Infection Prevention & NHSN Webinar | Collaborative Series
SSI-Colon: Assessing Root Cause and Prevention Strategies
November 20, 2018
Welcome & FHA Mission to Care HIIN Overview
  - Cheryl Love, RN, BSN, BS-HCA, MBA, LHRM, CPHRM, Director of Quality and Patient Safety and Improvement Advisor, FHA

SSI: How to Assess Root Cause and Prevention Strategies
  - Linda R. Greene, RN, MPS, CIC, FAPIC, Manager of Infection Prevention, UR Highland Hospital, Rochester, NY

Peer Sharing and Learning

Upcoming HIIN Events and Opportunities

Evaluation Survey & Continuing Nursing Education
HIIN Core Topics – Aim is 20% Reduction

- Adverse Drug Events (ADE)
- Catheter-associated Urinary Tract Infections (CAUTI)
- Clostridium Difficile Infection (CDI)
- Central line-associated Blood Stream Infections (CLABSI)
- Hospital-onset MRSA Bacteremia
- Injuries from Falls and Immobility
- Pressure Ulcers (PrU)
- Sepsis
- Surgical Site Infections (SSI)
- Venous Thromboembolisms (VTE)
- Ventilator Associated Events (VAE/IVAC/PVAP)
- Readmissions (12% reduction)
- Worker Safety
SSI Resources, Trainings and Tools


http://www.hret-hiin.org

- SSI Change Package
- SSI Top 10 Checklist
- SOAP UP Resources
- Watch Past Webinars
- HRET HIIN Resource Library
- Guides
- Case Studies
Designed to reduce multiple forms of harm with simple, easy-to-accomplish activities that cut across several topics to decrease harm.

Focused on four components:

- **SOAP UP**: Hardwire Hand Hygiene
- **GET UP**: Mobilize Patients
- **WAKE UP**: Prevent Over-sedation
- **SCRIPT UP**: Optimize Inpatient Medications
FHA Mission to Care Update: SSI - Colon

Source: HRET Comprehensive Data System, November 16, 2018
**FHA HIIN SUMMARY**  
Hospital Performance Report

**Summary of Progress Meeting 20/12 Goal:**

<table>
<thead>
<tr>
<th>Your Performance</th>
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<tbody>
<tr>
<td>3 75.0%</td>
<td>20% or greater reduction</td>
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<tr>
<td>0 0.0%</td>
<td>0% - 19% reduction</td>
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<tr>
<td>1 25.0%</td>
<td>Increase instead of reduction</td>
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<tr>
<td>4 100.0%</td>
<td>Total Measures</td>
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**Rates per 100**

<table>
<thead>
<tr>
<th>Project</th>
<th>Measure</th>
<th>Baseline Rate</th>
<th>Monitoring Data - Oct. 2016 to August 2018</th>
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<tbody>
<tr>
<td></td>
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<td># Harms</td>
<td>Denom.</td>
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<tr>
<td>SSI</td>
<td>SSI rate, colon surgeries</td>
<td>4.26</td>
<td>990</td>
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<tr>
<td></td>
<td>SSI rate, abdominal hysterectomy</td>
<td>1.47</td>
<td>181</td>
</tr>
<tr>
<td></td>
<td>SSI rate, knee surgeries</td>
<td>0.77</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>SSI rate, hip surgeries</td>
<td>1.44</td>
<td>276</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Register Online</td>
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<tr>
<td>Oct. 23</td>
<td>NHSN: SSI Surveillance Identification and Analysis (Virtual Event)</td>
<td>Event archive: <a href="#">Recording</a></td>
<td><a href="#">Slides</a></td>
</tr>
<tr>
<td>Nov. 20</td>
<td>SSI-Colon: How to Assess Root Cause and Prevention Strategies (Virtual Event)</td>
<td>Today’s event archive will be posted online</td>
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<tr>
<td>Dec. 4</td>
<td>Infection Prevention NHSN Workshop III – Orlando, FL <em>(In-Person Event)</em></td>
<td><a href="#">http://www.cvent.com/d/8bqwm5/2K</a></td>
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<tr>
<td>Dec. 18</td>
<td>NHSN: VAE Surveillance Identification and Analysis (Virtual Event)</td>
<td><a href="#">https://cc.readytalk.com/r/ag8n7ef9vryt&amp;eom</a></td>
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</tbody>
</table>
Virtual Events:
• Nov. 20 - FHA HIIN Infection Prevention & NHSN Series - SSI-Colon: How to Assess Root Cause and Prevention Strategies
• Nov. 29 - HRET HIIN | MDRO Discovery and Direction Series: Special Approaches and Essential Questions
• Dec. 5 – FHA Monthly Quality Hot Topics #2
• Dec. 18 – FHA HIIN Infection Prevention & NHSN Series - NHSN: VAE Surveillance Identification and Analysis

In-Person Events:
• Nov. 30 (Orlando, FL) – FHA HIIN | PFE Statewide Convening
• Dec. 4 (Orlando, FL) - FHA HIIN Infection Prevention & NHSN Workshop III

Check the weekly **MTC HIIN Upcoming Events** for details and registration
Fall Quality Improvement
Sprints & Relays

• **CDI Relay (October-January)**
  - Building on success of past sprint and highlighting past hospital participants as the lead

• **CAUTI Sprint (October-January)**
  - Non-ICU expansion focus

• **VAE (November-January)**
  - How to practically implement the ABCDEF bundle
Winter Quality Improvement Sprints & Relays

• **VTE Sprint (January- March)**
  - Educate patients and families regarding the importance of ambulation, oral medications or injections and sequential compression devices in

• **HAPI/U Sprint (January- March)**
  - Design a process to engage patients and families in assessing for early warning signs and participating in preventive measures injuries
Coaching call, Decreasing Surgical Site Infections in Colon Surgery

Linda R. Greene, RN, MPS, CIC
Manager, Infection Prevention
UR Highland Hospital
Rochester, NY
linda_greene@urmc.rochester.edu
Polling Question 1

What is your background or role?

- SSI project leader
- Quality/Safety Specialist
- Nurse leader
- OR staff member
- Infection Preventionist
- Other
Current Burden

Burden (US)

- 160,000 - 300,000 SSIs per year
- 2-5% of patients undergoing inpatient surgery
- One of the most common and costly HAIs

Mortality

- 2-11 fold higher risk of death
- Length of stay
- 7-11 additional post-op days
Burden

- Cost $3.5 - $10 Billion annually
- Estimated cost per infection ranges from $11,000 - $35,000
- Colon and hysterectomy contribute to HAC reduction and Value Based Purchasing
- Contribute to 30 day unplanned readmissions
History of Public Reporting of SSIs

Decision Making:

- Procedures that require follow-up for 30 days only
- Procedures that are not clean cases and SSI rates may vary
- Procedures performed in most hospitals in the US
Point Prevalence Study

Changes in Prevalence of Health Care–Associated Infections in U.S. Hospitals


Background

• A point-prevalence survey that was conducted in the United States in 2011 showed that 4% of hospitalized patients had a health care–associated infection.

• Study was repeated in 2015 to assess changes in the prevalence of health care–associated infections during a period of national attention to the prevention of such infections.
## Findings

<table>
<thead>
<tr>
<th>Type of Infection</th>
<th>2011 Survey</th>
<th>2015 Survey</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Patients with Infection</td>
<td>No. of Infections</td>
<td>Percentage of Patients with Infection (95% CI)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>110</td>
<td>110</td>
<td>0.98 (0.81–1.20)</td>
</tr>
<tr>
<td>Ventilator-associated pneumonia</td>
<td>43</td>
<td>43</td>
<td>0.38 (0.28–0.51)</td>
</tr>
<tr>
<td>Other pneumonia</td>
<td>67</td>
<td>67</td>
<td>0.59 (0.47–0.75)</td>
</tr>
<tr>
<td>Gastrointestinal infection</td>
<td>86</td>
<td>86</td>
<td>0.76 (0.62–0.94)</td>
</tr>
<tr>
<td>Clostridium difficile infection;\‡</td>
<td>61</td>
<td>61</td>
<td>0.54 (0.42–0.69)</td>
</tr>
<tr>
<td>Other gastrointestinal infection</td>
<td>25</td>
<td>25</td>
<td>0.22 (0.15–0.33)</td>
</tr>
<tr>
<td>Surgical-site infection</td>
<td>109</td>
<td>110</td>
<td>0.97 (0.80–1.20)</td>
</tr>
<tr>
<td>Deep incisional or organ-space infection</td>
<td>77</td>
<td>77</td>
<td>0.68 (0.55–0.85)</td>
</tr>
<tr>
<td>Superficial incisional infection</td>
<td>33</td>
<td>33</td>
<td>0.29 (0.21–0.41)</td>
</tr>
<tr>
<td>Bloodstream infection</td>
<td>50</td>
<td>50</td>
<td>0.44 (0.34–0.58)</td>
</tr>
<tr>
<td>Central catheter–associated bloodstream infection</td>
<td>42</td>
<td>42</td>
<td>0.37 (0.27–0.50)</td>
</tr>
<tr>
<td>Other primary bloodstream infection</td>
<td>8</td>
<td>8</td>
<td>0.07 (0.03–0.14)</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>65</td>
<td>65</td>
<td>0.58 (0.45–0.73)</td>
</tr>
<tr>
<td>Catheter-associated urinary tract infection</td>
<td>44</td>
<td>44</td>
<td>0.39 (0.29–0.52)</td>
</tr>
<tr>
<td>Other urinary tract infection</td>
<td>21</td>
<td>21</td>
<td>0.19 (0.12–0.29)</td>
</tr>
<tr>
<td>Other infection‡</td>
<td>78</td>
<td>83</td>
<td>0.69 (0.55–0.86)</td>
</tr>
<tr>
<td>Any infection‡</td>
<td>452</td>
<td>504</td>
<td>4.0 (3.7–4.4)</td>
</tr>
</tbody>
</table>

* A total of 11,282 patients were included in the 2011 survey, and 12,299 in the 2015 survey; these values are the denominators for the percentages of patients with infection. Patients could have more than one health care–associated infection.

† P values were calculated by a mid-P exact test.

‡ Clostridium difficile is now known as Clostridioides difficile.
### Recently Published Data
**2016 Analysis**

<table>
<thead>
<tr>
<th>SSI: Abdominal Hysterectomy</th>
<th>❌ -13% LOWER COMPARED TO NAT'L BASELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. hospitals reported a significant decrease in SSIs related to abdominal hysterectomy surgery between 2015 and 2016</td>
<td></td>
</tr>
<tr>
<td>Among the 629 hospitals in U.S. with enough data to calculate an SIR, 6% had an SIR significantly higher (worse) than 0.87, the value of the national SIR.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SSI: Colon Surgery</th>
<th>❌ -7% LOWER COMPARED TO NAT'L BASELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. hospitals reported a significant decrease in SSIs related to colon hysterectomy surgery between 2015 and 2016</td>
<td></td>
</tr>
<tr>
<td>Among the 1,817 hospitals in U.S. with enough data to calculate an SIR, 6% had an SIR significantly higher (worse) than 0.93, the value of the national SIR.</td>
<td></td>
</tr>
</tbody>
</table>

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**SURGICAL SITE INFECTIONS**

When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material.
Polling Question 2

What is the status of your SSIs in 2017?

1. Decreased
2. Increased
3. Depends upon the procedure
Colon SSI Percentile Distribution

<table>
<thead>
<tr>
<th></th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
<th>35%</th>
<th>40%</th>
<th>45%</th>
<th>50%</th>
<th>Median</th>
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</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.085</td>
<td>0.343</td>
<td>0.444</td>
<td>0.558</td>
<td>0.627</td>
<td>0.710</td>
<td>0.801</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>55%</th>
<th>60%</th>
<th>65%</th>
<th>70%</th>
<th>75%</th>
<th>80%</th>
<th>85%</th>
<th>90%</th>
<th>95%</th>
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<tbody>
<tr>
<td>0.880</td>
<td>0.959</td>
<td>1.082</td>
<td>1.207</td>
<td>1.336</td>
<td>1.504</td>
<td>1.683</td>
<td>1.919</td>
<td>2.337</td>
</tr>
</tbody>
</table>

https://www.cdc.gov/hai/data/portal/progress-report.html
Polling Question 3

Where do you fall with respect to colon SSI?

1. Above the 75th
2. 50th - 75th
3. Below the 50th
4. Below the 25th
Discussion
Etiology

Surgical Site Infections can be attributed to the patient’s own endogenous flora or from exogenous sources.

Example:

- Patient’s skin
- Contamination during surgery
- Oropharyngeal contamination
- Patient’s natural immunity
Etiology

Exogenous sources:

- Hands of care givers
- Exposure to non sterile environment
- Contamination of fluid, supplies or equipment
- Air flow
Observations

- All surgical wounds are contaminated by bacteria but only a few get infected
- Different operations have different inoculums of bacteria
- Similar operations performed by the same surgeon in different populations have different rates of infection
- SSIs have varying degrees of severity
Bacteria Get into Wounds

Where are the Pathogens?

Pathogen source for most SSIs is endogenous flora of the patient’s skin, mucous membranes or GI tract.

20% of the skin’s pathogens live beneath the epidermal layer in hair follicles and sebaceous glands.

Any incision can carry some of the bacteria directly to the operative site.
Challenges

- Time
- Turnover

- Surgeon preference
- Adherence factors
Leading SSI Pathogens

Gram positive bacteria
- MRSA
- MSSA
- Coagulase negative staphylococci
- Streptococcus species
- Enterococcus species

Gram negative bacteria
- Enterobacter
- Pseudomonas aeruginosa

Other pathogens
- Anaerobic bacteria
- Fungi
- Polymicrobial

Polling Question 4

What is your greatest challenge?

1. Compliance with guidelines
2. Turnover and pace
3. Engagement – staff and physician
4. Lack of standardization
Polling Question 5

What best describes your pathogens?
1. Mostly bowel flora – gram negatives
2. Mix of gram positive and gram negative
3. Both
Standardized Infection Ratios
Refresh our memory

\[ \text{SIR} = \frac{\text{Observed infections}}{\text{Expected infections}} \]
Polling Question 6

Do you look at both SIR and CMS SIR?

1. Yes - Both (Do you look at both SIR and CMS SIR?)
2. No - Just CMS
Discussion
Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017

Sandra I. Berrios-Torres, MD; Craig A. Umscheid, MD, MSCE; Dale W. Bratzler, DO, MPH; Brian Leas, MA, MS; Erin C. Stone, MA; Rachel R. Kelz, MD, MSCE; Caroline E. Reinke, MD, MSHP; Sherry Morgan, RN, MLS, PhD; Joseph S. Solomkin, MD; John E. Mazuski, MD, PhD; E. Patchen Dellinger, MD; Kamal M. F. Itani, MD; Ellie F. Berbari, MD; John Segreti, MD; Javad Parviz, MD; Joan Blanchard, MSS, BSN, RN, CNOR, CIC; George Allen, PhD, CIC, CNOR; Jan A. J. W. Kluymans, MD; Rodney Donlan, PhD; William P. Schecter, MD; for the Healthcare Infection Control Practices Advisory Committee

**IMPORTANCE** The human and financial costs of treating surgical site infections (SSIs) are increasing. The number of surgical procedures performed in the United States continues to rise, and surgical patients are initially seen with increasingly complex comorbidities. It is estimated that approximately half of SSIs are deemed preventable using evidence-based strategies.
• **Category IA.** Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiologic studies.

• **Category IB.** Strongly recommended for implementation and supported by some experimental, clinical, or epidemiologic studies and a strong theoretical rationale; or an accepted practice (e.g., aseptic technique) supported by limited evidence.

• **Category IC.** Required by state or federal regulations, rules, or standards.

• **Category II.** Suggested for implementation and supported by suggestive clinical or epidemiologic studies or a theoretical rationale.

• **Unresolved issue.** Represents an unresolved issue for which evidence is insufficient or no consensus regarding efficacy exists.
Polling Question 7

Did you do a gap analysis to assess compliance with the HICPAC Guidelines?

- Yes
- No
# GAP Analysis

## CDC GUIDELINE FOR THE PREVENTION OF SSI, 2017

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<tr>
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<tbody>
<tr>
<td><strong>Parenteral Antimicrobial Prophylaxis</strong></td>
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<td></td>
<td></td>
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<tr>
<td>1A.1 Administer preoperative antimicrobial agents only when indicated based on published CPG and time such that a bactericidal concentration of the agents is established in the serum and tissues when the incision is made.</td>
<td>IB</td>
<td></td>
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<tr>
<td>1B Administer the appropriate parenteral prophylactic antimicrobial agents before skin incision in all cesarean section procedures.</td>
<td>IA</td>
<td></td>
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<tr>
<td>1C Weight-adjusted parenteral antimicrobial prophylaxis dosing</td>
<td>Unresolved No rec.</td>
<td></td>
<td></td>
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<tr>
<td>Other guidelines: CDC’s based on a review of the evidence and expert opinion recommend increasing the single preoperative prophylactic antimicrobial agent dose for select prophylactic antimicrobial agents in obese and morbidly obese patients. For cefazolin, recommendations are to administer 2.0 g for patients weighing &gt;60-80 kg and 3.0 g if &gt;120 kg. For oxacillin, dosing is calculated using the patient’s ideal body weight plus 40% of the difference between the actual and ideal body weight. Vancomycin should be dosed at 15 mg/kg.</td>
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<tr>
<td>1D Intraoperative re-dosing of parenteral prophylactic antimicrobial agents</td>
<td>Unresolved No rec.</td>
<td></td>
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<tr>
<td>Other guidelines: CDC’s based on a review of the evidence and expert opinion recommend prophylactic antimicrobial agent re-dosing in cases of prolonged procedures (when the procedure exceeds the half-life of the prophylactic antimicrobial agent or is longer than 3-4 hours and in patients with major blood loss (&gt;1500 ml) or extensive burns. Redosing should also be performed at intervals of 1-2 times the prophylactic antimicrobial half-life, starting at the beginning of the preoperative phase. No recommendations are provided for optimal prophylactic antimicrobial agent dosing in obese/morbidly obese patients when re-dosing.</td>
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<tr>
<td>1E In clean/clean-contaminated procedures, do not administer additional prophylactic antimicrobial agent doses after the surgical incision is closed in the OR, even in the presence of a drain</td>
<td>IA</td>
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</table>
Discussion
Where Are Your Gaps?
### Selected Elements of Surgical Care Bundle from Literature

<table>
<thead>
<tr>
<th>Appropriate antimicrobial prophylaxis</th>
<th>Antimicrobial (triclosan) sutures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight-based dosing</td>
<td>Smoking cessation</td>
</tr>
<tr>
<td>Glycemic control</td>
<td>Staphylococcal surveillance (cardiothoracic and orthopedic procedures)</td>
</tr>
<tr>
<td>Normothermia</td>
<td>Oral antibiotics plus mechanical bowel preparation (colorectal)</td>
</tr>
<tr>
<td>Appropriate hair removal</td>
<td>Minimally invasive surgery</td>
</tr>
<tr>
<td>Supplemental $O_2$ (colorectal procedures)</td>
<td>Short duration of surgery</td>
</tr>
<tr>
<td>Use of wound edge protectors</td>
<td>Glove change prior to fascia and skin closure</td>
</tr>
<tr>
<td>Dedicated wound closure tray for fascia and skin</td>
<td>Limit traffic in the operating room</td>
</tr>
<tr>
<td>Pre-operative 4% CHG shower or 2% CHG cleansing</td>
<td>CHG cleansing of surgical wound</td>
</tr>
<tr>
<td>70% alcohol with 2% CHG perioperative skin preparation</td>
<td>Keep sterile dressing intact for first 48 hours</td>
</tr>
</tbody>
</table>

https://www.dhs.wisconsin.gov/hai/ssi-prevention.htm
Strategies to Prevent SSIs

You must consider whether any given risk is:

**Modifiable:**

i.e. glucose, antimicrobial administration, hair removal

**Non Modifiable:**

i.e. age, co-morbidities, severity of illness, wound class
Colorectal Bundle

Intraoperative
1. Hair Removal
   □ Hair removal (only if hair will interfere with the operation) with clippers, outside the OR if at all possible

2. Antibiotics
   □ Redose prophylactic antibiotic based on duration of operation

3. Skin Prep
   □ Use standardized antiseptic agent for skin prep: alcohol-containing (Chloroprep, Duraprep) unless contraindicated (infants, mucous membranes, ear procedures, open wound)
   □ When alcohol-based skin prep is contraindicated, use Chlorhexidine or Povidone Iodine antiseptic agent for skin prep. Regardless of antiseptic agent used, it must be allowed to dry completely. Alcohol prep would be contraindicated for use for during emergent cases with no drying time

4. Hand Hygiene & Asepsis
   □ Ensure double gloving/sterile gloves for all scrubbed surgical team members
   □ Keep nails short, do not wear artificial nails or hand or arm jewelry
   □ Clean underneath fingernails prior to first daily surgical scrub
   □ Follow policy: Surgical/Procedural Hand Hygiene
   □ Wear disposable cap or hood to fully cover head/facial hair and surgical mask to cover nose/mouth when entering the operating room and until the conclusion of the operation
   □ Use surgical gown and drapes that are liquid resistant
   □ Change surgical scrubs if visibly soiled or contaminated

5. Temperature
   □ Maintain perioperative normothermia (≥ 36°C)
   □ Use of Bair Hugger.
   □ Warm IV fluids
   □ Follow policy: Maintaining Normothermia in the Surgical Patient

6. Drains
   □ If drainage is indicated, use a closed suction drain placed through a separate incision
   □ Remove drain as soon as possible
   □ Do not continue prophylactic antibiotics because drains are in place

7. Items intentionally left in patient
   □ Document items left behind in operative notes (stents, packing, drains, etc)
   □ Document plan for removal if item is temporary

8. Surgical Technique
   □ Use of wound protectors
   □ Change gloves prior to closing
   □ Use of clean instruments (Colorectal Closing Set) for closing of the wound
Polling Question 8

Do you use bundles or pathways?

- Yes
- No
Polling Question 9

Do you monitor compliance to bundles or pathways?

1. Yes
2. No
3. Do not use
Colorectal Care Across the Continuum

https://www.centerfortransforminghealthcare.org/assets/4/6/SSI_storyboard.pdf
<table>
<thead>
<tr>
<th><strong>NHSN</strong></th>
<th><strong>NSQIP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data is used for public reporting</td>
<td>Data used for internal quality</td>
</tr>
<tr>
<td>Provides comparison data based upon the US experience in hospitals</td>
<td>Provides comparison data based upon other NSQIP hospitals</td>
</tr>
<tr>
<td>reporting to NHSN for CMS purposes</td>
<td></td>
</tr>
<tr>
<td>Standardized SSI definitions per CDC NHSN</td>
<td>Standardized SSI definitions similar to CDC NHSN</td>
</tr>
<tr>
<td>100% of denominators of eligible procedures</td>
<td>Uses sampling methodology – 40 cases per 8 day cycle minimum * some</td>
</tr>
<tr>
<td></td>
<td>hospitals may elect to review all cases</td>
</tr>
<tr>
<td>Variety of case finding methodologies using NHSN approved techniques</td>
<td>Standardized case finding methodologies</td>
</tr>
<tr>
<td>Review potential SSI for 30 days post-surgery and those with</td>
<td>All cases are followed for 30 days including orthopedic joints and those</td>
</tr>
<tr>
<td>implantables for 90 days</td>
<td>with implantables</td>
</tr>
<tr>
<td>Used for reporting and calculating SSI rates and standardized</td>
<td>In addition to SSI data, provides information on other complications</td>
</tr>
<tr>
<td>infection ratios. Analytical functions are available to the user</td>
<td>such as respiratory, mortality, cardiac, etc.</td>
</tr>
</tbody>
</table>
Polling Question 10

Does your organization also collect NYSQIP Data?

- Yes
- No
Figure 1. SSI reduction strategies by phase of care

Prehospital
- Bowel preparation
- Over-the-counter enema two hours before leaving home for hospital
- Neck-down shower with chlorhexidine at completion of prep and after clear bowel movement (BM)
- Chlorhexidine antimicrobial scrub of abdomen morning of operation

Preoperative
- Improved licensed independent practitioner (LIP) questions to determine patient readiness for OR
  - Percent bowel prep consumed
  - Color of last stool
  - Enema two hours before leaving home
  - Neck-down shower with chlorhexidine at completion of prep and after clear BM
  - Chlorhexidine neck-down shower with additional antimicrobial scrub of abdomen morning of operation
- Blood glucose—preoperative holding area check (goal <200)
  - Consider delay of case: ≥200 – 349
  - Consider cancellation of case: ≥350
- Hair removal complete in preoperative holding area before going to OR

Intraoperative

- Staff will wear surgical masks at all times in the OR
- Staff will minimize traffic and time OR door is left open
- Use of chlorhexidine skin prep unless contraindicated (stoma/allergy)
  - Substitute Betadine when contraindicated: Allow to air dry
- Skin prep area extended from nipple line to knees: side to side
  - Area inclusive of posterior axillary line
- Attending will be present in OR during skin prep to observe staff performing skin prep as per established guidelines
  - Staff will be reeducated at point of care by attending if prep does not meet standard expected
- OR team operating within the sterile field will prepare for the case using chlorhexidine scrub brush for more than two minutes (this includes the scrub nurse)
  - Chlorhexidine/alcohol-based preoperative hand antiseptics will not be considered an acceptable substitute for traditional brush hand scrubbing
- Clean scrubs must be worn at the start of every colorectal case (staff within the sterile field)
- Scrubs worn during a case will not be worn outside of the OR (surgeon)
  - Surgeons will change into clean scrubs before entering or leaving OR
- Prophylactic antibiotic will be administered within 60 minutes of incision time for optimal results
- Place iodine-impregnated incision drape over abdomen
- Put Alexis wound retractor in place
- Before closing the abdominal wall, the OR team operating within the sterile field will:
  - (1) Re-glove
  - (2) Re-prep
  - (3) Re-towel incision area
  - (4) Use reserved clean instrument tray for closing
- Wound closure guidelines to be followed (see Figure 3)
- Normothermia (SCIP =36.0° C); discuss/address patient temperature at debriefing prior to surgeon leaving OR
- Sticker with dressing change instructions placed on dressed wound
Post Operative

Postoperative
- Do not leave OR in scrubs except when directly walking to and from office to change to street clothes
- Discontinuation of antibiotic within 24 hours (SCIP)
- Foley catheter removal by POD #2 (SCIP)
- Glucose control (SCIP cardiac surgery measure)
- Appropriate hand hygiene/gloves on floor
- Dressing changes using sterile technique
- Prior to patient discharge; attending review of wound
Enhanced Recovery After Surgery (ERAS) is a paradigm shift in perioperative care, resulting in substantial improvements in clinical outcomes and cost savings.

**Preadmission**
- Preadmission nutritional support
- Cessation of smoking
- Control alcohol intake

**Preoperative**
- Selective bowel preparation
- Preoperative carbohydrates
- No NPO
- PONV prophylaxis

**Intraoperative**
- Minimal invasive surgery
- Minimize drains and tubes
- Regional analgesia
- Opioid-sparing anesthesia
- Balanced fluids
- Temperature control

**Postoperative**
- Early removal of drains and tubes
- Stop intravenous fluids
- Multimodal opioid-sparing pain control
- Early mobilization
- Early oral intake of fluids and solids
- Postdischarge follow-up
<table>
<thead>
<tr>
<th>Element</th>
<th>Target Effect and/or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preadmission</strong></td>
<td></td>
</tr>
<tr>
<td>Cessation of smoking and excessive intake of alcohol</td>
<td>Reduce complications</td>
</tr>
<tr>
<td>Preoperative nutritional screening and, as needed, assessment and</td>
<td>Reduce complications</td>
</tr>
<tr>
<td>nutritional support</td>
<td></td>
</tr>
<tr>
<td>Medical optimization of chronic disease</td>
<td>Reduce complications</td>
</tr>
<tr>
<td><strong>Preoperative</strong></td>
<td></td>
</tr>
<tr>
<td>Structured preoperative information and engagement of the patient and</td>
<td>Reduce anxiety, involve the patient to improve</td>
</tr>
<tr>
<td>relatives or caretakers</td>
<td>compliance with protocol</td>
</tr>
<tr>
<td>Preoperative carbohydrate treatment</td>
<td>Reduce insulin resistance, improve well-being,</td>
</tr>
<tr>
<td></td>
<td>possibly faster recovery</td>
</tr>
<tr>
<td>Preoperative prophylaxis against thrombosis</td>
<td>Reduce thromboembolic complications</td>
</tr>
<tr>
<td>Preoperative prophylaxis against infection</td>
<td>Reduce infection rates</td>
</tr>
<tr>
<td>Prophylaxis against nausea and vomiting</td>
<td>Minimize postoperative nausea and vomiting</td>
</tr>
<tr>
<td><strong>Intraoperative</strong></td>
<td></td>
</tr>
<tr>
<td>Minimal invasive surgical techniques</td>
<td>Reduce complications, faster recovery, reduce</td>
</tr>
<tr>
<td></td>
<td>pain</td>
</tr>
<tr>
<td>Standardized anesthesia, avoiding long-acting opioids</td>
<td>Avoid or reduce postoperative ileus</td>
</tr>
<tr>
<td>Maintaining fluid balance to avoid over- or underhydration, administer</td>
<td>Reduce complications, reduce postoperative</td>
</tr>
<tr>
<td>vasopressors to support blood pressure control.</td>
<td>ileus</td>
</tr>
<tr>
<td>Epidural anesthesia for open surgery</td>
<td>Reduce stress response and insulin resistance,</td>
</tr>
<tr>
<td></td>
<td>basic postoperative pain management</td>
</tr>
<tr>
<td>Restrictive use of surgical site drains</td>
<td>Support mobilization, reduce pain and discomfort,</td>
</tr>
<tr>
<td></td>
<td>no proven benefit of use</td>
</tr>
<tr>
<td>Removal of nasogastric tubes before reversal of anesthesia</td>
<td>Reduce the risk of pneumonia, support oral</td>
</tr>
<tr>
<td></td>
<td>intake of solids</td>
</tr>
<tr>
<td>Control of body temperature using warm air flow blankets and warmed</td>
<td>Reduce complications</td>
</tr>
<tr>
<td>intravenous infusions</td>
<td></td>
</tr>
</tbody>
</table>
Polling Question 11

Has your facility implemented ERAS protocols?

- Yes
- No
Example of Analysis Form

Name: __________________________  Med Record Nbr: _______________  DOB: __________
Admit Date: ________________  Location: ____________  □ Male  □ Female
Date of Operation: ________________  Surgery Start: ________  Surgery End: ________  Or Room ________
Surgeon Code: ________________  Service: ____________  Skin Prep:  □ CHG
□ Povidone Iodine
□ Chloraprep (CHG & Alcohol)
□ Duraprep (Povidone & Alcohol)
□ Alcohol
□ Other ________________
Operation: __________________________
ASA: ________  Wound Class: ____________
Infection present at time of surgery? □ Yes  □ No
Comments: __________________________
Preop Nasal Povidone: □ Yes  □ No  □ Not documented
Hair removal: □ None  □ Clipped  □ Shaved in OR □ Shaved before OR □ Depilatory
Abx prophylaxis: □ Yes  □ No  □ Not documented
Abx: __________________________  Abx Start: ________  Abx Redose Time ________
________________________  __________________________  __________________________
Abx Duration: □ Pre-op only □ Pre and post-op ≤ 24h  □ More than 24h post-op
Minimum Temp: ____________  □ Not recorded  □ O₂ Sat Min: ________
Glucose checked: □ Yes  □ No  □ Not documented  □ Indeterminant
Glucose Max (24h) ____________
Immediate Use or Flash Sterilization: □ Yes  □ No  □ Not documented  □ Indeterminant
BMI: __________
Infection Details:  □ SI  □ DI  □ OS
□ Primary/secondary
□ Primary/secondary
□ Organ Space
Onset: ____________  Symptoms: __________________________
Severity: ____________  __________________________
Culture Date  Site  Organism  Resistance
________________________  __________________________  __________________________
________________________  __________________________  __________________________
Notes: __________________________  __________________________  __________________________
Polling Question 12

Do you perform a mini RCA or analysis after an SSI?

- Yes
- No
Discussion and Questions
Contact Us: HIIN@fha.org  |  Phone: 407-841-6230

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  Project Manager
Evaluation Survey & Continuing Nursing Education

• Eligibility for Nursing CEU requires submission of an evaluation survey for each participant requesting continuing education: [https://www.surveymonkey.com/r/IP-NHSN-112018](https://www.surveymonkey.com/r/IP-NHSN-112018)

• Share this link with all of your participants if viewing today’s webinar as a group (Survey closes Nov. 30)

• Be sure to include your contact information and Florida nursing license number

• FHA will report 1.0 credit hour to CE Broker and a certificate will be sent via e-mail (Please allow at least 2 weeks after the survey closes)
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