Orthopedic Surgical Site Infection Prevention

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Mercy Medical Center
Canton, Ohio

A ministry of the Sisters of Charity Health System located in Northeast Ohio

Over 2500 employees

Over 600 Licensed Independent Practitioners

Performed over 1,000 total joint/implant procedures in 2015
Interdisciplinary team formed due to increased orthopedic total joint surgical site infection rates:

- Board Certified Orthopedic Surgeon Champion
- Surgery
- Preadmission testing
- Medical/surgical nursing
- Infection Preventionist
- Orthopedic Patient Coordinator
- Pharmacist
- Therapist
- Patient Experience Manager
Baseline

- Hip, knee, and shoulder arthroplasties
- Laminectomy/discectomy procedures
- Collected seven months of baseline data
  18/488 procedures = 3.7%

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- Reviewed best practices in literature
- Developed core set of interventions implemented beginning 2012
Core Interventions

- 2% Chlorhexidine gluconate (CHG) bathing x 3 days preop and on day of surgery
- Nasal PCR screening in PEAT for MRSA
- Mupirocin treatment x 5 days for positive MRSA
- Dual antibiotic preop for positive MRSA
- Silver dressing applied in OR x 14 days
- Patient engagement– total joint classes, coach support, focus groups postop
- Staff education– aseptic techniques
2012 Preoperative Goals

- Reduce bacteria loads
- Guide preoperative antibiotic selection
- Reduce risk of endogenous infection
Nasal PCR screen for MRSA (PEAT orders)
Mupirocin treatment x five days if positive MRSA
Dual antibiotic coverage if MRSA positive
2% chlorhexidine (CHG) wipes for three days preop and on day of surgery (PEAT orders)
Focus on patient engagement– coaching, required total joint classes and pamphlets including CHG wipes, MRSA treatment, dressings/incision care
2012 Intraoperative

Goal
- Prevent contamination

Interventions
- Mandatory education for surgical staff on aseptic technique
- Application of silver impregnated dressing at time of closure to remain intact x 14 days
2012 Postoperative

Goal

- Prevent contamination

Interventions

- Silver dressing education– change on day 14 (unless compromised)
- Send silver dressing with patient on discharge if going to nursing home
Orthopedic Patient Engagement

- Patient education provided prior to surgery—total joint class, coach

- Postoperative—care givers encouraged to perform hand hygiene

- Post discharge—focus groups biannually to share experiences and identify ideas for improvement
### 2012

33–100% reduction in SSI rates

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![Graph showing reduction in SSI rates over years](chart.png)
2013

Certification Total Hip and Knee Replacement

Only hospital in Stark County awarded

The Joint Commission Gold Seal of Approval
Increasing Knee SSI rates

- Surgeon/patient concerns regarding skin irritation due to CHG
- Missed nasal screening
- Decreased compliance Mupirocin treatment
2014/2015

- Revised patient education for CHG use
  Decreased to use day prior to surgery and day of surgery

- Missed screening/patients not seen in PEAT
  Educated ED and inpatient staff to screening process and CHG bathing
2014/2015

- Introduced 3M 5% Intranasal Betadine swab for unscreened patients or incomplete Mupirocin treatment (PEAT orders)

- Renewed hand hygiene initiative

- Recertified 2015 JC Gold Seal of Approval Certification for Total Hip and Knee Replacement
2015

- Significant decrease in overall total joint surgical site infection rates by 75%

- Significant cost savings realized– $185,000
2016 Next Steps

- Implement interventions in patients undergoing hip fracture repair
- Implement Betadine swab preop for patients who are negative for MRSA but with *Staphylococcus aureus* positive screen