Surgical Site Infection (SSI) Prevention

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Who we are…

- 423 bed hospital in Central Illinois
- Part of a 15 hospital system
- Level I Trauma Center
- Level III NICU
- 13,088 surgeries performed in 2017

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Where we were…

- 2016
  - CABG—8 infections
  - COLO—6 infections
  - HYST—2 infections
  - KPRO—3 infections
  - HPRO—3 infections
  - Total reportable infections—22
- 2015
  - Total reportable infections—22

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What we decided…

- It was decided to review all infections to determine underlying issues
- A multidisciplinary team meeting was held with key leaders from anesthesia, trauma surgery, infection prevention, management (surgery, quality) to figure out how to bring about change
- Administration support would be needed for change across all levels

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What was decided…

- A new multidisciplinary team approach would be used to review all infections.
  - Commitment to monthly review meetings
- Tools used were:
  - CDC Guidelines for Prevention of Surgical Site Infection
  - ASHP Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery

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Administration Support

- Obtained the support of administration to review previously used processes.
- Support from administration used to gain engagement from colleagues and physicians
- Accountability started at the administrative level

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Multidisciplinary Team

- A multidisciplinary surgical site infection review committee formed to review each infection.
  - Infection Prevention
  - Infectious Disease Physician
  - Pharmacy
  - Surgeon(s)
  - Surgery colleagues (perioperative nursing and leadership)
  - Anesthesia
  - Nursing
  - Environmental Services
  - Facilities
  - Sterile Processing Department

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Multidisciplinary Team

- Infection Prevention
  - National Healthcare and Safety Network (NHSN) criteria to identify infections.
  - Create a general work-up of the infection
  - The multidisciplinary reviews were sent to the surgeon highlighting areas of opportunity
    - Copied administration so they were kept aware of the opportunities.

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Multidisciplinary Team

- Infectious Disease Physician
  - Chair of the Infection Prevention Program
  - General review of the infection and provides feedback.
  - Physician champion for the Infection Prevention team

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Multidisciplinary Team

- Pharmacy
  - Review infections for proper antibiotic
    - Selection
    - Dosing
    - Timing
  - Review if the antibiotic covered identified pathogen
  - Reviewed for proper re-dosing

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Multidisciplinary Team

- Surgeon(s)
  - Surgeon champions identified to foster engagement
  - Asked to review patients case to give feedback on possible opportunities

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Multidisciplinary Team

- Surgery Colleagues
  - Reviewed for
    - Traffic in the operating room
    - Prepping of patient
    - Hair clipping location
    - Closure supplies
    - Appropriate storage of supplies
    - Colleague practice related to sterile technique, hand hygiene, personal hygiene, sterile attire, etc.

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Multidisciplinary Team

- Anesthesia
  - Reviewed the following:
    - Antibiotic start and stop times
    - Re-dosing of antibiotics
    - Normothermia
    - Oxygenation
    - Intraoperative glycemic control

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Multidisciplinary Team

- Inpatient Nursing
  - Reviewed for:
    - Preoperative antisepsis and application times of products
    - Bathing after surgery
    - Post operative dressing changes

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Multidisciplinary Team

- Environmental Services
  - Reviewed for:
    - Cleaning logs
    - Review for changes in cleaning products

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Multidisciplinary Team

- Facilities
  - Reviewed for:
    - Pressure of operating room
    - Temperature of operating room
    - Humidity of operating room
    - Any recent construction or concerns for the operating room

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Multidisciplinary Team

- Sterile Processing Department
  - Reviewed for:
    - Proper storage of sterile supplies/instrumentation
    - Environmental concerns addressed
    - Sterile load concerns
    - Checking for temperature, humidity, and pressures of the sterile processing department and storage areas

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Findings from the multidisciplinary reviews…

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Antibiotic Selection & Timing

- The multidisciplinary team reviews showed:
  - Incorrect antibiotic for the type of surgery
  - Missed antibiotic doses
  - Timing of the antibiotic
    - Did not allow for proper serum and tissue levels of antibiotic prior to cut
      - 15 minute prior to incision=goal

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Pre-operative Bathing

- The process of pre-operative CHG bathing was confusing for some patients.
  - Instructions were simplified to help patients understand how to use the product.
- Developed pre-operative antisepsis protocol for nursing to decrease potential for error.

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Controlled Pre-operative Antisepsis

- 3 Step process
  - Step one: povidone iodine in nares prior to surgery
  - Step two: CHG cloths to bathe skin
  - Step three: CHG mouthwash

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Supply Storage

- Ensured proper storage of supplies per AAMI:
  - 8-10 inches from the floor, solid bottom shelf
  - 2 inches from outside wall
  - 18 inches from sprinkler heads
  - Limit traffic
  - Personnel entering area should be properly dressed in scrub attire or cover gown, head covering to keep contamination to a minimum.
- Proper temperature, humidity and pressure of storage rooms

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Back to the Basics

- Dress code
  - Policies updated to ensure dress code compliance
  - Fingernails (no polish, short, and natural) were included in the "new" policy as a refreshing reminder
- Timing of scrubbing
  - Physician and scrub technicians noted to have varying scrub times.
  - Education and real time surveillance initiated

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Back to the Basics

- Prepping of the site revisited
  - Ensuring proper technique for application
  - Ensuring proper drying of prep
  - Staff competency refresh with product vendor

- Wound culturing
  - Encouraged Emergency Department physicians to consult with the surgeon prior to culturing wounds to decrease inappropriate collection
  - Wound culture education was provided for nursing and physicians

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EVS Changes

- Operating room cleanliness expectations
- New EVS cleaning products
- Education on new products
- EVS colleagues went through thorough cleaning competencies
- New EVS cleaning logs implemented

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Rounding

- Multidisciplinary environment of care rounds conducted in surgery areas.
  - Round as a group
  - Issues identified sent to pertinent departments for real time resolution
  - Routine rounding
- Increased Infection Prevention presence in surgical areas

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Where we are…..

- 2017
  - CABG—2 infections
  - COLO—0 infections
  - HYST—0 infections
  - KPRO—0 infections
  - HPRO—1 infections
  - Total reportable infections—3

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Questions

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