

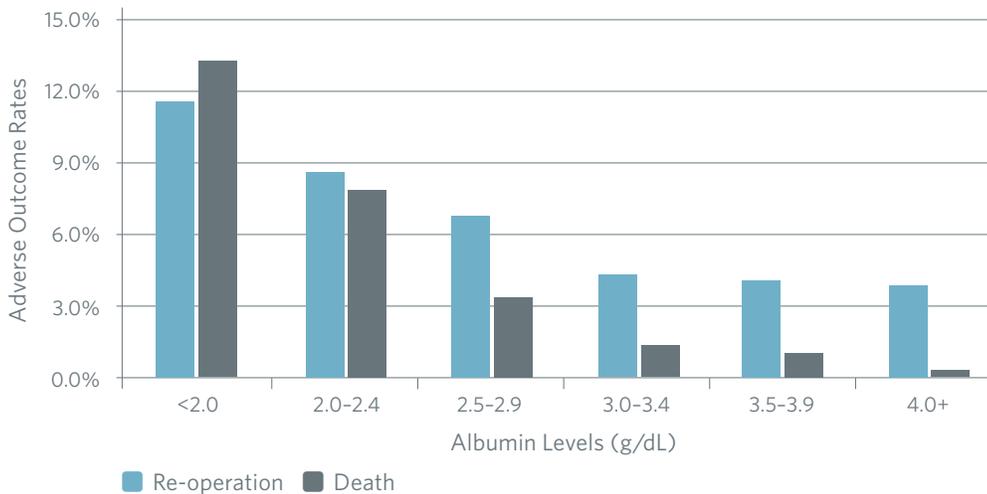
The Surgical Care and Outcomes Assessment Program (SCOAP) is a collaborative of clinicians and hospitals across Washington State driving best practices in surgical and interventional health care. By benchmarking performance and implementing hospital quality initiatives, such as a standardized Surgical Safety Checklist, SCOAP has improved outcomes and saved millions in health care dollars. SCOAP hospitals participating in a learning health care system called CERTAIN are now shining a spotlight on the presurgical setting. In that spotlight is Strong for Surgery—a campaign aimed at identifying and improving evidence-based practices to help patients have better outcomes.

NUTRITIONAL STATUS IS A MAJOR DETERMINANT OF OUTCOMES FOR ANY TYPE OF SURGERY, ESPECIALLY FOR HIGH-RISK PATIENTS

The first Strong for Surgery initiative will bring a presurgery checklist and nutritional interventions to doctors' offices to improve surgical outcomes. **Strong for Surgery targets:**

- ✓ Measurement of preoperative albumin
- ✓ Assessment of nutritional status
- ✓ Use of appropriate, evidence-based nutritional support

SCOAP: Albumin and Complications Elective Colon/Rectal Procedures



What can you do to help your patients be Strong for Surgery?

To find out more about the Strong for Surgery program and how you can join the effort to improve surgical outcomes through nutritional intervention, please contact us at strongforsurgery@facs.org.

Facts about Nutrition and Surgery:

- Malnourished patients undergoing surgery for gastrointestinal cancer have more than 10 fold increased morbidity.
- Assessment for unintentional weight loss, change in dietary intake, and gastrointestinal symptoms can indicate that a patient may be at nutritional risk.
- Albumin levels less than 3.0 are associated with higher post-op complication rates: 25% with levels 2.5 to 2.9 and 50% 2.0 to 2.4.
- Surgery patients suffer from immune suppression, which increases infection rates. A meta-analysis looking at 3,104 patients across 28 randomized control trials on elective surgeries demonstrated that use of "arginine-supplemented diets" was associated with a 41% reduction in risk of infectious complications. Seven studies of preoperative use showed a 43% reduction in risk.

Top References:

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A new collaborative venture to support education and training needs is being planned with the American College of Surgeons

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Education Partners:

Qualis Health
Washington State Academy of Nutrition and Dietetics
Washington State Hospital Association
Washington State Medical Association

Most Recent Study

Sharma A, Deeb A, Ianuzzi J et al. Tobacco Smoking and Postoperative Outcomes after Colorectal Surgery. *Ann Surg.* 2013;258(2):296-300ACS

- NSQIP database queried from 2005 to 2010: 47,574 patients identified, of which 26,333 patients had surgery for colorectal cancer, 14,019 for diverticular disease, and 7,222 for inflammatory bowel disease
- Findings
 - Smoking increases the risk of complications after all types of major colorectal surgery, with greatest risk for current smokers
 - Current smokers had the highest rate of infectious complications, pneumonia, return to the OR, and incisional infection
 - All complications including mortality were significantly higher in patients with a history of more than 60 pack-years of smoking

Additional Examples in the Literature

Jha P. Avoidable global cancer deaths and total deaths from smoking. *Nat Rev Cancer.* 2009;9:655-664

- The gastrointestinal tract is sensitive to the noxious influence of smoking
 - Smoking raises the risk of peptic ulcer disease, impairs ulcer healing and favors ulcer recurrence
 - Smoking reduces the lower esophageal sphincter and worsens gastroesophageal reflux disease
 - Strong correlation between smoking and pancreatitis
- Smoking reduces the overall capacity of tissues to heal after surgery
- Smoking appears to be a risk factor for Crohn's disease and affects adversely the course of disease (worse flares, recurrent episodes, delay in healing between episodes)

Turunen P, Wikstrom H, et al. Smoking increases the incidence of complicated diverticular disease of the sigmoid colon. *Scan J Surg.* 2010;99:14-17

- Smoking affects the complications of diverticular disease of the colon
 - Smokers tend to develop complications at a younger age than nonsmokers
 - Smokers have more strictures and histological perforations in the operative specimen

There are two issues at play in terms of counseling someone to stop smoking

First is the issue of nicotine replacement. There had been some fear that nicotine replacement therapy could potentially interfere with wound and bone healing based on animal studies. However, the doses used in the animal models were high doses of nicotine and not the lower doses in typical replacement therapy. A recent human study has shown that nicotine replacement therapy along with smoking cessation actually decreased wound complications.¹ Thus, if a patient is using nicotine replacement therapy, it makes sense to continue it perioperatively.

The 2nd issue is what time interval is appropriate for smoking cessation. In terms of the acute physiology that occurs when smokers first quit, what was theorized were the following time intervals:

- First 48 to 72 hours: Quitters may have increased secretions and more reactive airways
- 2 to 4 weeks: Decreased secretions and decreased airway reactivity
- 4 to 6 weeks: Immune and metabolic function normalize
- 12 weeks: Complete improvement of the airway lining mucociliary function and small airway function

Dr. Shi and Dr. Warner² correctly pointed out that the argument that brief postoperative abstinence from smoking increases pulmonary risk was based on two large papers from the Mayo Clinic.³⁻⁴ In both studies, the authors did find that longer periods of cessation (greater than eight weeks before surgery) were statistically associated with decreased pulmonary complication rates (20% vs. 48% for those who continued to smoke). For the shorter time periods, there was no statistical difference in rates, even though it appeared that those who recently quit had higher complication rate percentages (hence, if not statistically significant, we cannot say for certain that the differences noted may have arisen purely by chance). Thus, the authors of the studies were careful not to make this conclusion but instead concluded that longer periods may be needed for pulmonary benefit.

In 1990, a major anesthesia textbook (*Miller's Anesthesia*) incorrectly stated that the above two studies had conclusively shown that those who quit for less than eight weeks had higher complication rates. As Dr. Shi and Dr. Warner pointed out, this then led to this incorrect assertion in practice guidelines, review articles, and other textbooks. A recent systematic review⁵ and meta-analysis⁶ demonstrated that there is no "increased risk" by having smokers stop even for a short period of time before surgery. There is of course some justifiable debate about the quality of evidence that all of these reviews are scrutinizing, as most studies have been primarily observational studies. Thus ongoing analysis of the issue is needed (which fits in with the goals of the Strong for Surgery program).

In summary:

- Diagnoses of diseases such as cancer and the prospect of having surgery are ideal opportunities to engage patients in the benefits of smoking cessation.
- Other than the first 72 hours where quitters may have increased secretions and more reactive airways which may interfere with anesthesia, there isn't any study that has shown that brief preoperative smoking cessation carries with it an increased risk. There is one recent study⁷ that didn't find an increased cough in the first few days in a good proportion of people.
- The ideal role of the surgeon is to identify tobacco users, advise them to quit, and then refer the patients to those evidence-based resources that can provide assistance.
- At present we are not prescribing a defined period of time patients should be off of cigarettes. It seems reasonable that a couple of weeks would be sufficient, but this is another opportunity for the surgeon and patient to have an extensive discussion about the same.

References

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