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The Effect of Removing Cost as a Barrier to Treatment Initiation With Outpatient Tobacco Dependence Clinics Among Emergency Department Patients

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Abstract

Objectives—The campaign against tobacco addiction and smoking continues to play an important role in public health. However, referrals to outpatient tobacco cessation programs by emergency physicians are rarely pursued by patients following discharge. This study explored cost as a barrier to follow-up.

Methods—The study was performed at a large urban hospital emergency department (ED) in Camden, New Jersey. Enrollment included adults who reported tobacco use in the past 30 days. Study participants were informed about a “Stop Smoking Clinic” affiliated with the hospital and, depending on enrollment date, cost of treatment was advertised as \$150 (standard fee), \$20 (reduced fee), or \$0 (no fee). Monitoring of patient inquiries and visits to the clinic was performed for 6 months following enrollment of the last study subject.

Results—The analyzed sample consisted of 577 tobacco users. There were no statistically significant demographic differences between treatment groups ($p > 0.05$). Two-hundred forty-seven (43%) participants reported “very much” interest in smoking cessation. However, there was no significant difference in initiating treatment with the Stop Smoking Clinic across experimental condition. Only a single subject, enrolled in the no-fee phase, initiated treatment with the clinic.

Conclusions—Cost is unlikely to be the only barrier to pursuing outpatient tobacco treatment after an ED visit. Further research is needed to determine the critical components of counseling and referral that maximize postdischarge treatment initiation.

Tobacco addiction remains the leading cause of preventable mortality across the United States and is responsible for one in every five deaths.¹ In addition, the serious pathologic consequences of tobacco exposure, such as cardiovascular disease, malignancy, and pulmonary disease, adversely affect quality of life for a population 20 times larger in size.¹ Thus, despite the shrinking prevalence of smoking, a large proportion of patients seen at

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emergency departments (EDs) across the nation continue to use tobacco,² which is thought to directly contribute to 5% of all ED admissions.³

The efficacy of tobacco cessation intervention by health care providers is well documented. In support of this, the American College of Emergency Physicians' Smoking Cessation Task Force extended the US Public Health Service Task Force recommendation that health care providers universally screen and counsel tobacco users treated in the ED setting, emphasizing that routine screening should be followed by brief advice and referral to national quit lines or local tobacco dependence treatment programs.⁴

In 2000, the first randomized controlled trial evaluating an ED-initiated tobacco intervention revealed comparable cessation rates between scripted verbal counseling by emergency physicians (EPs) and a control condition consisting of no counseling.⁵ Of particular interest, the study intervention included a referral to an outpatient tobacco clinic; however, none of the participants in the intervention group followed up with the referral. Because the cost burden of the outpatient program translated to \$200 per patient, financial disincentives were hypothesized to play a prohibitive role in patient follow-through. In response, our study aimed to evaluate the influence of cost on enrollment in outpatient tobacco treatment following discharge from the ED. We hypothesized that smokers would be more likely to initiate treatment if the program was advertised free of charge.

Methods

Study Design

This was a survey study that used a three-phase, open-trial design. The hospital's institutional review board approved this study and all participants provided informed consent.

Study Setting and Population

This study was performed at a large urban hospital ED in Camden, New Jersey, between March and August 2003. Using a standardized protocol, research staff provided consecutive enrollment from 09:00 to 23:00 7 days a week for 20 weeks. Participants 18 years of age or older and who reported smoking any cigarettes or cigars in the past 30 days were eligible. Exclusion criteria prevented enrollment of the severely ill and cognitively impaired.

Study Protocol

Participants completed a short questionnaire that assessed tobacco type (cigarettes, cigars, both), rate, and interest in quitting. All enrolled participants were told that the hospital had a "Stop Smoking Clinic" and were given a trifold brochure describing the program. The program cost was prominently displayed on the first page of the brochure and, depending upon the phase of the study, was advertised as \$150 (standard fee), \$20 (reduced fee), or \$0 (no fee). Participants were given a direct-access telephone number to the clinic, which maintained a call log documenting the name and contact information of all callers. All calls were brought to the clinic director's attention and callers were questioned about their enrollment in the study, as well as any visits to the ED in the past 6 months. The clinic's logs were tracked for 6 months after the enrollment of the last subject.

Data Analysis

To examine group differences in smoking and interest in smoking, one-way analyses of variance were performed. Group differences in referral follow-through were examined using a chi-square test of independence. Given our sample size, alpha level of 0.05, and expected

low base rate of follow-through based on previous research,⁵ the current study had statistical power of at least 0.84 to detect differences as small as 5% between any two groups.

Results

A total of 591 smokers were enrolled, 313 (53%) of whom were male. The mean age was 40 years (SD \pm 14 years). Racial demographics showed 264 (45%) of participants were white and non-Hispanic, 160 (27%) were African American, and 115 (20%) were Hispanic. Two-hundred twenty-seven participants (38%) lacked health insurance. The data for 14 participants (2%) were eliminated due to missing values on all smoking-related variables, resulting in a final sample of 577 smokers. Participants enrolled into the three phases: standard-fee group (n = 168), reduced-fee group (n = 194), and no-fee group (n = 215). There were no statistical differences in the demographic characteristics across groups (p > 0.05). While the rate of refusal to participate was low (<5% of ED patients approached), data were not collected on smokers who refused, so a comparison against those enrolled is unavailable.

A total of 512 participants (89%) smoked only cigarettes, 28 (5%) smoked only cigars, and 12 (2%) smoked both (4% missing data). Participants who smoked cigarettes averaged 13 cigarettes per day (SD \pm 11; range = <1–52), while cigar smokers averaged three cigars per day (SD \pm 0.67; range = <1–13). A total of 155 cigarette smokers (30%) reported smoking 20 or more cigarettes per day, with 21 (4%) reporting 40 or more. Two cigar smokers (7%) smoked 10 or more cigars per day. Interest in quitting smoking was quite high: 247 participants (43%) reported that they intended to quit “very much,” 120 (21%) “somewhat,” 73 (13%) “a little bit,” and 113 (20%) “not at all” (4% missing). There were no significant differences in interest in quitting and cigarettes smoked per day across groups (p > 0.10).

Only a single participant in the study followed through with the referral to the Stop Smoking Clinic. She was enrolled during the no-fee phase. Given this lack of follow-through across all conditions, a chi-square test of dependency was inappropriate. However, it is clear there was no association, such that manipulating treatment cost did not contribute to referral follow-through.

Discussion

Smoking cessation has been described as the “criterion standard” of health care cost-effectiveness, since successful treatment can be achieved for a relatively low cost.⁶ Even for individual smokers, the financial costs associated with continued smoking, including the price of cigarettes and health care costs, are typically far greater than treatment costs.⁷ Nevertheless, costs associated with smoking cessation treatment may be a perceived barrier preventing access.

Our results highlight that the financial burden of outpatient tobacco cessation programs is not the primary limiting factor hindering participation of ED patients. Despite significant interest in smoking cessation treatment options among ED patients in the study by Richman et al.,⁵ none of the participants engaged in outpatient treatment with the program to which they were referred. Similarly, our study, which relied upon a brochure without provider advice, found less than 0.2% of smokers followed up with the program referral. This behavior suggests nonfinancial limitations, including logistical and comprehension barriers, that our study did not evaluate. Combined, the two studies suggest that referrals alone and brief, scripted physician advice are not enough to influence referral follow-through with outpatient tobacco services.

Notably, we did not assess follow-through with other treatment resources, like primary care physicians, over-the-counter medications, or quit lines. It is important to note that, at the time of this study, the Camden, New Jersey, area lacked other outpatient treatment options and previous research indicated that treatment initiation for tobacco cessation with other avenues of treatment, like primary care providers, is quite rare in this population.² Nevertheless, it is feasible that participants initiated treatment with other providers. In contrast to the logistical barriers that exist with outpatient treatment, quit lines are efficacious, cost-free, confidential, and semi-anonymous services that are available to patients when they are most interested in pursuing treatment.⁸ Future research should seek to follow-up with referred patients regarding their use of other cessation-related resources, like these quit lines, in addition to exploring interventional strategies designed to maximize follow-through, including targeted educational interventions, personalized feedback and referral systems, and establishing appointments directly with outpatient providers prior to discharge. Our study also did not assess cessation; it is feasible that participants quit smoking without assistance. While engaging in smoking cessation treatment significantly improves the chance of success⁹ and is the basis for the field's emphasis on engaging smokers with specialized treatment resources, unassisted quitting remains the norm.¹⁰

Limitations

In addition to the limitations discussed above, several other possible limitations must be addressed. First, the larger size of the no-fee group makes it unclear whether the single follow-up was due to membership in this group or simply a consequence of probability. Accordingly, the potential for type II error is present, such that with a larger sample, a small yet statistically significant effect might be observed. Second, the population of Camden, New Jersey, is not reflective of the national population, as it has a high poverty rate and a large ethnic minority. These limitations were partially mitigated by the fact that the geographic region and participant demographics in the study by Richman et al.⁵ were very different from our sample, yet revealed the same poor referral follow-through.

Conclusions

This study explored outpatient tobacco treatment programs referred through the ED setting and showed that cost is unlikely to be the primary barrier to pursuing treatment.

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