



What surgeons can do to reduce the impact of smoking on surgical outcomes

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Smoking is the number one cause of preventable death in the U.S. and worldwide. Approximately 19.8 percent of U.S. adults smoke cigarettes, and up to one-half of these individuals will die prematurely because of their use of tobacco. Each year, tobacco use causes 440,000 deaths in America, and 50,000 deaths due to second-hand smoke.¹ Nearly 5 million deaths each year worldwide are the result of tobacco use.

Cigarette smoking is a powerful independent risk factor for developing heart disease and stroke, and is also strongly linked to developing cancer, sudden cardiac death, emphysema, and chronic bronchitis. A smoker's risk of developing heart disease is estimated to be two to four times higher than that of nonsmokers. At the national level, lost-work productivity from tobacco use amounts to more than \$92 billion per year, and health care expenditures for smokers are estimated at \$90 billion per year.² More than 8.6 million people in the U.S. are disabled from smoking-related diseases, and smoking causes more than twice as many deaths as human immunodeficiency virus and AIDS, alcohol abuse, motor vehicle collisions, illicit drug use, and suicide combined.³ As a result, tobacco use places a tremendous strain on our nation's health care system, impeding our ability to provide access to the uninsured in the U.S., and to address important diseases such as heart disease and stroke. Though the smoking prevalence among adults in the U.S. has been in slow decline over the past five decades, youth smoking is on the rise. Of the current 44 million smokers in America, nearly 75 percent would like to quit smoking.⁴ The majority of smokers eventually succeed after several attempts, and the encouraging news is that there are currently more ex-smokers in this country than there are active smokers.

Smoking-related surgery and anesthesia complications

Each year, millions of cigarette smokers require surgery and anesthesia in the U.S. Although all physicians can, and should, help their patients quit smoking, there are especially good reasons for anesthesiologists and surgeons to do so. Smoking may cause the disease that requires

surgery, or it may complicate anesthetic management and surgical outcomes for other nonsmoking related conditions. Smoking is a risk factor for perioperative cardiovascular, respiratory, and wound healing complications such as pneumonia, myocardial infarction, and surgical site infections. Surgeons and anesthesiologists witness the devastating consequences of cigarette smoking on a daily basis, as well as the hidden costs to society associated with smoking that we often don't discuss. Complications such as wound infection, respiratory failure requiring intubation, prolonged hospital stay, and anastomotic leak are clearly linked to current smoking; quitting, even for a relatively brief time prior to surgery, can reduce the risks.

The good news is that the risk of premature death and disability is dramatically reduced when smokers quit, even if they have smoked for decades. The average smoker gains six to eight years of extra life from stopping smoking. A 2004 report by the U.S. Surgeon General showed that after one year of not smoking, the excess risk of coronary heart disease is reduced by half.⁵ After 15 years of abstinence, the risk for cerebrovascular disease is similar to that for people who've never smoked.

What we can do

Surgeons and anesthesiologists encounter smokers at a unique, teachable moment for behavioral change. Extensive research has already documented that patients recently diagnosed with tobacco-related disease are most responsive to counseling and advice to quit. Inpatient hospital smoking cessation counseling has proven effective after myocardial infarction. While quitting smoking shortly before or after surgery is often perceived as difficult, it is not impossible. Even a few minutes spent by a physician advising smokers to quit can be effective, and there are now referral resources, such as free telephone-based "quit lines," that are available free of charge. A variety of effective methods are available to help smokers quit, including counseling and medications such as nicotine replacement therapy: nicotine patches, varenicline (Chantix®), bupropion, nicotine gum, lozenges, nasal sprays, and inhalers. (For more information, visit [22](http://</p></div><div data-bbox=)

www.smokefree.gov.) Unfortunately, current evidence shows that surgeons and anesthesiologists are currently not taking advantage of this teachable moment opportunity, as very few provide any assistance to their patients in stopping smoking.⁶

Traditionally, smoking cessation efforts on the part of physicians have emphasized the five “A’s” of breaking this habit, as identified by the *Treating Tobacco Use and Dependence Clinical Practice Guideline*.⁴ The five “A’s” of an expanded social history assessment of tobacco use are: Ask, advise, assess, assist, and arrange. However, a newer recommendation by the American Society of Anesthesiologists’ (ASA) Smoking Cessation Initiative Task Force suggests utilizing the simplified version, ask-advise-refer, during preoperative discussions with patients considering surgery:

- *Ask* all patients if they use tobacco.
- Then *advise* smokers to quit.
- *Refer* the patient to smoking cessation counselors or toll-free telephone quitlines (1-800-QUIT-NOW).

The ASA recently performed a pilot study in 14 representative anesthesia practices, showing that the ask-advise-refer strategy to provide tobacco interventions was feasible and well-received by both anesthesiologists and patients.⁷ Participating anesthesiologists found that by using this strategy, they could quickly and easily intervene with their patients, without extensive training in tobacco control methods. The ASA subsequently adopted an official policy statement on tobacco control, with the intent to increase awareness regarding the essential role that anesthesiologists can play in improving the overall health and surgical outcomes of their patients.

We recommend that you take a few minutes to make a lasting difference in the life of your patients who smoke. First, all patients should be asked whether they are currently smoking or using tobacco. Patients will likely appreciate that you care enough just to ask this question. Next, every smoker needs to be advised to quit. Focus on these two points: abstaining from smoking may help patients better recover from their surgery, and many people often find that surgery is an optimal time to make a sustained attempt to quit. Encourage patients to abstain from smok-

ing for as long as possible postoperatively. Finally, familiarize yourself with the resources available in your practice setting for those patients who want help in quitting.

Examples of efforts to help surgical patients quit smoking

The ASA has developed an initiative to help surgical patients quit smoking. This initiative includes materials that equip anesthesiologists to get involved in tobacco control efforts (available at <http://www.asahq.org/stopsmoking/providers>), public educational efforts, and collaborations with others involved in perioperative care.

Another example of a successful smoking cessation initiative is that of the University of California–San Francisco (UCSF), Medical Center, a multidisciplinary inpatient effort targeting smoking cessation involving physicians, nursing, and physician extenders, which has been championed by respiratory therapists. The intent is to identify all hospitalized patients who smoke, and to link them with the wide range of comprehensive programs available to help them stop smoking. Inpatients admitted to the UCSF Surgery Hospitalist program are referred to the UCSF Habit Abatement Center (<http://www.ucsf.edu/nosmoke>), as well as the Tobacco Education Center. An interactive video developed by the UCSF School of Medicine to educate medical students and residents to become tobacco cessation counselors is available to the public at https://surveys.ucsf.edu/Surgery110Tobacco_public.ucsf.

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Future health policy considerations

An Institute of Medicine report released in May of 2008 entitled *Ending the Tobacco Problem* has defined a national strategy to reduce smoking so that it is no longer a significant public health threat.⁸ A key recommendation was to grant the Food and Drug Administration the authority to regulate the production, advertising, and distribution of cigarettes, a major goal that was fulfilled in June of 2009.

There is strong evidence to support four key health policies that reduce the rate of smoking: price increases through state and national taxes; clean indoor air laws; counter-marketing campaigns to deliver prevention and cessation messages; and smoking cessation services. Substantive progress is occurring in each of these areas except counter-marketing campaigns, where fiscal crises have reduced air time for advertisements.

As the debate regarding reform to the American health care system evolves, we may learn valuable lessons from the experiences of other nations in the creation of disincentives to continued smoking. Interestingly, in other countries, active smokers are often refused elective surgery, and referred to preoperative smoking cessation programs.

Increases in the price of cigarettes have been demonstrated to be a powerful incentive to help smokers to quit. In 2009, the U.S. government legislated a 62-cent increase in the price for a pack of cigarettes, which raised the national

average for a pack of cigarettes to \$4.80.⁹ But in some Canadian provinces, the average price for a pack of cigarettes is as high as \$9.00 USD.¹⁰ The extra revenues generated from these excise taxes can help to fund smoking cessation programs for active smokers, and to promote clean indoor air laws to reduce nonsmoker exposure to secondhand smoke. Further research in the areas of tobacco control policy, nicotine addiction, and smoking cessation research will be essential to increase the ability of health care professionals to assist smokers to achieve their cessation goals.

Another key recommendation from the Institute of Medicine report is the requirement that all public and private health insurers cover smoking cessation programs. In response, representatives from the health insurance industry have proposed that active smokers pay higher insurance premiums as a mechanism to increase patient responsibility in the discussion of access to health care.

At the federal level, tobacco control efforts to improve the future health of U.S. citizens are strongly consistent with the American Heart Association's mission to reduce the health impact of heart disease and stroke, which are the number one and number three leading causes of death. Together, heart disease and stroke claim approximately 1 million lives each year. The estimated direct and indirect cost of cardiovascular disease in the U.S. for 2009 was more than \$475 billion.¹¹ Future efforts to integrate the tobacco control effort into the public health and policy process may result in health care savings that will expand access to cover the uninsured.

Conclusion

Given the enormous societal cost of tobacco, the fields of anesthesia and surgery are presented with a special opportunity to deliver a unified message about smoking cessation that will make a real difference in the lives of patients. The first step is to make surgeons around the world fully aware of the risks of smoking so that they can educate their patients who smoke about the increased risks of surgery. Surgeons should include a discussion of active smoking and its risks during the preoperative informed consent discussion when weighing the overall risks and benefits of



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an operation. Perhaps a better understanding of the added risks of active smoking will result in a mutual decision to postpone elective operations in the interest of patient safety. The next step is to make surgeons aware of the free resources that are readily available to allow patients to succeed in their cessation efforts. Successful smoking cessation usually requires multiple attempts, and surgeons and anesthesiologists can collaborate to identify smokers preoperatively, and steer them toward treatment. As we move forward, future solutions will involve a multi-pronged effort focused both on prevention and treatment of those afflicted by smoking-related disease. Central to this solution will be effective smoking cessation education that keeps people from ever starting to smoke, while helping people who do smoke to quit. Through empowerment and education, surgeons can play an important role in reducing tobacco's deadly toll across America and worldwide. [Q](#)

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