Slashing SSI’s in Total Joints

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Objectives

• Relate the national costs and occurrence of total joint surgical site infections to Barton’s incidence rate.
• Discuss strategies implemented to decrease total joint surgical site infections at Barton.
• Analyze barriers encountered during Barton’s journey to decrease total joint surgical site infections.
• Examine future endeavors to expand surgical site infection reduction strategies to Barton’s general surgical population.
Mission: Barton Health delivers safe, high quality care and engages the community in the improvement of health and wellness

acute care hospital; 71 patient beds; 3-4 Operating rooms; 2900 surgeries per year with average 240 per month; 50% of surgical volume in orthopedics
Surgical Site Infections (SSIs)

• Healthcare Associated Infections (HAIs) continue to be a major patient safety issue
  • SSIs are one of the most prevalent HAIs
    • SSIs account for 31% of HAIs in hospitalized patients
    • Estimated 157,500 SSIs annually
    • Overall national SSI rate of 1.9%
• 55% - 70% of SSIs are preventable with evidence based strategies
• Total Joint SSIs estimate range of 0.9% - 2.5% annually
  • SSIs cause approximately 25% of revision joint surgeries
  • Estimated 20,000 total joint patients get an SSI

Surgical Site Infections (SSIs)

• 3 Categories of SSIs:
  • Superficial Incisional SSI
  • Deep Incisional SSI
  • Organ Space SSI

Source: CDC (2015)
Superficial Incisional SSI

• Occurs within 30 days after surgery
• Involves only skin and subcutaneous tissue of the incision
• At least one of the following exists:
  • Purulent drainage from incision
  • Positive culture
  • Incision deliberately opened by surgeon/physician
    • And patient has one of these signs/symptoms:
      • Pain/tenderness
      • Swelling
      • Erythema
      • Heat
  • Diagnosis of superficial SSI

Source: CDC (2015)
Deep Incisional SSI

• Occurs within 30 to 90 days after surgery
• Involves deep soft tissues of incision
  • Fascial and muscle layers
• At least one of the following exists:
  • Purulent drainage
  • Dehiscence of deep incision
  • Deliberately opened/aspirated by physician
    • And patient has one of these signs/symptoms:
      • Fever (>38C)
      • Localized pain/tenderness
  • Abscess or other infection involving deep incision

Source: CDC (2015)
Organ Space SSI

• Occurs within 30 to 90 days after surgery
• Involves body part deeper than fascial/muscle layers
  • Which is opened/manipulated during surgery
• At least one of the following exists:
  • Purulent drainage from drain in organ/space
  • Positive organ/space culture (fluid or tissue)
  • Abscess or evidence of infection involving organ/space

Source: CDC (2015)
Costs of Total Joint SSIs

- Total Joint SSIs are a major financial burden: involves 3 types of costs
  - Medical Costs
    - Hospital readmissions
    - Treatments (antibiotics)
    - Additional surgical procedures (removal infected implants & revision joint procedure)
  - Indirect Costs
    - Unreimbursed expenses – out of pocket
    - Lost wages/productivity
    - Increased morbidity
    - Litigation
  - Intangible Costs
    - Emotional: pain/suffering
    - Psychological
    - Physical: daily activities
Barton’s Total Joint SSI Rates

BMH TOTAL JOINT SSI RATES

- Total Hip SSI rate: 1.66% (2012), 2.83% (2013), 1.09% (2014)
- Total Knee SSI Rate: 2.96% (2012), 0.00% (2013), 0.00% (2014)
- Total Joints SSI Rate: 2.83% (2012), 0.59% (2013), 0.44% (2014)
SSI Comparison to National Rate

![Comparison BMH to National Rate Chart]

- **Total Joint (TJ) SSI Rate**
  - 2012: 0.59%
  - 2013: 2.83%
  - 2014: 0.44%

- **National TJ SSI Threshold**
  - 2012: 1.00%
  - 2013: 1.00%
  - 2014: 1.00%
2013 SSI Investigation

• 2013 – Infection Preventionist investigated SSIs
  • Director Surgery completed SSI worksheet
    • Prophylactic antibiotics
    • Patient skin prep
    • Active warming
    • OR staff not involved

• SSIs continued
  • Staff education – SSIs, traffic, prepping, aseptic technique
  • SCIP measures were being met

• October 2013
  • Joined national SSI reduction program
  • SUSP – The Surgical Unit-Based Safety Program
SUSP – Surgical Unit-Based Safety Program

• Armstrong Institute for Patient Safety and Quality
  • Provided framework, education, and expertise
  • Create local safety culture

• Team approach - multidisciplinary
  • Surgeons
  • Anesthesia
  • Staff – OR, PACU, Pre-op, and Reprocessing
  • Quality and Patient Safety
  • Infection Preventionist
  • Executive team
How Did We Do It?

- Front line staff involvement
  - Set reduction goal: Decrease total joint SSIs by 40%
  - Hospital Survey on Patient Safety
  - Perioperative Staff Safety Assessment
    - How will next patient in OR get an SSI?
    - How will next patient be harmed?
  - Assessment results categorized
    - Teams formed for each category
      - Staff and Patient Education
      - Infection Control Practices
      - Prophylactic Antibiotics

- Audits
  - Traffic in/out TJ room
  - Prepping
  - Draping
Back to Basics

• Traffic Control
  • Traffic in/out TJ rooms excessive
  • No Breaks (scrub or circ)
  • Signs posted
  • Staff education/evidence
  • Continued Audits

• OR Doors Closed
  • Open only for patients, equipment, supplies
  • Use substerile doors for access during cases
  • Education – why doors closed

• Proper Surgical Attire
Back to Basics (cont’d)

• Patient Skin Prep
  • Following manufacturer’s instructions
  • Hair clipping in pre-op
  • Staff education/competency

• Aseptic Technique Refresher
  • OR staff competency
  • Double gloving

• Hand Hygiene

• Active Warming
  • Begin warming in preop
Prophylactic Antibiotics

• Following SCIP Measures
  • Prophylactic antibiotics – 100% within one hour of incision
  • Correct antibiotic – 99%
  • Actively warmed – 100%

• Antibiotic dosage
  • Order sets not updated
  • Ortho cases – dosing 1gm Cefazolin
  • Surgeon education – SHEA guidelines
  • Updated order sets - prophylactic antibiotic dosing

Source: Barton Health (2014)
Developed Total Joint SSI Bundle

• Pre-op bathing – Chlorhexidine gluconate (CHG)
  • 3 pre-op showers – 2 nights before, night before, morning of surgery
  • Patient education
  • Provide bathing kits
  • CHG wipes in pre-op if non-compliant

• MRSA Screening
  • Pre-op lab work
  • Consider decolonization if positive

• Prophylactic Antibiotics
  • Based on SHEA Guidelines

• OR Team Initiatives
Barriers Encountered on our Journey

• OR Team Culture
  • Staff resistance
  • Staff engagement
  • Ownership of process
  • We have always done it this way

• Physician Support
  • Champions
  • Evidence-based initiatives
    • No clear evidence to support pre-op bathing with CHG

• Vendors
  • Limit traffic in OR
Future Endeavors for SSI Reduction

• Goal for 2015
  • 20% reduction of overall SSIs
  • Individual goals linked to departmental goal

• Pre-op showering for all elective cases
  • Evidence non-supportive
  • New recommendation CDC & AORN
  • CHG cloths in pre-op

• OR staff initiatives
  • Aseptic technique
  • Surgical attire
  • Cleanliness of OR rooms
  • Maintain traffic control

• Repeat Hospital Survey on Patient Safety

• Implement TeamSTEPPS
ARE THERE ANY QUESTIONS?


References – cont’d.

