Decreasing SSI Rates through Improved Compliance with Intraoperative Antibiotic Re-dosing

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**Background/Problem**

- At Children's Hospital & Medical Center both the intraoperative antibiotic re-dosing guidelines and time frames considered compliant for re-dosing antibiotics were unclear. This, along with an ill-defined process for ensuring intraoperative antibiotic re-dosing resulted in a compliance rate of 62%.
- In early 2015 the organization had a Surgical Site Infection (SSI) rate of 3.13, well above the national benchmark of 1.87.
- An SSI can result in significant patient harm and cost $27,000 per infection.
- Re-dosing intraoperative antibiotics is an essential component of the SSI bundle.

**Methods**

- The project team worked with Pharmacy and the Surgical Site Infection Workgroup, which contained a representative from the Antimicrobial Stewardship Program, to determine re-dosing guidelines.
- Information from the Infectious Disease Society of America and other children's hospitals guided this work.
- The team worked with IT to streamline the process for ordering antibiotics.
- A reminder was created in EPIC and laminated cards were placed by each anesthesia workstation. Education was provided via department meetings and email.
- After several PDSA cycles it was determined that EPIC reminders alone were insufficient. As a result a reminder was added to the time-out process and nursing involvement was established.
- To sustain the results, resident education was developed and is provided on a monthly basis and education has been incorporated into new staff orientation.

**Outcomes**

- Since August 2015, compliance rates for intraoperative re-dosing of antibiotics have been greater than 94%.
- The organizational SSI rate has decreased to 2.4 as of August 2016.
- The project team continues to evaluate data monthly, looking for trends. Data is shared regularly with all key stakeholders, which supports transparency and continued buy-in.
- Additional initiatives have included establishing better processes for antibiotic ordering and delivery during off-hours and at off-site locations, as well as the development of separate neonatal re-dosing guidelines.

**Goals**

1. Establish organizational intraoperative antibiotic re-dosing guidelines.
2. Define the time frame of administration, in minutes, considered compliant for intraoperative re-dosing of antibiotics.
3. Establish a well defined process to order the antibiotic intraoperatively.
4. Improve compliance of intraoperative re-dosing of antibiotics to 100% for cases lasting beyond 2 hours.

**References**