Using the American College of Surgeons Strong for Surgery Toolkit to Optimize Patients for Surgery

April 2018

A partnership of the Healthcare Association of New York State and the Greater New York Hospital Association
## Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introductions</td>
<td>NYSPFP Staff</td>
</tr>
<tr>
<td>SSI Rates in New York</td>
<td>NYSPFP Staff</td>
</tr>
<tr>
<td>Optimizing Peri-Operative Outcomes: Strong for Surgery Public Health Campaign</td>
<td>Thomas K. Varghese, Jr., MD, MS, Co-Director of the Thoracic Oncology Program and Associate Professor of Surgery, University of Utah,</td>
</tr>
<tr>
<td>Hospital Questions and Discussion</td>
<td>Hospital Participants Facilitated by NYSPFP Staff</td>
</tr>
<tr>
<td>Next Steps</td>
<td>NYSPFP Staff</td>
</tr>
</tbody>
</table>
Why Focus on Surgical Site Infections?

- 2.6% of 30 million operations per year are complicated by SSI (800,000 – 2 million SSI annually)
- SSI accounts for 38% of HAI in surgical patients
- SSIs are associated with:
  - Increased length of stay
  - Increased hospital costs (estimated increase of $1,300 – $5,000 per case)
  - Increased patient morbidity and mortality
  - Increased readmission rates
NYSPFP SSI SIR: Colon

COLO SSI Standardized Infection Ratio

<table>
<thead>
<tr>
<th>SSI COLO SIR</th>
<th>Baseline 1/15-12/15</th>
<th>Number Reporting</th>
<th>Comparison Period 8/17-10/17</th>
<th>Number Reporting</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-natal hospital cohort</td>
<td>1.15</td>
<td>148</td>
<td>0.83</td>
<td>148</td>
<td>27.82</td>
</tr>
</tbody>
</table>

Year and Month
NYSPFP SSI SIR: Hip Replacement

HPRO SSI Standardized Infection Ratio

<table>
<thead>
<tr>
<th>Year and Month</th>
<th>HPRO SSI Standardized Infection Ratio</th>
<th>Baseline</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-15</td>
<td>1.00</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Feb-15</td>
<td>0.95</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Mar-15</td>
<td>0.92</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Apr-15</td>
<td>0.88</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>May-15</td>
<td>0.84</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jun-15</td>
<td>0.80</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jul-15</td>
<td>0.76</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Aug-15</td>
<td>0.72</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Sep-15</td>
<td>0.68</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Oct-15</td>
<td>0.64</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Nov-15</td>
<td>0.60</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Dec-15</td>
<td>0.56</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jan-16</td>
<td>0.52</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Feb-16</td>
<td>0.48</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Mar-16</td>
<td>0.44</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Apr-16</td>
<td>0.40</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>May-16</td>
<td>0.36</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jun-16</td>
<td>0.32</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jul-16</td>
<td>0.28</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Aug-16</td>
<td>0.24</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Sep-16</td>
<td>0.20</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Oct-16</td>
<td>0.16</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Nov-16</td>
<td>0.12</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Dec-16</td>
<td>0.08</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jan-17</td>
<td>0.04</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Feb-17</td>
<td>0.00</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Mar-17</td>
<td>0.04</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Apr-17</td>
<td>0.08</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>May-17</td>
<td>0.12</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jun-17</td>
<td>0.16</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Jul-17</td>
<td>0.20</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Aug-17</td>
<td>0.24</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Sep-17</td>
<td>0.28</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Oct-17</td>
<td>0.32</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Nov-17</td>
<td>0.36</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>Dec-17</td>
<td>0.40</td>
<td>146</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Non-redundant hospital cohort

% Improvement: -0.65
NYSPFP SSI SIR: CABG
NYSPFP SSI SIR: Hysterectomy
Surgery Bundle Elements Applicable Across Multiple Surgical Service Lines

- Normothermia
- Glucose Control
- Antimicrobial Prophylaxis
- Increased Perioperative Oxygenation
- Skin Preparation
- Clean Standardized Fascia Close
- Wound Management
- Colon Specific: Mechanical Bowel Preparation in Combination with Oral Antibiotics
Implementation of Cross Applicable Bundle Elements

<table>
<thead>
<tr>
<th>Surgical subspecialties where implementation of bundle has begun</th>
<th>% of hospitals that have started implementation in NYSPFP (n=108)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysterectomy</td>
<td>50%</td>
</tr>
<tr>
<td>Cardiac Surgery</td>
<td>15%</td>
</tr>
<tr>
<td>Orthopedics (Hip/Knee prosthesis)</td>
<td>57%</td>
</tr>
<tr>
<td>Our hospital has not begun implementation of the colon bundle on any other surgical subspecialties</td>
<td>23%</td>
</tr>
<tr>
<td>Other</td>
<td>15%</td>
</tr>
</tbody>
</table>
NYSPFP Advanced Bundle Pre-operative Interventions

**Flowchart**

1. **Pre-Admission Assessment**
   - Hand Hygiene
   - Pre-admission Testing for active medical conditions increasing risk for SSI (e.g., malnutrition, diabetes, smoking, infection screening)
   - Pre-operative mechanical bowel preparation (MBP) in combination with oral antibiotic bowel preparation (OABP)
   - Patient and caregiver education on how to administer MBP and OABP, discharge needs, wound care post-operatively, what to expect, etc.

2. **Pre-Operative Objective**
   - Hand Hygiene
   - Glucose Control > Normothermia
   - Antimicrobial Prophylaxis (weight based dosing and re-dosing for long cases)
   - Skin Preparation (use antibiotic agent with alcohol for skin preparation unless contraindicated)

3. **Operative Objective**
   - Hand Hygiene
   - Glucose Control > Normothermia
   - Antimicrobial Prophylaxis (weight based dosing and re-dosing for long cases)
   - Increased Perioperative Oxygenation
   - Clean Standardized Fascia Close (change gown, gloves, and surgical instruments for closure of fascia and standardized wound dressing)

4. **Post-Operative**
   - Hand Hygiene
   - Glucose Control > Normothermia
   - Standardize Wound Management (standardize post-operative wound dressing; provide patient and caregiver discharge instructions on wound care and recognizing symptoms of infection)
   - Increased Perioperative Oxygenation
   - Follow up phone calls to patients within one week of discharge from hospital

Disclaimer: The information contained in the Advanced Colon Bundle is provided by the NYSPFP for informational purposes only. NYSPFP makes no representations, guarantees or warranties of any kind, express or implied, about the completeness, accuracy, reliability or suitability with respect to any of the information above. NYSPFP disclaims any liability for any and all damages or losses arising from use of this information. The Advanced Colon Bundle is not meant to provide medical advice and is not a substitute for professional medical or clinical judgement.
NYSPFP Advanced Bundle Pre-operative Interventions

1. **Pre-Admission**
   - Hand Hygiene
   - Pre-admission Testing for active medical conditions increasing risk for SSI (e.g., malnutrition, diabetes, smoking, infection screening)

2. **Pre-Operative**
   - Hand Hygiene
   - Glucose Control
   - Normothermia
   - Antimicrobial Prophylaxis (weight-based dosing and re-dosing for long cases)
   - Skin Preparation
     - (use antiseptic agent with alcohol for skin preparation unless contraindicated)

3. **Intra-Operative**
   - Hand Hygiene
   - Glucose Control
   - Normothermia
   - Antimicrobial Prophylaxis
     - (weight-based dosing and re-dosing for long cases)
   - Increased Perioperative Oxygenation
   - Clean Standardized Fascia Close
     - (change gown, gloves, and surgical instruments for closure of fascia and standardized wound dressings)

4. **Post-Operative**
   - Hand Hygiene
   - Glucose Control
   - Normothermia
   - Standardize Wound Management
     - (standardize post-operative wound dressing; provide patient and caregiver discharge instructions on wound care and recognizing symptoms of infection)
   - Increased Perioperative Oxygenation
   - Follow-up phone calls to patients within one week of discharge from hospital

Strong For Surgery also encourages:
- Malnutrition screening
- Blood sugar control
- Smoking cessation

Disclaimer: The information contained in the Advanced Colon Bundle is provided by the NYS Partnership for Patients (NYSPFP) for informational purposes only. NYSPFP makes no representations, guarantees or warranties of any kind, express or implied, about the completeness, accuracy, reliability or suitability with respect to any of the information above. NYSPFP disclaims any liability for any and all damages or losses arising from use of this information. The Advanced Colon Bundle is not meant to provide medical advice and is not a substitute for professional medical or clinical judgement.
Optimizing Peri-Operative Outcomes: Strong for Surgery Public Health Campaign

Thomas K. Varghese, Jr., MD, MS
American College of Surgeons
University of Utah
Optimizing Peri-Operative Outcomes
*Strong for Surgery Public Health Campaign*

Thomas K. Varghese Jr. MD, MS, FACS
@tomvarghesejr
thomas.varghese@hsc.utah.edu

April 9, 2018
• AHRQ
• Life Sciences Discovery Fund
• UW Dept of Surgery
• UW Patient Safety Innovation Program

• QI Programs
  • Nutrition:
    • Nestle HealthCare
  • Opioid Minimization:
    • Pacira
  • Plan My Quit
    • Pfizer

2012 to 2015
Quality Program of the AC
Problems

• Every year there are 210,000 Preventable Deaths
  • \( \frac{1}{2} \) associated with an operation
  • $30 billion per year

J Patient Safety Sept 2013; 9(3): 122-128
Wick EC, et al. 2011; 54(12):1475-1479
Eappen S JAMA. 2013;309(15):1599-1606
Problems

• Every year there are 210,000 Preventable Deaths
  • ½ associated with an operation
  • $30 billion per year

• 1 in 4 colon resections readmitted within 90 days
  • $300 million per year

• Soft Tissue Surgical Site Infections
  • $3 billion in direct costs
Reality

• 15 to 17 years before findings from RCTs and cohort studies implemented into clinical practice.

• Healthcare is inefficient.

JAMA 1999; 282: 1458-1465; Health Professions Education 2003
J Am Med Inform 2001; 8(4):398-399
Quality Practice Improvement (QPI)

• Science that defines tools and implements solutions
  • to translate evidence-based knowledge into actionable items for effective incorporation into daily clinical practice.
Average Added Cost per Complication: $11,000

Total Cost of Care when Complication Occurs: ↑ 54%

Participation in ACS NSQIP: 250-500 complications prevented per hospital per year

Dimick JB, et al. JACS 2006
Association of Hospital Participation in a Quality Reporting Program with Surgical Outcomes and Expenditures for Medicare Beneficiaries

Nicholas H. Osborne, MD, MS, Lauren H. Nicholas, PhD, Andrew M. Ryan, PhD, Jyothi R. Thumma, MPH, and Justin B. Dimick, MD, MPH

JAMA 2015; 313(5):496-504
## Association of Hospital Participation in a Quality Reporting Program with Surgical Outcomes and Expenditures for Medicare Beneficiaries

Nicholas H. Osborne, MD, MS, Lauren H. Nicholas, PhD, Andrew M. Ryan, PhD, Jyothi R. Thumma, MPH, and Justin B. Dimick, MD, MPH

<table>
<thead>
<tr>
<th></th>
<th>263 NSQIP hospitals</th>
<th>526 non-NSQIP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mortality</strong></td>
<td>4.9%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Serious Complications</strong></td>
<td>11.3%</td>
<td>10.2%</td>
</tr>
<tr>
<td><strong>Reoperation</strong></td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Readmissions</strong></td>
<td>13%</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

JAMA 2015; 313(5):496-504
“Feedback of outcomes alone may not be sufficient to improve surgical outcomes”
Focus on Decision Making
Focus on Decision Making in Hospital
Focus on Decision Making in Clinic
Raising Awareness
Changing Practice
Pilot Year - 2012

Surgeon Champions:
Rick Billingham
Amir Bastawrous
Alessandro Fichera
Joe Frankhouse
Mike Florence
Marc Horton
Morrie Johnson
Grant O’Keefe
Rick Thirlby
Behavior Change in the 21st Century

Public health campaign focused on surgeons, patients and other important stakeholders

+ Implementation Bundles
  • Interactive tools (checklists) to help optimize patients prior to surgery
  • Integrated into workflow
  • Surveillance and data feedback
Blood sugar control
Medications
Smoking Cessation
Optimizing nutrition
Why Blood Sugar?

Lancet 2012; 2279-2290
2011 US Department of Health and Human Services
Why Blood Sugar?

• Hyperglycemia doubles the risk of SSI
  • In some studies 47% of hyperglycemic episodes in nondiabetics

Lancet 2012; 2279-2290
2011 US Department of Health and Human Services
Why Blood Sugar?

• Hyperglycemia doubles the risk of SSI
  • In some studies 47% of hyperglycemic episodes in nondiabetics

• 470 million people worldwide → Prediabetes by 2030

• 2005-2008
  35% of US adults ≥ 20 yrs
  50% greater ≥ 65 years

Lancet 2012; 2279-2290
2011 US Department of Health and Human Services
Why Blood Sugar?

• > 65 years
  • 1 in 4 will have Diabetes
  • 2 in 4 are Prediabetic

2011 US Department of Health and Human Services
Why Medications?

• Some meds & herbal remedies ↑ risk of bleeding
  • Echinacea, Garlic, Ginkgo, Ginseng, Kava, Saw Palmetto, St. John’s Wort, Valerian

Why Medications?

• Some meds & herbal remedies ↑ risk of bleeding
  • Echinacea, Garlic, Ginkgo, Ginseng, Kava, Saw Palmetto, St. John’s Wort, Valerian

• Aspirin can be safely continued

• Beta-blocker continuation associated with fewer cardiac events and mortality

Why Smoking?

Post-Operative Outcomes by Pack-Years Smoked

Why Nutrition?

• Malnutrition is prevalent in surgical patients

• Immunonutrition may improve recovery
Nutrition Screening Checklist

Screening for Malnutrition

Is BMI less than 19?

☐ Yes  ☐ No

Has the patient had unintentional weight loss of over 8 pounds in the last 3 months?

☐ Yes  ☐ No

Has the patient had a poor appetite – eating less than half of meals or fewer than two meals per day?

☐ Yes  ☐ No

Is the patient unable to take food orally (e.g., dysphagia, vomiting)?

☐ Yes  ☐ No

If YES to any of the questions:

☐ Referral to Registered Dietitian for evaluation unless currently receiving nutrition therapy

Lab Tests for Risk Stratification

Is the patient having inpatient surgery?

☐ Yes  ☐ No

If YES then:

☐ Check albumin level to assess complication risk after surgery

Supplementation

Is the patient having complex surgery (example: GI anastomosis)?

☐ Yes  ☐ No

If YES then:

☐ Give evidence-based immune modulating supplementation
Nutrition Screening

• Any YES → refer to RD/Nutrition Specialist

Nutrition Screening

• Any YES → refer to RD/Nutrition Specialist

1. Is BMI less than 19?
2. Has patient had unintentional weight loss of >8 pounds in 3 months?
3. Has the patient had a poor appetite eating less than half of meals or fewer than two meals per day?
4. Is the patient unable to take food orally due to dysphagia or vomiting?
Nutrition Screening Checklist

Screening for Malnutrition

Is BMI less than 19?
☐ Yes  ☐ No

Has the patient had unintentional weight loss of over 8 pounds in the last 3 months?
☐ Yes  ☐ No

Has the patient had a poor appetite – eating less than half of meals or fewer than two meals per day?
☐ Yes  ☐ No

Is the patient unable to take food orally (ex. dysphagia, vomiting)?
☐ Yes  ☐ No

If YES to any of the questions:
☐ Referral to Registered Dietitian for evaluation unless currently receiving nutrition therapy

Lab Tests for Risk Stratification

If YES then:
☐ Check albumin level to assess complication risk after surgery

Supplementation

Is the patient having complex surgery (example: GI anastomosis)?
☐ Yes  ☐ No

If YES then:
☐ Give evidence-based immune modulating supplementation
Risk Stratification

- Hypoalbuminemia is an independent risk factor for SSI following surgery

SCOAP: Albumin & Complications

Elective colon/rectal procedures

Adverse Outcome Rates

<table>
<thead>
<tr>
<th>Albumin Levels (g/dL)</th>
<th>Re-operation</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2.0</td>
<td>12.0%</td>
<td>0%</td>
</tr>
<tr>
<td>2.0-2.4</td>
<td>9.0%</td>
<td>0%</td>
</tr>
<tr>
<td>2.5-2.9</td>
<td>6.0%</td>
<td>0%</td>
</tr>
<tr>
<td>3.0-3.4</td>
<td>3.0%</td>
<td>0%</td>
</tr>
<tr>
<td>3.5-3.9</td>
<td>1.0%</td>
<td>0%</td>
</tr>
<tr>
<td>4.0+</td>
<td>1.0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Nutrition Screening Checklist

Screening for Malnutrition

Is BMI less than 19?

☐ Yes ☐ No

Has the patient had unintentional weight loss of over 8 pounds in the last 3 months?

☐ Yes ☐ No

Has the patient had a poor appetite—eating less than half of meals or fewer than two meals per day?

☐ Yes ☐ No

Is the patient unable to take food orally (e.g., dysphagia, vomiting)?

☐ Yes ☐ No

Lab Tests for Risk Stratification

If YES then:

☐ Check albumin level to assess complication risk after surgery

Supplementation

Is the patient having complex surgery (example: GI anastomosis)?

☐ Yes ☐ No

If YES then:

☐ Give evidence-based immune modulating supplementation
Surgery and trauma patients are immune suppressed making them more susceptible to infection due to arginine depletion.

Popovich 2006; McClave 2009; Zhu 2010
Surgery and trauma patients are immune suppressed making them more susceptible to infection due to arginine depletion.

Immune-modulating formulas → Arginine + Ω-3 fatty acids + Nucleotides 5 to 7 day regimen, 3 times daily

Popovich 2006; McClave 2009; Zhu 2010
Literature Review

• Systematic Review
  • N=3,438
  • 35 studies focused on elective surgery
  • Procedure types
    • 25 GI: 18 upper; 2 lower; 5 mixed
    • 10 non-GI

• 23 – used arginine-based supplements
  • Pre-Op Use: ↓ Infectious complications 43%

Drover JW, et al.
JACS 2011; 212 (3):385-399
Literature Review

- Meta-analysis: 26 RCTs
- N = 2496
  - 1252 Immunonutrition vs 1244 Control (Isocaloric)
  
  ↓ infection rates by 46%
  ↓ length of stay ~ 2 days

Marimuthu K, et al.
Ann Surg 2012; 255:1060-1068
Goals of Nutrition Target

• Universal measurement of albumin
• Pre-operative screening for malnutrition
• Increase the use of appropriate, evidence-based nutritional support
  • Malnourished
  • Complex Surgery
Nutrition Screening Checklist

Screening for Malnutrition

Is BMI less than 19?
☐ Yes  ☐ No

Has the patient had unintentional weight loss of over 8 pounds in the last 3 months?
☐ Yes  ☐ No

Has the patient had a poor appetite – eating less than half of meals or fewer than two meals per day?
☐ Yes  ☐ No

Is the patient unable to take food orally (e.g. dysphagia, vomiting)?
☐ Yes  ☐ No

If YES to any of the questions:
☐ Referral to Registered Dietitian for evaluation unless currently receiving nutrition therapy

Lab Tests for Risk Stratification

Is the patient having inpatient surgery?
☐ Yes  ☐ No

If YES then:
☐ Check albumin level to assess complication risk after surgery

Supplementation

Is the patient having complex surgery (e.g. GI anastomosis)?
☐ Yes  ☐ No

If YES then:
☐ Give evidence-based immune modulating supplementation
Focus on Four Modifiable Areas:

**Nutrition**
- Screening for malnutrition
- Testing Albumin levels for risk stratification
- Evaluating for evidence-based use of immunonutrition

**Blood Sugar**
- Screening for risk of diabetes
- Screening for blood sugar
- Monitoring perioperative glucose management

**Smoking**
- Screening to identify smoking habits & history
- Advising patient on how to establish a quit plan

**Medications**
- Identification of drugs that could cause bleeding & cardiac risks
- Reconciling herbal medications
Checklists
Program Implementation

Hospital/Clinic Expectations:

• Change team formation
• Commitment through post-implementation

Strong For Surgery:

• Workflow Mapping
Change Team Components

- Clinical Leadership
- Day to Day
- Technical
- Sponsorship

Change Team
CHANGE TEAM

Executive Sponsors: CMO and CNO
Raising Awareness – a Roadmap
Raising Awareness – a Roadmap
January 2018 Global Annual Digital Growth

**Internet Users**
- +7% since Jan 2017
- +248 million

**Active Social Media Users**
- +13% since Jan 2017
- +362 million

**Unique Mobile Users**
- +4% since Jan 2017
- +218 million

**Active Mobile Social Users**
- +14% since Jan 2017
- +360 million

*Sources: Population (UNDESA, United Nations), Internet (Internet World Stats), Mobile (Statista), Social Media (We Are Social, Hootsuite, We Are Social)*
Measurable Impact
Reach
Global Impact – Online Outreach

Since Launch
• 173,519 total page views
• 122,038 Unique Page views

Implementation Guide requests
2013 to 2015
268 sites, 15 countries
Need Surgery? You Might Have to Get Healthier First

By Laura Landro

Oct 22, 2012 7:08 p.m. ET

After learning that he needed surgery to remove a golf-ball size tumor in his lung, 67-year-old Doug Rice expected to go under the knife right away. But his doctor told him he’d have to make an important change first: Quit smoking for 2 1/2 weeks to reduce the chance of dangerous complications.

Hospitals are taking steps to improve the outcomes for patients undergoing surgery—starting with the crucial preoperative period that can make the difference between a successful procedure and a poor or even deadly result. Doctors are finding more evidence of the benefits of boosting a patient’s health before surgery, and post-surgical complications are a major reason that patients end up back in the hospital.

Hospitals also are facing more financial penalties from Medicare for preventable readmissions after discharge, as well as legal liabilities when things go wrong.

For patients like Mr. Rice, who also suffers from emphysema and high blood pressure, that might mean delaying procedures for weeks or even months to strengthen health, tinker with medical regimens or encourage lifestyle changes. Even in more urgent cases, surgeons are taking extra time to ensure patients are in better shape. At the same time, for healthy patients undergoing procedures that aren’t high risk, hospitals are eliminating unnecessary tests and precautions that add costs, don’t help and may cause harm such as X-rays that expose patients to extra radiation.

What to Expect When You Have Surgery

New Programs Are Educating Patients About Possible Rewards and Risks

By LAURA LANDRO

Oct 12, 2014 5:05 p.m. ET

When it comes to surgery, patients may be ill-informed about the risks and benefits, and physically unfit to undergo procedures.
Surgery savvy: Lower your risk
What you do before an operation can affect what happens after it
Published: October 2013

If you're facing surgery, you no doubt want to do all you can to prepare. But many of the things that patients are told to do, including some their doctor may recommend, aren't necessary and can even cause harm.

For example, many doctors routinely order a battery of preoperative tests, including blood analyses, chest X-rays, and cardiac stress tests. But when they are done just to "clear" you for surgery, with little regard for the type of surgery, the kind of anesthetics that will be used, or your overall health, they're more likely to cause potentially harmful false alarms than keep you safe, current research shows. Yet many doctors continue to order them because of habit, concern about lawsuits, or the belief that other physicians require them.

Similarly, patients are still often told to avoid food and drink for 12 hours or more before surgery. But revised guidelines are more flexible; they take into account the fact that fasting too long can stress the body and slow recovery.

Fortunately, several professional groups are now focusing on what you really need to do before surgery. For example, as part of a program called Choosing Wisely, led by Consumer Reports and the ABIM Foundation, an organization founded by the American Board of Internal Medicine, nine medical societies recently clarified when specific preoperative tests are warranted and when they aren't.

Other programs spotlight the steps patients should take before surgery to help their body and mind recover. "We're trying to get people in peak shape before surgery, so we can give them the best possible outcome," said Tom Varghese Jr., M.D., medical director of Strong for Surgery, a public-health campaign in Washington.

The following steps can help speed your recovery from surgery.

Don't get overtested
Ordering preoperative tests when they aren't necessary can lead to trouble. For example, some doctors order cardiac stress tests even for low-risk patients before minor surgery. But abnormal results can lead to angiography, a test that exposes people to radiation. And if that test detects a blockage...
Avoiding Checklist Fatigue: Interview with Dr. Thomas Varghese

The following is a guest post to the Patient Safety Blog by IHI faculty member Dr. Thomas Varghese, Medical Director of Strong for Surgery.

Dr. Thomas Varghese is the Medical Director of Strong for Surgery, an initiative aimed at identifying and evaluating evidence-based practices to optimize the health of patients prior to surgery. He is faculty for the upcoming IHI Expediton on Improving Safety and Reliability for Surgical Procedures. In this interview with IHI Communications Specialist Jo Ann Endo, Dr. Varghese talks about engaging patients in ‘training’ for surgery and how to fend off ‘checklist fatigue.’

Q: How was the Strong for Surgery concept first developed?

A: About 10 years ago in Washington State we started developing a platform for improvement in surgical outcomes. The first concept for this came with SCOAP, the Surgical Care Outcomes and Assessment Program. SCOAP was launched in 2003 as a physician-led volunteer collaborative which created a surveillance and response system for surgical quality. Through SCOAP we incorporated benchmarking of evidence-based best practices, standardized orders, and utilizing checklists.

SCOAP is now active in 55 hospitals in the state of Washington. The lessons we learned helped to create CERTAIN, in response to the growing need for a health care system that is able to monitor the risks, benefits, and value of new treatments and technology to determine whether or not these interventions actually improve the quality of care and the health of patients. CERTAIN was built on the clinician and hospital relationship that created SCOAP. This type of system—a learning health care system—engages other stakeholders, including policy makers, patients, patients, and providers. One example of this was the creation of the Patient Voices Project. The Patient Voices Project has surveyed over 20,000 patients to date. Patients are asked questions like, ‘What was your experience like before surgery?’ and ‘What was your experience like after surgery?’
Effectiveness
• Clinician-led QI using clinical data

• Focus on quality and cost-effectiveness data

• Impacts behavior through:
  • Benchmarking
  • Education
  • Standard orders
  • Checklists
• Launched in 2003

• 3 years before launch: Composite Adverse Event rates for Colorectal Surgery around 19%

• 3 years after launch: Composite Adverse Event rates for Colorectal Surgery around 9.8%
SCOAP Immunonutrition Use

Q4 2014 – S4S Hospitals 85.4% (540/632)

Elective Colorectal Procedures (w/anastomosis)

Thornblade L, Varghese T, et al.
Dis Col Rectum 2017; 60(1):68-75
SCOAP Immunonutrition Use

Q4 2014 – S4S Hospitals 85.4% (540/632)

Elective Colorectal Procedures (w/anastomosis)

Composite Adverse Event Rates
(Reintervention, Infection, Anastomotic Leak ± death)

[Q1 2013 to Q4 2014]  n=8,680

• Patient who did not receive immunonutrition: 9.5%
• Patients receiving immunonutrition: 7.0%*

p = 0.04

Thornblade L, Varghese T, et al.
Dis Col Rectum 2017; 60(1):68-75
SCOAP Immunonutrition Use

Propensity Score Matching (346 pts each group)

• CAE
  • No immunonutrition: 11.6%
  • Immunonutrition use: 7.2% (p=0.05)

• Length of stay
  • No immunonutrition: 6.9 days
  • Immunonutrition use: 5.8 days (p<0.01)
Decrease in Smoking Rates

• 25.6% in Q4 of 2011 to 15.8% in Q2 of 2014
Enhanced Functional Recovery After Surgery

Preoperative
- Preadmission counseling
- Fluid and carbohydrate loading
- No prolonged fasting
- No/selective bowel preparation
- Antibiotic prophylaxis
- Thromboprophylaxis
- No premedication
- Short-acting anesthetic agents

Intraoperative
- Mid-thoracic epidural anesthesia/analgesia
- No drains
- Avoidance of salt and water overload

Postoperative
- Early removal of catheter
- Early oral nutrition
- Non-opioid oral analgesia/NSAIDs
- Early mobilization
- Stimulation of gut motility
- Audit of compliance and outcomes

Maintenance of normothermia (body warmer/warm intravenous fluids)
Peri-Operative Glucose Guidelines

- Franciscan Health System
- Harrison Medical Center
- MultiCare Health System
- PeaceHealth Southwest Medical Center

- Providence Regional Medical Center
- Skagit Valley Hospital
- Swedish
- UW Medical Center
- UW Harborview Medical Center
- Virginia Mason

Presented at Washington State Hospital Association Safe Table on April 23, 2014
Optimizing Peri-Operative Glucose
2014 Best Practices

Pre-Op  Intra-Op  Post-Op  Discharge
Adoption
Collaborators

- Washington State Medical Association
- Washington State Hospital Association
- Washington State Nurses Association
- Washington State Academy of Nutrition and Dietetics
- Washington Patient Safety Coalition
- Washington State Society of Anesthesiologists
- Washington St. Chapter – American College of Surgeons
- Qualis Health
- American Lung Association
- American College of Surgeons
Pilot Year - 2012
2015

50 practices, 206 surgeons
General, Colorectal, Bariatric, Spine, Vascular Surgery
Phases of Implementation

• Explore
  • Needs Assessment
  • Engage with stakeholders, Form relationships, Identify local barriers
Phases of Implementation

• Explore
  • Needs Assessment
  • Engage with stakeholders, Form relationships, Identify local barriers
Phases of Implementation

• Explore
  • Needs Assessment
  • Engage with stakeholders, Form relationships, Identify local barriers

• Initiate Action
  • Convene Change Team
  • Focus on initial team & infrastructure
Phases of Implementation

• Explore
  • Needs Assessment
  • Engage with stakeholders, Form relationships, Identify local barriers

• Initiate Action
  • Convene Change Team
  • Focus on initial team & infrastructure

• Learn Together
  • Surveillance and Feedback
  • Action plans for maintenance
Virtual Check-listing (prior to surgery)

Anesthesia/ PreOp Clinic

Clinic Nurses

Medical Assistants

Surgeons
+/- Residents, PAs

Virtual Check-listing (prior to surgery)
Clinic Nurses

Anesthesia/ PreOp Clinic

Surgeons
+/- Residents, PAs
Implementation
Factors for Success

• Recent completed QI projects
• Leadership support
• Alignment
  • ERAS
  • SSI programs
• Change team met at frequent intervals, surveillance & feedback
Implementation

Barriers

• EMR or other projects competing for staff time & attention
• Change in Leadership

• Friction b/w surgeon and hospital
• Independent surgeon practices
Any Nutrition Intervention
Elective Colorectal Procedures: 2012 - 2014
Raising Awareness
Changing Practice
Phases for Perioperative Care

https://www.facs.org/quality-programs/about/optimal-resources-manual
5 Phases For Perioperative Care

Pre Op, Immediate Pre Op, Intraoperative, Post Op, Post Discharge

https://www.facs.org/quality-programs/about/optimal-resources-manual
Phases For Perioperative Care

Pre Op, Immediate Pre Op, Intraoperative, Post Op, Post Discharge

https://www.facs.org/quality-programs/about/optimal-resources-manual
Phases for Perioperative Care

Pre Op, Immediate Pre Op, Intraoperative, Post Op, Post Discharge

STRONG for SURGERY

Enhanced Recovery Program

https://www.facs.org/quality-programs/about/optimal-resources-manual
Strong for Surgery (S4S) is a public health campaign that engages patients and their surgeons to improve overall health and increase the likelihood of a positive surgical outcome. Click on "Start Toolkit" or
Strong for Surgery is a public health campaign that engages patients and their surgeons to improve overall health and increase the likelihood of a positive surgical outcome. The presurgical checklists are a communication strategy for patients and clinicians to consider four common risk factors:
What is Strong for Surgery?

Why should I use a preoperative checklist?

What does Strong for Surgery offer to hospitals and clinics?
- Evaluation and planning
- Assistance with process and workflow mapping
- Consultation, facilitation, and training during implementation
- Support to staff throughout the first year to address any challenges

How would we participate?

How can I find out more?
View the slides for the Strong for Surgery PowerPoint presentation.

Objectives of Strong for Surgery

Offer resources to hospitals and clinics to help them optimize patient health

- Presurgery checklists for surgical patients in four target areas
- Implementation support to standardize best practices in clinical practice

Drive improvements to make surgery safer by getting research results back into health care practice to facilitate system change

Strong for Surgery

Optimizing Patients Prior to Surgery Funding: * Agency for Healthcare Research and Quality * Life Sciences Discovery Fund * Nestle HealthCare Nutrition * UW Pa...
View the slides for the Strong for Surgery PowerPoint presentation.
Patient Resources

STRONG for SURGERY
Opportunities

Shared Decision-Making

Alignment with Payment Reform
Public Reporting of Outcomes

Development of New Implementation Bundles
National/International Pilot Sites

Christus Health
Texarcana, TX

Horizon Health Network
St. John, Canada

Wake Forest Baptist Hospital
Winston Salem, ND

Rochester Regional Hospital
Rochester NY
• 150 sites from WA state
• 4 national pilot sites
• 36 sites accessed the toolkit

• 40 additional sites nationally registering

End of Year Projection: 230 sites implementing S4S
Patient → Primary and Specialty Care → Surgical Care → Post-Surgical Monitoring

- Home
- Clinicians’ Offices
- Hospital
- Patient Survey
Three Distinct Patient Populations and Care Strategies

- **High-Risk Patients**: 5% of patients; usually with complex disease(s), comorbidities
  - Trade high-cost services for low-cost management

- **Rising-Risk Patients**: 15-35% of patients; may have conditions not under control
  - Avoid unnecessary higher-acuity, higher-cost spending

- **Low-Risk Patients**: 60-80% of patients; any minor conditions are easily managed
  - Keep patient healthy, loyal to the system
hyper-collaborative organizations are the future
Hospital Discussion and Questions

Hospital Participants
Facilitated by NYSPFP Staff
Thank You!

thomas.varghese@hsc.utah.edu

@tomvarghesejr
Next Steps

○ Contact your project manager to discuss:
  ○ Using the Strong for Surgery Toolkit to implement pre-operative optimization for elective surgery patients.
  ○ Hardwiring the Advanced Colon Bundle Elements into workflow and expanding to other types of surgery if you have not already
Workflow Mapping

• Maximize patient value + eliminate waste

• Optimize the flow of services through the system
  • Map out processes
  • Identify value & non-value steps
  • Create implementation bundles incl. Checklists
  • Empower staff