

# Pre-Op Smoking Cessation

**Anesthetic Pearls:** Anesthetic Benefits of Pre-Operative Smoking Cessation

## Pre-Operative Smoking Cessation

- Approximately 1/3 of adult patients presenting for surgery are smokers.
- Smokers have an increased risk of post-operative respiratory complications.

## Detrimental Effects of Cigarettes:

1. Increased carbon monoxide / carboxyhemoglobin leads to tissue hypoxia, shift O<sub>2</sub> dissociation curve to the Left (decreased p50), negative inotropic effects, false increase of SaO<sub>2</sub> on pulse oximetry
2. Increased mucous production
3. Impaired ciliary and small airway function
4. Nicotine: sympathomimetic effects last only ~ 20-30 minutes
5. Decreased immune function
6. Increased hepatic enzyme activity leads to possibly increased peri-op analgesic requirements
7. Decreased FVC and MMEFR (maximal mid-expirational flow rates)

## Short Term Cessation (days):

Decreased nicotine, decreased carbon monoxide, decreased carboxyhemoglobin, shift O<sub>2</sub> curve back toward Right, **no** effect on post-operative pulmonary complications or mucus and/or PFT's.

## Long Term Cessation (greater than 2 months)

Decreased post-operative pulmonary complications, decreased sputum, increased ciliary function, increased MMEFR, decreased closing volume, return of normal immune function and hepatic enzyme activity.

## Important:

Short-term cessation of smoking (days) has **not** been proven to decrease incidence of post-operative pulmonary complications. However, there is a strong recommendation that patients cease smoking before elective surgery. Even brief periods of smoking / nicotine abstinence increase O<sub>2</sub> carrying capacity (decrease carboxyhemoglobin). Two or more months are needed to improve post-operative pulmonary complication rates. It is also important to remember that when patients are in the cessation phase, they will most likely be taking various smoking cessation medications (nicotine gum / patch / nasal spray, Chantix [varenicline], Zyban [bupropion], Catapres [clonidine]). The smoking cessation medications are from a variety of pharmacological classes and can therefore interact with the action / metabolism / clearance / elimination of anesthetic agents.

Figure 1: Method of Cessation

