Introduction & Background

- Traditional surgical quality improvement (QI) initiatives usually begin at the time patients enter the operating room.
- Surgical Care and Outcomes Assessment Program (SCOPA) is a benchmarking and QI program in 55 hospitals in Washington State that addresses variations in surgical care, outcomes and costs. Lessons learned from SCOPA helped build the Comparative Effectiveness Research and Translation Network (CERTAIN) at Washington’s Learning Healthcare system.
- Strong for Surgery (S4S) is a public health campaign that was launched in May 2012 in Washington State that engages patients and providers in the pre-surgery clinic by using evidence-based checklists to optimize health before surgery.
- Nutritional interventions can improve surgical outcomes by both reducing malnutrition and optimizing nutritional status even if a patient is not malnourished.
- For patients being gastrointestinal (GI) anastomoses, arginase-based nutritional supplements (immunonutrition) reduce the risk of complications by 40-50%.

Aims

1. Describe baseline levels of preoperative nutrition process of care measures prior to intervention.
2. Examine the effect of education on attitudes and knowledge about preoperative nutrition optimization.
3. Measure the impact of a preoperative nutrition optimization program on process of care measures over a 12-month period.

Methods

- SCOPA data from patients who underwent elective colorectal resections in Washington State during Q1 and Q2 2012 provided baseline measurement of process of care measures (prior to S4S interventions).
- Before and after an education program, clinicians were surveyed about their attitude towards the use of preoperative checklists in doctors’ office and the usefulness of a preoperative nutrition optimization program.
- The S4S nutrition checklist was introduced to a convenience sample of colorectal surgery patients undergoing colon and rectal resections in Q1 2013.
- Implementation consisted of:
  - Working with the S4S Implementation Coordinator to assess current practices, map workflow, form a change team and create a plan for how to best understand implementation.
  - Planned use of the S4S Nutrition Checklist for all preoperative colorectal surgery patients undergoing colon and rectal resections
- The S4S nutrition checklist directs providers to:
  1. Screen for malnutrition and make appropriate dietitian referrals.
  2. Measure serum albumin.
  3. Prescribe 5 days of immunonutrition prior to complex GI surgery.
- SCOPA data provided patient clinical nutrition information from inpatient clinical records as well as process of care outcomes performed preoperatively. Data was analyzed on the hospital level. Categorical variables were compared using chi-square tests and a 2-sided p-value <0.05 was considered significant.

Nutrition Screening Checklist

<table>
<thead>
<tr>
<th>Question</th>
<th>Action</th>
</tr>
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<tbody>
<tr>
<td>Did the patient has a unintentional weight loss over 12 months? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient has any appetite changes in the last 30 days? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Does the patient have nausea within the past 24 hours? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient vomit within 24 hours? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient has anemia? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have a change in bowel habits? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have recent hospitalization? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have recent chemotherapy? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have recent radiation therapy? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have any recent surgery? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have recent infection? (checklist)</td>
<td>Yes</td>
</tr>
<tr>
<td>Did the patient have malignancy or immunosuppression? (checklist)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Baseline Levels of nutrition process of care measures

- Prior to intervention, process of care measures levels were low.
- S4S education programs are able to change attitudes toward checklist use in the preoperative setting as well as knowledge about nutrition optimization.
- Uptake of the S4S Nutrition Checklist was initially low but accelerated after Q4 2012 in terms of number of clinics enrolled, number of surgeons using the checklist and number of patients being checked.
- Checklist use in the preoperative setting was able to change physician behavior, leading to significantly increased compliance with checklist recommendations – immunonutrition administration, dietitian referral and albumin measurement.
- Limitations:
  - Although S4S is being implemented at the clinic level, outcome data is only available at the hospital level through SCOPA. Thus, the effect of our intervention is diluted. As S4S program uptake spreads among providers within a hospital system, this dilution effect will diminish.
- Data on intermediate outcomes at the patient level – checklist utilization and compliance – are not available. Having such data would allow us to intervene at the appropriate level for those clinics with low levels of process of care measures as well as perform analysis on final clinical outcomes (e.g. infection, length of stay).

Implementation Process and Impact of Strong for Surgery on Nutrition Process of Care Measures

- Results

  - Impact of Education Program on Atitudes and Knowledge
    - Checklist use (n=51)
    - Nutritional screening (n=47)
    - Albumin screening (n=46)
    - Immunonutrition use (n=47)

  - Implementation Process and Impact of Strong for Surgery on Nutrition Process of Care Measures

Conclusions

- Educational programs are able to change attitude and knowledge about preoperative interventions.
- Implementation of the S4S checklist successfully changed behavior around preoperative nutrition optimization.
- Checklist compliance data would be helpful in generating a more accurate representation of actual use.
- Predictive factors of successful implementation included a multidisciplinary change team (surgeon, administration, practice manager, clinic RNs & MAIs, dietitians, office staff), dynamic surgeon champion, proactive day-to-day leaders, and a specialty focus.
- Barriers to successful implementation included organisational resistance in sites where there was lack of relationship between surgeon and other healthcare team members. Access to immunonutrition for patients was also a barrier at some sites.

Lessons Learned

- Educational programs are able to change attitude and knowledge about preoperative interventions.
- Implementation of the S4S checklist successfully changed behavior around preoperative nutrition optimization.
- Checklist compliance data would be helpful in generating a more accurate representation of actual use.
- Predictive factors of successful implementation included a multidisciplinary change team (surgeon, administration, practice manager, clinic RNs & MAIs, dietitians, office staff), dynamic surgeon champion, proactive day-to-day leaders, and a specialty focus.
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References


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