A Standardized Pre-Operative Surgical Site Infection Prevention Protocol with Patient Adherence Components for Spinal Fusion Patients

Introduction
Surgical Site Infection (SSI) Prevention
- Has focused on intra-operative phase of care
- Has decreased or eliminated SSIs
- Definitive risks in spinal fusion ill-defined
- Pre-operative Phase of Care
- Extensive preparation for spinal fusion surgery
- Effect of intervention for SSI prevention unknown

Objectives
- Implement standardized pre-operative SSI prevention protocol
- Measure adherence of both staff and patients/families
- Measure effect on SSI rate

Pre-Operative Protocol
- Nutritional assessment
- Bleeding risk assessment
- S. aureus screening (2 body sites)
- Skin assessment for acne, other potential healing issues
- Metal Allergy screen
- Chlorhexidine shower (night before and morning of surgery)
- Chlorhexidine wipes front and back (morning of surgery)
- Normothermia prior to transfer to operating room

Methods
- Quasi-experimental time series (Quality Improvement Project)
- Eligible patients: Underwent elective spinal fusion surgery for scoliosis and managed by the Orthopaedic service
- Protocol developed from evidence and consensus
- Model for Improvement utilized
- Key drivers of outcome developed
- Interventions tested in frequent Plan-Do-Study-Act cycles
- Measures
  - Process: Staff, Family, and Overall adherence (all-or-nothing)
  - Outcome: Surgical Site Infection (2012-2013 NHSN Definitions)

Results
Process Map
START
- Patient Referred for Spinal Fusion Surgery
- Conducts Screening and Makes Necessary Referrals
- Attend Appointments, Education, and Perform Cleansing
- Collects Information and Prepares Patient
END
- To OR for Spinal Fusion Surgery

Spinal Fusion Pre-operative Protocol Adherence (Staff Only)
- Staff adherence was maintained at 92%
Spinal Fusion Pre-operative Protocol Adherence (Family Only)
- Family adherence improved from 78.9% to 92.2%
Spinal Fusion Pre-operative Protocol Adherence (Overall)
- Overall adherence improved from 72.9% to 93.1%

Keys to Success
- Dedicated group of ‘Spine Nurses’ who executed protocol
- Family buy-in and ownership of SSI prevention
- Delivery of all materials at visit 1 to 4 weeks prior to surgery

Limitations
- Single-center study, small sample size, limited procedure cohort
- SSI surveillance not yet complete for most of procedures

Conclusions
- Families can be directly involved in SSI prevention
- Family participation led to high protocol adherence
- Clinical Microsystems can be connected reliably
- Shared ownership of the process between spine and pre-operative nurses led to adherence and satisfaction
- Standardization and adherence to a pre-operative protocol may reduce SSI rates

Next Steps
- Work to sustain high adherence
- Continue SSI surveillance
- Expand standardization to post-operative phase of care as part of a SSI prevention continuum

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FIGURES
- Pre-operative Tracking Document
- Pre-operative Protocol Adherence (Overall)
- Spinal Fusion for Idiopathic and Juvenile Scoliosis
- Preliminary SSI rates decreased with protocol implementation

TABLES
- Eligible Procedures Between Surgical Site Infection
- Surgical Site Infection Rate
- Control Chart showing no infections among idiopathic and juvenile scoliosis patients