necessary to cover the skin onto a clean washcloth and apply to your entire body FROM THE NECK DOWN. (DO NOT use on face, hair or genital area)

• **Rub the soap-filled washcloth over your entire body for 3 minutes, applying more soap as needed.**

• **Turn the water back on** and rinse your skin thoroughly with warm water.

• **DO NOT USE** your regular soap after applying and rinsing Exidine.

• Pat yourself dry with a clean towel and put on a clean patient gown

• **DO NOT APPLY** lotions, powders, perfumes to the areas cleaned with Exidine.

• **Nursing to document CHG bathing in clinical notes.**
CHG Surgical Prep

- Organizational recommendation to use 2% CHG skin prep for all surgeries (except spinal cases)
- Discouraged use of iodine-based solutions
- IPs monitored compliance when first implemented
- Re-educated physicians on surgical prep
Lake Health recognized a need to decrease blood utilization and LOS for Orthopedic surgical patients and reduced complications of care including surgical site infections – hip/knee total joints, fractures, shoulder.

Blood utilization has been linked to surgical site infections.

Lake Health implemented the use of Tranexamic Acid in late 2014.

Tranexamic acid is used in orthopedic surgery to reduce blood loss, to the extent of reducing or altogether abolishing the need for perioperative blood collection.

Reduces blood loss when given before or after surgery – drains and number of transfusions are reduced.
Improving Care for Total Joint

Improving Quality of Care

- Complications of Care: 5.63% to 3.07% (2.56% reduction)
- 30 Day Readmits w/Excludes (Any APR-DRG): 3.52% to 2.67% (0.85% reduction)

Data periods:
- June 2013 - December 2014
- January 2015 - July 2016

Improving Length of Stay

- LOS: Decreased from approximately 4 to 1.5 days
- Linear (LOS) trend shows continued improvement
- Intervention marked on chart

11 Readmissions Avoided

680 Days Saved
OPERATIVE INITIATIVES
Antibiotics-SCIP Measures

• Selection
  – Surgery specific

• Weight-based dosing
  – Cefazolin: 2 gm vs 3 gm (patients >120kg)
  – Vancomycin 1 gm vs 1.5 gm (patients >100kg)
### Intra-operative Antimicrobial Re-administration Guidelines

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>Half-life with Normal Renal Function (h)</th>
<th>Half-life with End-stage Renal Disease</th>
<th>Re-dosing Interval in Individuals with NORMAL Renal Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefazolin</td>
<td>1.2-2.5</td>
<td>40-70</td>
<td>3 hours</td>
</tr>
<tr>
<td>Cefoxitin</td>
<td>0.5-1.1</td>
<td>6.5-23</td>
<td>3 hours</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>1-2</td>
<td>15-22</td>
<td>3 hours</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>2-5.1</td>
<td>3.5-5.0</td>
<td>6 hours</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>6-14</td>
<td>7-21; no change</td>
<td>8 hours</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>4-6</td>
<td>44.1-406.4</td>
<td>12 hours</td>
</tr>
</tbody>
</table>
Hair Removal

- Clippers only or no hair removal
Normothermia

- Varies on procedure
- Maintain optimal patient temperature: 36-37°C
- Upper and lower body warmers
- Use fluid warmers for longer surgeries
Glucose Control

- Baseline taken in Same Day Surgery
- Finger sticks taken in OR
- Target Glucose range of 110-150 mg/dl
- Continued to be monitored in PACU
POST-OPERATIVE INITIATIVES
Discontinuing Foley

- Built into Medical Record
- Automatically prompts to remove on Post Op day 2

![Image of Foley discontinuation process]
Early Mobility

- Physical Therapy visits Total Joint patients on surgery day and continues to see through discharge

- For cardiac patients, the patient is up in the chair on Post Op day 1

- Early mobility promotes an earlier discharge!
Cardiac Patients

• Daily CHG bathing while in ICU
  – Skin decolonization

• Instructions on wound management given in operation packet

• Incision Management System
## Post-Op Cardiac Surgery Education

**Education Plan Patient/Family Policy**

<table>
<thead>
<tr>
<th>Responsible Department Source</th>
<th>Cardiac Rehab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners Present</td>
<td>(1) Patient</td>
</tr>
<tr>
<td>Teaching Method</td>
<td>(2) Handout, Verbal</td>
</tr>
<tr>
<td>Micromedex/CareNotes Comments</td>
<td></td>
</tr>
<tr>
<td>Evidence of Learning</td>
<td>(2) Patient, Able to v.</td>
</tr>
<tr>
<td>Learning Comment</td>
<td>receptive</td>
</tr>
</tbody>
</table>

### Post-Op Cardiac Surgery Objectives

Describes how to care for themselves after cardiac surgery

States correct medication regimen without interruption

States activity progressions or limitations

States drug/drug and/or drug/nutrient interactions

States diet plan

States complications to report to physician

- **(5) Wound care, Reducing Emotional Daily**
  - Wound care: bathing, signs of healing, sternal splinting
  - Reducing ankle/leg swelling: elevate legs, do not cross legs, walk daily
  - Emotional aspects: anxiety, depression, fear, memory loss
  - Daily weight: same time every day, for weight gain > 3 lbs in 24-48 hours call cardiologist
  - Miner-Fenwick video-Recovery Guidelines for Cardiac patients: The first 6 Weeks at Home
  - Cardiac Rehab Kit
Case Manager follows all Total Joint patients
  – Starts when surgery is scheduled
  – Follows through post-acute stay
Targeted SSI Rates

- **CABG**
- **Total Joints**
- **Colon**

Year:
- 2014
- 2015
- 2016

Rate:
- 0.5
- 1
- 1.5
- 2
- 2.5
- 3
- 3.5
- 4
- 4.5
- 5
“Back to Basics”

- In response to increase of SSIs

- Review of OR processes
  - Skin prep
  - Sterile draping
  - Wound classification