

# Feasibility of Electronic Nicotine Delivery Systems in Surgical Patients

Margaret Nolan, MD, Scott Leischow, PhD, Ivana Croghan, PhD, Sandeep Kadimpati, BDS, Andrew Hanson, BS, Darrell Schroeder, MS and David O. Warner, MD

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## Author Affiliations

Department of Anesthesiology, Mayo Clinic, Rochester, MN; Nicotine Dependence Center, Mayo Clinic, Rochester, MN

Corresponding Author: David O. Warner, MD, Department of Anesthesiology, Mayo Clinic, 200 First Street Southwest, Rochester, MN 55905, USA. Telephone: 507-255-4288; Fax: 507-255-7300; E-mail: [warner.david@mayo.edu](mailto:warner.david@mayo.edu)

Received October 20, 2015.

Accepted December 29, 2015.

## Abstract

**Introduction:** Cigarette smoking is a known risk factor for postoperative complications. Quitting or cutting down on cigarettes around the time of surgery may reduce these risks. This study aimed to determine the feasibility of using electronic nicotine delivery systems (ENDS) to help patients achieve this goal, regardless of their intent to attempt long-term abstinence.

**Methods:** An open-label observational study was performed of cigarette smoking adults scheduled for elective surgery at Mayo Clinic Rochester and seen in the pre-operative evaluation clinic between December 2014 and June 2015. Subjects were given a supply of ENDS to use prior to and 2 weeks after surgery. They were encouraged to use them whenever they craved a cigarette. Daily use of ENDS was recorded, and patients were asked about smoking behavior and ENDS use at baseline, 14 days and 30 days.

**Results:** Of the 105 patients approached, 80 (76%) agreed to participate; five of these were later excluded. Among the 75, 67 (87%) tried ENDS during the study period. At 30-day follow-up, 34 (51%) who had used ENDS planned to continue using them. Average cigarette consumption decreased from 15.6 per person/d to 7.6 over the study period ( $P < .001$ ). At 30 days, 11/67 (17%) reported abstinence from cigarettes.

**Conclusion:** ENDS use is feasible in adult smokers scheduled for elective surgery and is associated with a reduction in perioperative cigarette consumption. These results support further exploration of ENDS as a means to help surgical patients reduce or eliminate their cigarette consumption around the time of surgery.

**Implications:** Smoking in the perioperative period increases patients' risk for surgical complications and healing difficulties, but new strategies are needed to help patients quit or cut down during this stressful time. These pilot data suggest that ENDS use is feasible and well-accepted in surgical patients, and worthy of exploration as a harm reduction strategy in these patients.