Emergency Department Tobacco Cessation Program: Staff Participation and Intervention Success Among Patients

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Context: The emergency department (ED) is often the primary source of healthcare for uninsured and underinsured patients.

Objectives: To evaluate ED staff attitudes toward and participation in referring patients to a tobacco cessation program, and to assess the program’s effectiveness.

Methods: A nonvalidated survey on smoking cessation and preventative services for ED patients was mailed to ED staff at a suburban hospital. After survey completion, ED staff was encouraged to refer smokers with diagnoses substantially worsened by tobacco use to a brief intervention delivered in the ED. An incentive was provided to staff beginning in the second month of the 3-month period. Referred patients were briefly counseled by a hospital social worker or an ED physician or nurse. Follow-up telephone interviews with patients occurred 1 to 3 months postintervention.

Results: Of the 70 ED staff contacted, 63 (90%) responded to the survey. Most staff members (81%) agreed that they should facilitate clinical prevention. Fewer staff (60%) were comfortable advising patients to quit tobacco use \( P < .03 \), and fewer still (51%) agreed that ED staff should assist patients in tobacco cessation \( P < .001 \). Tobacco users were more likely to favor implementing patient education in the ED \( P = .01 \) and were less comfortable advising patients to quit \( P = .06 \). Staff referrals increased with program incentives \( P = .008 \), with a total of 150 interventions occurring in the 3-month span. Of the 36 patients (24%) reached for follow-up, 13 (36%) attempted to quit and 6 (17%) succeeded. Overall, 45% of the patients reached for follow-up either quit or cut down tobacco use.

Conclusions: Staff members’ attitudes toward tobacco cessation are not a firm barrier to the successful implementation of an ED tobacco cessation program. In addition, the ED provides an important opportunity to encourage patients to quit or cut down tobacco use.


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Adult racial and ethnic minority populations, Americans living in poverty, and younger patients are more likely than other US populations to use the emergency department (ED) as their primary source of healthcare. In addition, the prevalence of tobacco use among ED patients, who are most often from such patient populations, is high. Surprisingly, even though nearly half of ED tobacco users are “ready” to quit, many state that they have never been told to do so by a physician. In fact, one study revealed that although most physicians discussed tobacco use habits with patients, only 56% of such discussions included advice to quit.

Considering these data, the effectiveness—and appropriateness—of preventive health measures implemented in the ED is frequently discussed. Although a consensus statement on the value of such programs remains to be seen, the ED continues to be a safety net for indigent and underinsured patients. If clinical preventive services are demonstrated to be effective and time-efficient, ED healthcare providers might be more likely to deliver such services, therefore positively impacting the health of the community.

Staff attitudes toward the delivery of ED preventive and public health services are a potential barrier not only to the willingness of staff to participate in such programs but also to the success of an intervention program. As part of a community service project, the present study sought to evaluate how ED staff attitudes toward community service, patient education, and preventive health affected their participation in referring patients to an ED tobacco cessation program. The success of the intervention in decreasing tobacco use among patients was also assessed.

Methods
The institutional review board at Lehigh Valley Hospital in Allentown, Pa, reviewed the present study’s methods. Because it was determined to be minimal risk as a patient education and evaluation project, the current study was exempt from full review. Also, because the outcome measures were dependent on patients’ self report and because patients’ knowledge of participation in the study may have resulted in artificially inflated results, patients’ consent was not obtained.

In 2001, a nonvalidated survey was mailed to the ED staff at the Lehigh Valley Hospital. A second mailing was sent to staff who had not yet responded 1 month after the first mailing. The ED nurse responsible for coordinating patient care and the...
primary investigator (M.R.G.) provided e-mail and verbal reminders to ED staff. A 90% response rate was used as the survey endpoint.

The 8-question survey asked respondents to rate their agreement with statements regarding their role in patient education and disease prevention. A 1 to 5 Likert scale was used, with 1 indicating “strongly agree” and 5 indicating “strongly disagree.” Respondents were also asked to indicate their job title (eg, nurse), years working in an ED, and personal tobacco use. Although staff members did not include their names, each survey was numbered to track responses.

After all completed surveys were received, an educational session was provided by Coalition for a Smoke Free Valley, a community agency that sponsors professional healthcare training and education in accordance with the standards set by the National Cancer Institute.14 This session was designed to increase ED staff’s knowledge about tobacco use and intervention as well as to provide guidelines for the implementation of a tobacco cessation program. Attendance was encouraged but not required. Departmental meetings and informal updates were used to reinforce the teachings from this session.

Program Implementation

Patients were eligible to participate in the tobacco cessation program if they were 18 years or older and if they used tobacco. In addition, ED staff physicians recommended inclusion criteria based on diagnoses that might be adversely affected by continued tobacco use. Although all patients were eligible for the intervention, those who presented to the ED with heart disease, gastritis, pregnancy, or a respiratory illness were targeted by ED staff. These patient populations were selected by ED staff physicians for two reasons: (1) to help those patients who would receive the most benefit from reduced or ceased tobacco use, and (2) to narrow the patient population so that adequate staff would be available to administer the interventions. Patients were excluded from participation in the program if the severity of their condition precluded intervention.

To determine patient eligibility, staff members (ie, physicians, nurses, and administrative and technical partners) simply asked patients—particularly those with the previously defined conditions—if they were tobacco users. If a patient said yes, he or she was referred to the cessation program. The intervention was provided within the physical space of the ED proper and was administered by an onsite social worker, when available. In the event that a social worker was not available, an ED physician or nurse administered the intervention.

For the first month after program implementation, ED staff was encouraged simply to refer patients to the intervention program. In the second month, a gift basket valued at approximately $100 was displayed within the ED as an incentive for staff participation. Gift baskets were awarded to the doctor and to the nurse or other staff member who made the most referrals into the cessation program. Weekly referrals were tallied, and the winner-to-date was posted prominently within the department and distributed via e-mail to further encourage competition for the basket.

The number of referrals to the tobacco cessation program was assessed for the month before and the 2 months after the incentive. Participation was evaluated not only for the number of referrals or consults done but also in relation to the total number of hours an employee worked in the department during the specified time period. Survey responses and personal tobacco use among staff were evaluated to determine potential influences on staff participation in the tobacco cessation program.

Intervention

The tobacco use intervention consisted of a 1-page, nonvalidated form to record and assess tobacco use attitudes and behaviors among patients. The form, which was already in use for inpatient consultations throughout the hospital, consisted of the items listed in Figure 1. As it did after inpatient consultations, the completed form became a part of the ED patients’ permanent medical records.

The intervention administrator assessed and determined patients’ “impression stage of change” for tobacco use cessation to be in one of the following categories: precontemplation, contemplation, preparation, action, or maintenance/relapse prevention. Depending on this initial impression, the administrator provided an appropriate action (eg, education on health risks) and recorded a treatment plan. For example, if a patient was determined to be contemplating tobacco cessation, he or she would be instructed on the various quitting methods and programs available and then would be advised to contact the Center for Health Promotion and Disease Prevention when he or she was ready to quit tobacco use.

Staff was instructed to provide additional encouragement and resources (eg, educational brochures from the National Institute of Health) to patients in preparation and action stages when time permitted. Information provided to patients was recorded on the intervention form. Staff was also asked to obtain the name of the patient’s primary care physician when available and include it in the “Comments” section of the intervention form. If a primary care physician was indicated in the form, ED administrative staff sent him or her a form letter regarding the patient’s evaluation and treatment. The form included the ED’s telephone and fax number in case the primary care physician wanted additional information.

Staff was encouraged to conduct the intervention during “dead” time (eg, when the ED was backed up and wait times were long) to minimize disruption of flow within the ED or any delay in the discharge of the patient. Total time allocated to the intervention was not recorded. Although a 2- to 3-minute intervention was described as ideal, as little as 30 seconds was considered influential, as indicated in previous studies.15,16 Variability in actual time spent on the intervention was expected by nature of the logistics.
Length of tobacco use on a regular basis
Current brand and number of cigarettes per day
Other tobacco use, if applicable (cigar, chew, dip, snuff)
Attitude toward tobacco use (negative or positive)
Perceived cause and effect relationship between past and present health problems and tobacco use (yes or no; if yes, list health problems)
Belief that current health problems are a compelling reason to give up tobacco use (yes or no)
Primary reason for smoking (addiction, habit, means of handling stress, enjoyment, other)
Number of attempts to abstain from smoking
Longest amount of time gone without smoking
Reasons for returning to tobacco use
Risk factors to maintaining abstinence (other smokers in household, working environment, other)
Impression “stage of change” (precontemplation, contemplation, preparation, action, maintenance/relapse prevention)
Action (the staff member completing the intervention instructed the patient about health risks of continued tobacco use and quitting methods or programs available)
Plan (steps the patient is to take)
Comments
Handouts

Figure 1. Components of the intervention form used in the tobacco cessation program implemented at the emergency department at Lehigh Valley Hospital in Allentown, Pa.

Follow-Up Telephone Survey
Telephone follow-up with patients occurred 1 to 3 months after the intervention. The primary investigator (M.R.G.) attempted to reach all patients. For those patients reached, the following five items were assessed and recorded:

☐ the patient’s overall attitude (positive or negative) toward tobacco cessation
☐ whether or not an evaluation by a primary care physician occurred since the ED visit
☐ the patient’s attempts to cut down or quit tobacco use since the ED visit (indicated by “Yes,” “No,” or “Cut Down,” with recorded current tobacco use)
☐ the patient’s stage of change (precontemplative, contemplative, etc)
☐ whether or not the caller instructed the patient on available tobacco cessation programs

Statistical Analysis
Responses to the ED staff survey were dichotomized into agree (scores of 1 or 2) and did not agree (scores 3, 4, or 5) and reported frequencies between individuals’ mean attitudes toward the four general questions and the two tobacco-specific questions. Attitudes were compared between “nonsmokers” (tobacco-free for at least 1 year) and “smokers” (tobacco use within the past year). Respondents were also dichotomized above and at or below the median for the mean score of the general ED questions and opinions regarding personal effectiveness in improving patients’ health through preventive measures.

Results

Staff Survey and Referral Participation
A total of 63 (90%) staff members—comprising 29 (46%) attending physicians, 16 (25%) nursing staff, and 18 (28%) administrative and technical partners—responded to the ED survey (Table 1). Nearly half of the respondents (46%) admitted ever having used tobacco (smoked cigarettes, cigars, or both) on a regular or occasional basis. Time working in an ER ranged from less than 1 year to 20 years or more. In general, staff agreed that the ED was appropriate for patient education (79%), preventive health activities (81%), and community service programs (78%). Staff attitudes were also favorable toward educating patients about preventive health (76%) (Table 2).

Seventeen respondents were less favorably disposed to the ED as a site for prevention than the median score for the four-item construct. These respondents were less comfortable with tobacco education in the ED (two question mean, average difference, 1.5; 95% CI, 0.9-2.0), felt less able to impact patient health through education, prevention, or community service (mean difference, 1.5; 95% CI, 1.0-2.0), and were less comfortable advising patients to quit tobacco use (mean difference, 1.7; 95% CI, 1.0-2.4). These respondents represent sizable differences on a 5-point scale. In addition, the seventeen respondents who had less than the median belief in their effectiveness were less likely to have favorable attitudes toward a smoking cessation program (mean difference, 1.6; 95% CI, 1.0-2.1). These respondents also expressed much less interest in providing preventive health education (mean difference, 1.3; 95% CI, −0.8-1.8).

A total of 19 staff members (30%) reported current or recent tobacco use (ie, at least once in the past year) in the form of cigarette and cigar smoking. These respondents viewed the ED’s role in prevention and community service more
favored, though this difference was not statistically significant (mean difference, 0.4; 95% CI, −0.2–0.9). Smokers were less likely to support tobacco cessation in the ED (mean difference, 0.5; 95% CI, −0.1–1.2) and were much less likely to feel comfortable advising patients to stop smoking (P=.06; mean difference, 1.0; 95% CI, 0.2–1.7). By statistical analysis, employees who smoked were more likely to view the ED as an appropriate site for patient education (P=.01).

Overall, staff respondents (76%) were interested in educating patients about preventive health but were less likely to feel comfortable advising patients about tobacco cessation (60%, P<.03) or to agree that ED staff should assist in tobacco cessation activities (51%, P<.001), as noted in the Table 2.

All 70 staff members (ie, not just the staff who responded to the survey) were encouraged to participate in the tobacco cessation program. Despite survey findings, staff characteristics (eg, tobacco use, job title, years working in the ED) did not correlate with referral performance in univariate or multivariate analysis. However, the gift basket incentive offered during month 2 and 3 correlated with a significant increase in staff referral rates (P=.008).

A total of 150 referrals and interventions occurred, with 33 (22%) occurring before the incentive, and the remaining 117 (78%) occurring after the incentive. Increased participation was more likely among the nurses and among others who favored education, community service, and clinical prevention. Interestingly, the nursing incentive for the most referrals was won by an employee who smoked cigarettes.

**Telephone Follow-up**

Telephone follow-up was successful at reaching 36 patients (24%). As related by the patient in the telephone interview, the primary ED diagnosis of patients receiving the intervention was respiratory disease (39%) followed by cardiac, gastrointestinal, and infectious disease (14% each). Because pregnancy tests were not administered for all patients, the number of pregnant patients who received the intervention is unknown. Although 33 patients (22%) of the total number of patients who received the intervention identified primary care physicians, a negligible number reported a visit with their primary care physician between the ED intervention and telephone follow-up.

Because a proportionately small number of patients used tobacco in a form other than cigarette smoking, the follow-up survey measured changes in tobacco use according to the number of packs of cigarettes smoked. Thirteen (36%) of the 36 patients reached by telephone reported that they had attempted to quit tobacco use after the intervention, and 16 (17%) were no longer smoking at follow-up. Of note, 2 of the 6 patients who quit tobacco use reported being pregnant.

Reports of current smoking behavior among all 36 patients indicated that 17% of patients (95% CI, 4%–39%) no longer smoked, 28% (95% CI, 13%–42%) had cut down tobacco use by at least half a pack of cigarettes per unit of time in their quantitative estimate of the number of cigarettes smoked, and 56%
time of the initial ED visit (Figure 2).

Discussion
While staff attitudes and personal habits may be important, they do not appear to be a firm barrier to participation in a tobacco cessation program in the ED. In the present study, we were unable to identify specific demographics that predicted staff members’ responses to the incentive. Although attitudes toward tobacco cessation interventions were less supportive than general attitudes about prevention and community service in the ED, the latter was most important for predicting successful participation in an incentive program designed to increase referrals from ED staff to tobacco cessation.

In the present study, more than one-third of ED patients reached for follow-up attempted to quit smoking following a brief intervention in the ED. Nearly half of them succeeded. Overall, 45% of patients reached for follow-up either had quit smoking or had cut down meaningfully in their smoking, according to self-reports. These research data implications are amplified by the fact that 78% of this patient population expressed either no relationship with or no access to a primary care physician.

A potential unexpected benefit may have occurred soon after the tobacco cessation program began. The primary investigator of the current study (M.R.G.) observed an increased desire among staff to stop personal tobacco use. In fact, several staff members were noted to be attempting to quit. If this observation was accurate, improved employee health might be an unexpected benefit of the implementation of a tobacco cessation program. However, further study is needed to quantify staff tobacco cessation rates.

Of course, there are a number of limitations to the present study. For example, the tobacco cessation program reported in the present study was performed at a single urban hospital. Future studies may consider investigating varied patient-payer mix and ED volume using multiple ED sites.

Also, the present study had a small sample size, both in terms of the number of patients who received the intervention and the number of patients who were reached for follow-up, limiting the strength of the reported results. For example, during the 3-month period of the present study, hospital records indicated that a total of 5064 patients were treated in the ED. Previous analysis revealed that the prevalence of tobacco use of the population is approximately 28%. Accordingly, 1400 patients used tobacco during the study period—indicating that the 150 patients who received the intervention accounted for only 11% of the ED patients who used tobacco.

The number of patients in the present study who were reached for telephone follow-up was modest (36 [24%]). Yet, the phenomenon of unreliable phone numbers for follow-up in ED patient populations is well documented. In addition to inaccurate phone numbers, factors such as a language barrier and patient fear that phone calls were related to billing collection may be potential causes for low survey follow-up rates.

Also, a greater success rate was expected in patients counseled by physicians (rather than nurses or social workers) and those who visited their primary care physician in the interval between consultation and follow up. However, the actual number of those reached for follow-up was too small to generate any reliable conclusion in this regard. Although the patients’ stage of change was recorded before and after the intervention, the raw number is too small to identify the relationship of patient stage at intervention and success at quitting. In follow-up studies, closer attention should be given to obtaining accurate follow-up information.

In addition to the need to improve patient follow-up, the final results of the tobacco cessation program would benefit from a long-term follow-up (eg, 1 y). Although one study suggested that tobacco cessation counseling was ineffective in the ED, that study’s results may simply reflect an incomplete outcome measurement. In order to understand addiction and the tobacco cessation process, a study cannot consider only those individuals who quit. Although it is a difficult endeavor, the process of change itself must be assessed. For example, a physician just bringing up the topic of tobacco cessation (screening) might cause a patient to consider quitting. During a teachable moment, patients might have a personal level of change (eg, precontemplative to contemplative). Although such change—or progress toward cessation—might have been unmeasured in previous research, it may bring patients one step closer to quitting tobacco use.

In addition, successes might not have been as great as possible as a result of lack of confidence of staff in making a difference in the patient’s future tobacco use. Interventions have been shown to be more effective when the provider has confidence in their own ability to influence the patient’s success—something difficult for ED staff to envision because they have little or no opportunity to see the positive effects of their efforts.

If healthcare providers deliver brief smoking cessation messages, the potential positive impact on public health is great. For example, if only half of all US physicians gave
brief advice to their patients and were successful with only 10% of them, there would still be 2 million new nonsmokers in the United States each year. With such compelling reasons to promote smoking cessation, why don’t all physicians do so? A common reason related to emergency medicine is “lack of time.” However, even a 30-second intervention can influence a patient’s success in tobacco cessation. Also, “lack of time” may be a result of the lack of training focus and culture within the ED setting.

The Agency for Health Care Policy and Research and the US Public Health Service recommend that all physicians ask all of their patients about smoking status and offer cessation assistance at every visit. However, lack of training, support staff, and backup materials or programs are legitimate issues to be resolved in any department preparing to initiate this type of program. The opportunity for physicians to encourage the discontinuation of tobacco use is vital to any ED patient population.

Our findings demonstrate that an incentive-based program can increase intervention rates in the ED, thereby encouraging successful cessation through brief counseling interventions. In future studies, more consideration should be given to length of time from intervention to follow-up and the amount of time spent counseling patients. The interventions in this study were considered by design to be minimal and of low intensity (fewer than 10 minutes), but other research in the area suggests that success is related to intensity of treatment. The use of more sensitive measures of behavioral change might generate more positive findings in future studies.

**Conclusion**

The ED presents an important opportunity for hospital staff to intervene with patients who use tobacco. With a change of focus and dedication to the concept of tobacco cessation, ED staff can make a significant contribution to the overall health of their community—and the nation.

**References**

15. Parran T, Shahady E. Physicians make a proven difference. *Effective Strategies for Smoking Cessation in Primary Care*. Darien, Conn: Cliggott Communications, Inc; 1997:9-.

**Editor’s Note:** Readers interested in obtaining a copy of the intervention form used in the present study are encouraged to contact Marna Rayl Greenberg, DO, at mrgdo@ptd.net.