Joint Commission
Center for Transforming Healthcare (CTH)

Colorectal Surgical Site Infections (SSIs)
2012 ACS NSQIP National Conference

Siew Lee Grand-Clément. RN, MSN, CPHQ
Center Project Lead – Surgical Site Infections
Lean Six Sigma Black Belt, Robust Process Improvement

Date: 22 July 2012
Introduction to CTH-Vision

One Vision

All people always experience the safest, highest quality, best-value health care across all settings.
Introduction to CTH

Our Mission - Transform health care into a high reliability industry and to ensure patients receive the safest, highest quality care they expect and deserve

The use of proven quality methods – Lean Six Sigma & change management (known together as Robust Process Improvement™) – to systematically improve processes and avoid common, crucial failures

Includes Expertise of Master Black Belts, Master Change Agents and Black Belts. Progress of the Center is guided by a Leadership Advisory Council comprised of leaders from among the Center’s major sponsors and participating hospital CEOs
Introduction to CTH-Challenge

- Current “best practice” approach is lacking
  - Often difficult to achieve same results
- Checklist approach is limited
- Fail to recognize:
  - Many causes for the same problem
  - Each cause requires a different strategy
  - Key causes differ from place to place
- New generation produces a set of solutions, customized to address an organization’s most important root causes
Introduction to CTH-Targeting Root Causes

Project 1: Hand Hygiene

Validated Root Causes for Risk of Wrong Site Surgery

Project 2: Wrong Site Surgery

Validated Root Causes for Transition of Care: Hand-off Communications Failures

Project 3: Hand-off Communications
Develop Solutions with Leading Hospitals - RPI Expertise

Atlantic Health
Barnes-Jewish
Baylor
Cedars-Sinai
Cleveland Clinic
Exempla
Fairview
Floyd Medical Center
Froedtert
Intermountain
Johns Hopkins
Kaiser-Permanente
Mayo Clinic

Memorial Hermann
Nebraska Medical Center
New York-Presbyterian
North Shore-LIJ
Northwestern
OSF
Partners HealthCare
Sharp Healthcare
Stanford Hospital
Texas Health Resources
Trinity Health
Virtua
Wake Forest Baptist
Wentworth-Douglass
Introduction to CTH-Projects

- Project 1 – Hand Hygiene Compliance
- Project 2 – Wrong Site Surgery
- Project 3 – Hand Off Communication
- Project 4 – Surgical Site Infections
  With American College of Surgeons
- Project 5 – Preventing Avoidable Heart Failure Hospitalizations
  With American College of Physicians
- Project 6 – Safety Culture
- Project 7 – Preventing Falls with Injury
- Project 8 – Reducing Sepsis Mortality
- Project 9 – Medication Safety (kick off Q4 2012)

Web: www.centerfortransforminghealthcare.com
The Center worked with the ACS to determine the scope of the SSI project, since there is a wide range of surgeries and procedures that can develop SSIs – each with its own unique set of complications and challenges.

To help narrow the scope of the project, the following criteria were used to identify a specific procedure that:

- Is common across different types of hospitals
- Has significant complications with an adverse clinical impact
- Hospitals have significant opportunities to improve performance
- Has high variability in performance across hospitals
**Systematic Approach to Problem Solving**

**Surgical Site Infections**

**Scope:**
All patients undergoing colorectal surgery (emergency and elective) regardless of who (i.e., which clinical discipline) performs the surgery. NSQIP CPT codes for colorectal surgery. All types of Surgical Site Infections (Superficial Incisional, Deep Incisional, and Organ/Space).

**Exclude:** Trauma & Transplant patients. Patients under 18 years of age.

**Process starts:** Pre-admission  **Process ends:** 30 days post procedure.

**Metrics to improve:**

- **Defects:** Colorectal Surgical Site Infections (SSIs)
- **Goal:** Reduce colorectal surgical site infections by 50%.
- **Primary:** Observed Rate of Patients with Colorectal SSIs (within 30 days of the procedure)
- **Secondary:** Observed over Expected (O/E) Ratio for Colorectal SSIs
Leveraged ACS NSQIP to guide improvement efforts

Problem Solving Journey:

- **Define:** Use the Colorectal SSI OE Ratio to recognize the “size” of the problem and set practical goal for improvement opportunities.
- **Measure:** Retrospective NSQIP data analysis to prioritize data collection effort and identify gaps in data availability.
- **Analyze:** Compare analysis findings of individual hospital and collaborative project team to NSQIP database.
- **Improve:** Risk-adjusted data enables the ability to compare practice variations and evaluate the impacts to outcomes. Focus improvement efforts on modifiable risk factors and process risk points.
- **Control:** Validation of improvement efforts

**Lessons learned:**

- Lag time between surgical procedure to SSI outcome data available
- Surgical process performance data
- Communication and use of SSI outcome data
SSI Collaboration

- Webinar conference calls
- F2F meetings
- Site visits
- Small working groups
- Aggregated data analysis and sharing
- Guest speakers – AORN, other SSI improvement leaders
What’s next?

Joint Commission Center for Transforming Healthcare Colorectal Surgical Site Infections (SSIs)
Public Launch – SSI Storyboard

Surgical Site Infections

In August 2010, the Center for Transforming Healthcare launched its fourth project which aims to reduce surgical site infections (SSI) in patients having colorectal surgery and colorectal procedures. This project was launched in collaboration with the American College of Surgeons. The ACS’s National Surgical Quality Improvement Program (NSQIP) surgical outcome data expertise is guiding the SSI project’s data collection and analysis. NSQIP data on outcomes of surgery are highly regarded by physicians as clinically valid, using detailed medical information on severity of illness and comorbidity to produce exemplary data on risk-adjusted outcomes. Colorectal surgery and colorectal procedures are often associated with SSIs as reported by NSQIP hospitals.

- Learn more about the Surgical Site Infection Project
- Watch a video: Tackling Surgical Site Infections

Start Date: 08/19/2010
Stage: In Progress
Contact Name: Siew Lee Grand-Clement
Contact Title: Black Belt
Contact Phone: 630-792-5288
Contact Email: sgrand-clement@jointcommission.org
<table>
<thead>
<tr>
<th>Participating site</th>
<th>Locations</th>
<th>Type</th>
<th>ACS NSQIP</th>
<th># of licensed Beds</th>
<th># of Colorectal Surgeries performed annually/monthly</th>
<th># of surgeons performing Colorectal surgeries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedars-Sinai Medical Center</td>
<td>Los Angeles, California</td>
<td>Academia Medical Center</td>
<td>No</td>
<td>958 registered beds</td>
<td>780 cases/year 65 cases/month</td>
<td>47 surgeons</td>
</tr>
<tr>
<td>Cleveland Clinic</td>
<td>Cleveland, Ohio</td>
<td>Academia Medical Center</td>
<td>Yes</td>
<td>1200 registered beds</td>
<td>2854 cases/year 237 cases/month</td>
<td>16 surgeons</td>
</tr>
<tr>
<td>Mayo Clinic – Rochester Medical Hospital</td>
<td>Rochester, Minnesota</td>
<td>Academia Medical Center</td>
<td>Yes</td>
<td>700 registered beds</td>
<td>2500 cases/year 208 cases/month</td>
<td>8 surgeons</td>
</tr>
<tr>
<td>North Shore-Long Island Jewish Health System</td>
<td>Great Neck, New York</td>
<td>Academia Medical Center</td>
<td>No</td>
<td>1290 registered beds</td>
<td>662 cases/year 55 cases/month</td>
<td>31 surgeons</td>
</tr>
<tr>
<td>Northwestern Memorial Hospital</td>
<td>Chicago, Illinois</td>
<td>Academia Medical Center</td>
<td>Yes</td>
<td>894 registered beds</td>
<td>404 cases/year 33 cases/month</td>
<td>8 surgeons</td>
</tr>
<tr>
<td>OSF Saint Francis</td>
<td>Peoria, Illinois</td>
<td>Academia Medical Center</td>
<td>Yes</td>
<td>616 registered beds</td>
<td>250 cases/year 21 cases/month</td>
<td>13 surgeons</td>
</tr>
<tr>
<td>Stanford Hospital &amp; Clinics</td>
<td>Palo Alto, California</td>
<td>Academia Medical Center</td>
<td>Yes</td>
<td>613 registered beds</td>
<td>380 cases/year 32 cases/month</td>
<td>47 surgeons</td>
</tr>
</tbody>
</table>
Project Metrics - Results

Primary metric: Observed Colorectal SSIs (Update 22 June 2012)

Note - This chart only provides data available from all 7 participating hospitals as of 22 June 2012

Tests performed with unequal sample sizes

Secondary Metric: Colorectal SSI OE Ratio (Update 22 June 2012)

Note: This chart only provides data available from all 7 participating hospitals as of 22 June 2012

Boxplot of Aggregate (7 hospitals) Superficial OE, Baseline versus Post Improve

P-Value = 0.006
Colorectal Surgical Site Infections: Types of Measures

**Measurement System**

<table>
<thead>
<tr>
<th>Input Measures</th>
<th>Surgical Process Performance Measures</th>
<th>Output Measures</th>
<th>Outcome Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Factors</strong></td>
<td>[Flowchart showing process measures and outcomes]</td>
<td><strong>Short-Term</strong></td>
<td><strong>Project Metric</strong></td>
</tr>
<tr>
<td>Patient</td>
<td>Surgical Consult &amp; Pre Admin Testing</td>
<td>Post Discharge &amp; 30-Day Follow Up</td>
<td>SSI Outcomes</td>
</tr>
<tr>
<td>Modifiable vs Non-modifiable risk factors</td>
<td>Admission &amp; Transfer Processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preoperative Holding Area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| | Perioperative OR | | *
| | Postoperative Recovery PACU/ICU | | |
| | Postoperative Care Patient Care Unit & Discharge | | |
| **Contributing Factors** | | | *
| | Surgical Planning & Preoperative optimization | | Process risks points |
| | Elective vs Emergent cases Assessment & Preparation | | |
| | Preoperative preparation | | |
| | Surgical preparation, Surgical techniques & instruments, Surgical team work, Surgical closing process | | |
| | Measurement of defective parts in the process | | |
| | "Relationship" analysis to | | |
| | Wound management, Patient & Discharge educations | | |
| | Postoperative care management | | |
| | Postoperative Care Patient Care Unit & Discharge | | |
| | Surgical team work, Surgical closing process | | |
| | | | *
| | | | Process risks points |

**Measures:**
1. Length of Stays
2. Readmission
3. Re-operation
4. Postop wound occurrence & culture

**Financial Impacts:**
Cost of SSIs

**Stratification By Types:**
- Superficial
- Deep Incisional
- Organ Space
CURRENT SSI PILOT PARTICIPANTS

➢ Four Pilot Hospitals for Phase One:
  1. Vanderbilt University Medical Center (TN) – academia medical center
  2. Barnes Jewish West County Hospital (MO) – hybrid (academia/community)
  3. Virtua Marlton (NJ) – community hospital
  4. Missouri Baptist Medical Center (MO) – community hospital

• Measurement system used for tracking SSIs: CDC NHSN
  • Scope: ICD 9 codes for “Colon” and “Rectal” procedures

➢ Currently recruiting Phase Two pilot hospitals.
Improvement spread through Targeted Solutions Tool™

• Web-based tool **free** to Joint Commission accredited organizations >19,000s health care organizations or >4500s hospitals in US. No added cost for access.

• Educational, no jargon, no special training and no knowledge of RPI methodology needed

• Guides users to customized solutions. Data analysis conducted by the tool, not the user. Tool walks user through process of:
  ▪ Measuring current state
  ▪ Determining root causes
  ▪ Selecting targeted solutions
  ▪ Control of process after implementation

• All solutions proven by testing in hospitals
Targeted Solutions Tool™ - Hand Hygiene for 3 North

1. Getting Started

The goal: Getting everyone to wash in and wash out.

This secure Targeted Solutions Tool™ outlines the specific steps your organization can take to better hand hygiene. This secure site includes:

- Forms, tools and tips for observing, recording and interpreting hand hygiene compliance
- Instructions for pinpointing the solutions that will work best at your organization
- Guidelines for maintaining success

To make your project successful

- Measure accurately. The participating organizations with the Center for Transforming Healthcare thought their hand hygiene compliance was at about 70-90 percent; after accurate measurement they found out that their compliance was actually less than 50 percent.
- Identify your organization’s root causes of noncompliance so you can get targeted solutions that will work for you. There are probably only three or four root causes that are most relevant to the problems at your organization.

How long will it take?

Some solutions can be implemented today; others may take months to fully implement. However, this project...
Ways to Collaborate with the Center for Transforming Healthcare

Collaboration - Complete
- Initial work with Robust Process Improvement (RPI) experienced organizations to determine and validate root causes and targeted solutions

Pilot Phase 1 - In process
- Validating work completed by collaborating organizations in organizations that might not have RPI experience

Pilot Phase 2 - Active Recruiting
- Further validation of work by collaborating and Pilot Phase 1 organizations
  - Beta-testing the draft Targeted Solutions Tool™
  - Anticipate to start Q4 2012
“This SSI pilot work with the Center is about taking the time to critically evaluate our current processes in caring for our colorectal surgical patients. It is not about taking someone else’s protocol and implementing without careful evaluation of our organization”.

Lisa C. Laphan-Morad, Administrative Director Surgical & Ambulatory Services, Virtua Marlton.
QUESTIONS OR COMMENTS?