

Ring-fencing in Elective Surgery: An Evidence-Based DNP Project



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Background & Significance

- By 2030, total hip arthroplasty (THA) and total knee arthroplasty (TKA) cases performed annually in the US are projected to surpass 200 million cases annually.
- Surgical site infection (SSI) represents one major complication. It increases postoperative hospital length of stay, prolongs antibiotic therapy, and leads to periprosthetic joint infection (PJI).
- PJI is a devastating and challenging complication that increases morbidity and mortality rates. Although the incidences of PJI range from 1% to 2.4% it causes significant psychological stress to patients and poses a heavy economic burden to healthcare systems.
- The most challenging aspect in preventing and treating PJI is the implant related biofilm, as the number of bacteria needed to induce infection is 1,000 times lower in the presence of an implant. Prevention strategies should be employed in all stages, before, during, and after the surgical intervention.
- The use of protected elective surgical units (PESU), also known as "ring-fenced" units for elective surgery, refers to reserving hospital beds specifically for patients undergoing elective or non-emergent procedures.
- By providing a separate area for elective surgeries, the primary benefits of protected elective surgical units are their ability to reduce the risk of infection and improve patient outcomes.

Purpose

This project's purpose is to reduce surgical site infections (SSI), decrease length of stay (LOS), and improve satisfaction by ring-fencing elective surgery patients.

Methods

- Iowa Model of Evidence Based Practice used to guide this project.
- Patients included:
 - Adult patients
 - Admission for elective orthopedic procedure to a 33-bed orthopedic unit
 - Home as discharge destination
- Outcomes measured:
 - Surgical site infection
 - Length of stay
 - Patient satisfaction

Proposed SSI Bundle

Preoperative

- PAT appointment
- Patient optimization
- Risk assessment
- CHG Showering
- MRSA screening
- Nose-to-Toes decolonization
- Correct antibiotic selection & timing of administration

Intraoperative

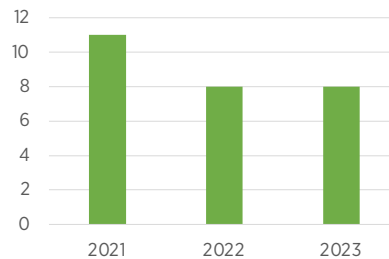
- Hair clipping outside of the OR
- Chlorhexidine surgical prep
- No "flushed" instruments
- Minimize OR traffic
- Maintain normothermia

Postoperative

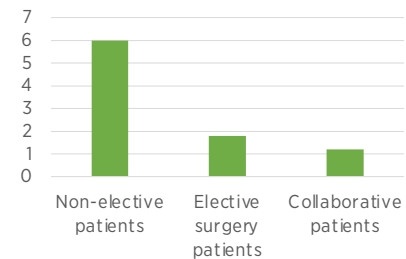
- Occlusive, silver impregnated dressings
- Hand hygiene
- 24 hours of post-operative antibiotics
- Dedicated orthopedic unit***

Baseline Data

Number of SSI per Year



LOS in Days



Barriers to Implementation

The organization has undergone several large changes since the development of this Evidence-based practice project that have prevented successful implementation.

- Dissolution of the orthopedic service line, loss of orthopedic service line director, and reporting structure resulted in a loss of administrative support for the project.
- A recent merger has resulted in mass restructuring throughout the organization and changes in executive leadership.
- These changes have resulted in changes in organizational priorities.
- Several visits from The Joint Commission for three disease specific recertification surveys have also diverted priorities and resources away from those needed for successful implementation.

Recommendations

As this organization continues to align current practices across the larger healthcare system, it is recommended that ring-fenced units for elective surgery patients are utilized to decrease SSI, reduce LOS, and improve patient satisfaction which can lessen the burden to patients and bring substantial cost savings to the organization.

References

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