

## **Bad Bugs: Reducing Neurosurgery Surgical Site Infections**

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**Introduction:** In FY 18, FY 19, and FY 20, the SIR for Pennsylvania Hospital's spine surgical site infections (SSI) were statistically higher than predicated in neurosurgery fusion and laminectomy population. Higher SIR being defined as a 95% SIR confidence interval (CI) which would not cross 1.

**Identification of the Problem:** In FY23, the rate of infection in spinal fusion complex SSIs was 2.30 and continued to increase without a singular causation.

**QI Question/Purpose of the Study:** The PAH Neurosurgery Working Group was formed in May 2022 (FY 21) as an interdisciplinary approach to decrease SSIs in this patient population.

### **Methods:**

#### Office Encounter

- Move from CHG liquid to CHG impregnated cloths for standardized pre-op bathing

#### Pre-op

- Created a field in the EMR to track pre-hospital CHG bathing compliance
- Change in policy and workflow to have pre-op CHG bathing performed in pre-op instead of inpatient units
- SSI and CHG education provided to RNs and Patient Care Technicians
- Introduced new intranasal de-colonization product

#### Intra-op

- Audits from a third-party vendor on surgical site prep and clipping
- Acquisition of sterile Povidone Iodine for wound irrigation and antimicrobial sutures
- Surgical site prep education for neurosurgical residents and intra-operative nursing

#### Post-op

- Med-surg unit competencies on post-op incision care and patient education
- Transitioned to bath-in-bag and CHG treatment
- Changed postop silver impregnated dressing to remain in place for 7 days rather than removing by post op day 3

**Outcomes/Results:** Since the implementation of various practice changes, education and patient optimization, there was a 31.74% decrease in complex spinal fusion SSIs from FY23 (2.30) through FY24 (1.67) as of April 2024.

**Discussion:** The neurosurgery workgroup was created to engage stakeholders and expertise from all phases of perioperative patient care.

**Conclusion:** The neurosurgery workgroup was created to engage stakeholders from all phases of perioperative patient care, and beyond. Having a centralized repository of data allowed the team to focus efforts on interventions which would yield the highest impact.

**Implications for perianesthesia nurses and future research:** Reduction of SSIs requires a team-based approach. An increase in infections is rarely related to one cause and interventions should be multimodal. Engagement from all stakeholders created a successful space to improve practice.