

# Article ▶ Effect of Tobacco Cessation Counseling in an Eye Care Practice

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## ABSTRACT

**Background:** Medicare uses a combination of incentives and penalties to encourage health care practices to screen for tobacco use and counsel on cessation. The few studies published on success rates report cessation rates from zero to 15% in hospitals and primary care offices. This study examines the effect of screening for and counseling about tobacco use and cessation on patients of an eye care practice.

**Methods:** Study design: retrospective cohort records review. Criteria for inclusion were: established patient with a documented history of tobacco use at previous office visit(s), received cessation counseling, and age 25 or older. Sample size: given an 18% prevalence of tobacco use in the target population, a minimal sample size of 1418 was calculated in order to detect a 1% change in tobacco use status. Consecutive records from a large multisite eye care practice were reviewed for all visits April 21-May 5, 2016. A total of 1834 established patient records were reviewed, and 193 met the inclusion criteria.

**Results:** Twenty-eight (14.4%) of 193 patients who reported tobacco use at a previous exam and who received counseling on tobacco cessation reported no longer using tobacco at the survey visit. The demographic variables of age, gender, and health insurance carrier did not differ between former users and continuing users.

**Conclusions:** Screening and counseling tobacco cessation in an eye care office is associated with clinically significant decreases in tobacco use.

**Keywords:** eye care, Medicare, retrospective study, tobacco, tobacco cessation

## Introduction

In the last decade, the United States federal government, through Medicare and The Patient Protection and Affordable Care Act (Obamacare), implemented a combination of incentives and penalties to encourage and ultimately to force health care provider offices to provide additional services and certain levels of care to patients. To participate in Medicare and Medicaid, electronic health records are now required. In 2016, the Centers for Medicare and Medicaid Services (CMS) required providers to attest to ten objectives.<sup>1</sup> Some objectives and measures are required of all providers, and some are profession specific. In eye care, most available objectives are evidence-based. For patients with macular degeneration, counseling on antioxidant supplementation must be performed and documented. For patients with diabetes, there should be review of blood sugar history and blood sugar goals, annual dilated exam, and communication of findings to the diabetic patient's other providers.

One CMS objective is to screen all patients age 13 and older for tobacco use and to provide counseling on tobacco cessation. However, there is no evidence that counseling tobacco users in an eye care practice is effective. On the contrary, from 1996 to 1998, this author conducted a case-control study on his own patients at Eye Care for the Adirondacks in northeastern New York to measure the odds of smoking cessation after counseling. None of the case subjects ceased tobacco use, but two control subjects did quit. This resulted in an inverse association.<sup>2</sup>

A literature review identified several studies on smoking cessation practice and success rates in hospitals, HMOs,

primary care clinics, and dental offices. Systems changes, where an entire records system is revised to track tobacco screening and cessation counseling through electronic health record flagging, were the most commonly used approaches. In the period from 2009-2012, a Louisiana public health hospital system (1.2 million records) achieved a 97% compliance in screening of tobacco users and documented a 9% reduction in tobacco use.<sup>3</sup> In another systems change study, the Harvard Vanguard Medical Associates (Boston metropolitan area) successfully implemented tobacco use screening and interventions in 12 of 17 clinics and then compared results. Over 100,000 patient records were reviewed. Clinics meeting the systems change intervention documented an average quit rate of 13.6%, which was significantly higher than the control clinics at 9.7% ( $p < 0.01$ ).<sup>4</sup> From 2004 to 2008, a group of 68 dental offices in Mississippi were randomized to high-level intervention, moderate-level intervention, and usual care for tobacco users. Of the 2160 participants enrolled, the intervention practices had somewhat higher rates of tobacco cessation as measured by nine-month abstinence (3% intervention versus 2% usual care,  $p < 0.10$ , not significant) and prevalence at 12 month follow up (12% versus 8%,  $p < 0.01$ , statistically significant).<sup>5</sup> This agreed with conclusions by Warnakulasuriya, who, in 2002, reviewed effectiveness of dental practices and tobacco cessation counseling and found success rates of 10-15%.<sup>6</sup> Complementary and Alternative Practitioners in Tucson, AZ, were surveyed after a training program in tobacco cessation screening and counseling in office-based practices. These practitioners significantly increased their comfort and

initiation of screening and cessation counseling in their offices.<sup>7</sup> Success rates were not investigated. In British Columbia from 2008 to 2010, six out-patient health care practices utilized a system where one front office worker was dedicated to screen, offer treatment, provide referral, and track tobacco use over a 15-month period. While offices showed increases in rates of screening, referral, tracking, and reminders, there was no overall change in tobacco use among the patient sample analyzed.<sup>8</sup> In a study of primary care practices in the early 1990s, 1380 users were advised by their provider to quit and then were randomized to receive either high-level counseling in the office or minimal encouragement. Of patients receiving high-level counseling, 53.2% agreed to referral to a group smoking cessation program, but only 11.3% attended.<sup>9</sup> This was still significantly higher than the 0.006% attendance in the group that received minimal encouragement. Rates of cessation were not reported.

To summarize, despite over 50 years of consensus by the medical and public health community that smoking is the number one preventable cause of disease and death and that tobacco cessation should be encouraged by health care practices and institutions, very limited evidence exists on the effectiveness of in-office recommendations for patients to stop tobacco use. No published studies were found on rates of counseling and smoking cessation in eye care practice.

In September 2013, Eye Care for the Adirondacks, a multisite primary, secondary, and tertiary eye care practice in northeastern New York, became a participant in the CMS electronic health records incentive program and thus attested each year to meeting ten objectives and measures, including tobacco screening and cessation counseling for every patient age 13 and older at every office visit. Prior to 2013, Eye Care for the Adirondacks screened all adult and teenage patients for tobacco use since tobacco was a known risk factor for certain eye diseases. In September 2013, each patient's office visit education plan was modified to include counseling on tobacco cessation to those who reported tobacco use during their history. The purpose of this study was to determine whether practice-wide adoption of smoking cessation counseling (systems change) was associated with any changes in tobacco use.

## Methods

This descriptive retrospective records review was completed on all office visits from April 21, 2016 through May 5, 2016. The study design was submitted to the Salus University Institutional Review Board prior to accessing records. It was considered exempt from IRB review since all data were existing and were recorded without identifying information. The study met national and international standards for ethical human research.

**Inclusion criteria:** All established patients age 25 and older who reported tobacco use at a previous office visit between September 1, 2013 and December 31, 2015 and who had

**Table 1. Comparison of Former Tobacco Users and Continuing Users at Eye Care for the Adirondacks**

Characteristics	Former Users (n=28)	Continuing Users (n=165)
Age, mean (S.D.)	57.1 (15.0)	58.4 (13.0)
Proportion Female	0.61	0.53

received tobacco cessation counseling at least once. Age 25 was chosen to avoid the potentially different reasons for tobacco use in young adults. These reasons include differences in impulse control compared to adults over age 25, potential reluctance to admit use by an underage patient (leading to selection bias), and potential rebellious responses to cessation counseling.

**Exclusion criteria:** Patients who confirmed never having used tobacco or former users where non-use was documented prior to September 1, 2013.

A sample size calculation was performed to detect at least a 1% change in tobacco use based on prevalence data (18%) from the earlier case-control study.<sup>2</sup> The calculation returned a minimum number of 1418. Eye Care for the Adirondacks sees 700 to 1100 patients per week (13 providers, three offices), so a consecutive sample of all patient visits for a two-week period was chosen. Random sampling based on exposure (smoking cessation counseling) was not possible through the practice electronic medical records system. The consecutive records review during the late spring provided the best alternative to random sampling to achieve a representative sample. Patients who winter in southern climates have returned to the area, the local university was in session, and patient loads would not be affected by changes in insurance (open enrollment periods), deductible issues in the beginning of the year, or use of flex spending at the end of the year.

## Results

A total of 1834 records of established patients were reviewed for the two-week period of April 21-May 5, 2016. Each patient's record was counted once. For patients seen more than once during the two-week period, only the first visit was used for analysis. Some brief visits did not include assessment of tobacco use. These were most commonly contact lens evaluation only, refraction check, or subsequent testing. If tobacco use was not addressed at that visit, then office visits either prior or later were reviewed until a patient visit addressing tobacco use was found. A final sample of 193 established patients who admitted tobacco use at a previous exam between September 1, 2013 and December 31, 2016 met the inclusion criteria. Of those, 28 (14.4%) were no longer using tobacco. Table 1 shows the descriptive statistics for former users and continuing users. Distribution of health insurance carrier was similar between former users and continuing users. Number needed to treat: for every 14 tobacco users counseled, one quit.

## Discussion

Eye Care for the Adirondacks serves Clinton, Essex, Franklin, and part of St. Lawrence counties in northern New

**Table 2. Northeastern New York State Demographics by County**

Demographic	Clinton	Essex	Franklin
White	92%	94%	83.9%
African American	4.5%	3.2%	6.4%
Hispanic	3.8%	3.1%	3.3%
Asian	1.4%	0.7%	0.5%
Native American	0.4%	0.7%	7.8%
Median Household Income	\$50,985	\$50,332	\$47,110
Unemployment Rate*	5.6%	6.4%	6.3%
Population	81,251	38,478	59,669

\*Unemployment Data from New York Department of Labor for March 2010.<sup>12</sup>

York. The office accepts all health insurance carriers available to residents of these counties. There is only one other practice, a solo practice, providing surgical eye care within Eye Care for the Adirondacks drawing area, so the study population is likely representative of eye care patients in the area. Patients are primarily White/Caucasian, rural, lower middle class. The largest employers in the region are the New York State Department of Corrections, health care institutions, educational institutions, manufacturers, retail, tourism, and agriculture/forestry. Households below the federal poverty line range from 12-19%. Specific demographics taken from the U.S. Census for 2014 are presented in Table 2.<sup>10</sup>

In 1998, the author's case-control study found that no patients ceased tobacco use after a simple recommendation and referral pamphlet provided by the eye doctor. His expectation going into this study was there would be no change in tobacco use, or at least no change compared to background cessation (people not visiting an eye care provider over the same period). Instead, 28 of 193 or 14.4% had ceased tobacco use. This result reflects similar published studies reporting 9-15% cessation rates in hospitals,<sup>3</sup> primary care clinics,<sup>4</sup> and dental offices.<sup>5,6</sup>

The data do not reveal demographic differences between those who quit and those who did not. Mean age was nearly identical. Former users were slightly more likely to be female. The distribution of health insurance carriers was similar between former and current users.

It is important to recognize the limitations of a descriptive study. It was not possible to use a control group since CMS objectives required screening and cessation counseling at all patient visits. Failure to comply subjects the practice to a significant reimbursement penalty. A control group from earlier years was not available since the electronic health record system was not in place. A historical control group could not account for changes in outside influences, which may have changed between the time periods.

As a descriptive epidemiologic study, we cannot determine cause and effect. The smoking cessation recommendation at Eye Care of the Adirondacks may be only one factor related to the decline in tobacco use. Patients are encouraged to stop tobacco use, hopefully, at other medical offices, at home, on

social media, in print and traditional media, and by smoke-free public places. The improved success rates between 1998 and 2016 could simply reflect a cultural sea change of tobacco use. In New York state, average prevalence of smoking among adults decreased 7.5%, from 24.1% in 1998 to 16.6% in 2013.<sup>11</sup>

A retrospective descriptive study is subject to other uncontrolled factors. While tobacco cessation counseling was required for all patients, the form of counseling was not standardized across or within all providers and ancillary staff. Smoking cessation counseling could have varied from a simple statement "We encourage you to quit" to actual conversation on the advantages of quitting, the most successful methods, providing written material with referral information, and actually making an appointment for the patient. It is also possible that in some cases, staff did not actually provide the counseling but simply checked the box to insure record compliance. The variation in the quantity and quality of the counseling introduces misclassification or information bias. If the misclassification was random, occurring at the same frequency between former users and continuing users, then no effect other than regression to the mean would be expected. However, since this could not be measured, it is possible that some of those who quit may have received more or better counseling than those who did not.

The lack of standardization and issues with compliance implies a more significant problem: lack of reimbursement. Appropriate engagement, dialogue, review of success rates, providing published material, and arranging a referral require significant staff time, easily 5-10 minutes per patient. Medicare requires the add-on without additional reimbursement for the office time. Instead, the office is subjected to a reimbursement penalty if the requirement is not met. This study was undertaken to determine the rate of cessation since implementing the requirement. While one cannot conclude that the counseling provided by Eye Care for the Adirondacks led directly to the 14.4% reduction in tobacco use among the sample, the results support continuing the effort. To improve the numbers of patients abandoning tobacco use, the next step is to standardize the counseling across staff with scripts, materials, and decision trees during the counseling. To implement the extra office time and to obtain or to self-publish the materials, primary care offices need appropriate reimbursement. The health improvement and systemic benefits go directly to the patient, their health insurer, and society, but the cost burden is on the provider office. With appropriate incentives and guidelines, success rates might improve even more.

## Conclusion

A system-wide tobacco cessation program in a multidocor eye care office was associated with a 14.4% decrease in tobacco use. The result was similar to published studies of other health care specialties and provides evidence for continuing improvements in tobacco cessation counseling in eye care practices.

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