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Implementation of Effective Smoking Cessation Strategies for People Living with HIV: A Pilot Implementation Study

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ABSTRACT

Introduction. Use of tobacco products carries significant long-term health risks, and rates of smoking in persons living with HIV are as high as two to three times that of the general population. This study aimed to increase assessment of readiness to quit smoking and provide cessation counseling to patients receiving HIV care through an infectious disease clinic.

Methods. This study was a pilot implementation in a single-center teaching hospital. In total, 603 active patients with HIV were followed in clinic at the time of the study start; of these, 79 were active tobacco smokers (13%) and eligible for the intervention. Providers were educated on recommendations for tobacco smoking cessation counseling, intervention strategies, and options for treatment. Patients who smoked tobacco were assessed for readiness to quit. Cessation counseling and tobacco cessation mediations or nicotine replacement were provided at the discretion of the patient and physician based on visit discussions. Primary outcome measures were increase in assessment of readiness to quit and in providing cessation counseling. Secondary measures included tabulation of the number of patients provided with a tobacco smoking cessation treatment and those with a successful quit episode.

Results. There was a moderate increase in patients assessed for readiness to quit and who received tobacco smoking cessation counseling and treatment medications during the pilot. In total, 11 patients (8.7%) reported quitting smoking for at least two weeks.

Conclusions. Additional work on streamlined mechanisms to identify tobacco use and provide efficient and effective tobacco smoking cessation counseling are needed in this high-risk population.

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INTRODUCTION

Use of tobacco products significantly increases the risk of chronic debilitating health disorders, ranging from cardiovascular disease to birth defects or malignancy.[1] With one in seven people worldwide using tobacco, it is imperative to raise awareness of this epidemic and implement effective smoking cessation strategies. Smoking rates in persons living with HIV (PLHIV) are of concern, as rates are discordant with total smoking prevalence in the United States over the past several decades.[2] Conservative estimates reported 47% of PLHIV smoke while this has trended down to 19.8% of the general population.[3-5]

Active efforts to address tobacco use are essential to mitigate health impacts of smoking and to educate those unaware of long-term ill-effects. Among patients cognizant of the harms and who are contemplating quitting, cessation counseling, along with nicotine-replacement has been shown to double the success rate of quitting.[1] Although these evidenced-based cessation strategies exist, they are not tailored to any specific patient population and feasibility of addressing these in a routine outpatient visit must be explored.

This study was performed in a university-based infectious disease (ID) clinic and although the percentage of tobacco smokers in PLHIV was found to be lower than the reported estimates, given ill effects of tobacco use and a lack of a best practice to approach the problem, this pilot implementation project was developed. The first aim of this study was to increase the compliance of assessment of readiness to quit and tobacco smoking cessation counseling to 90% within the clinic. The second aim was to reduce the number of HIV-positive tobacco smokers currently following in the ID clinic by 5% during the study period of six months. Aims were measured by (1) marking of the "Ready to quit" tab in the electronic medical record (EMR) Epic 02 Substance and Sexual History tab, and marking whether cessation counseling was provided, as well as (2) tabulating smoking cessation prescriptions ordered during the pilot and evaluating for attempts at tobacco smoking cessation at the conclusion of the study period.

METHODS

This project was exempted from formal informed consent by the Human Subjects Committee of the University Medical Center.

Considering the five domains of the Consolidated Framework for Implementation Research (CFIR),[6] an intervention was constructed. During the routine clinic visit for HIV-positive patients who were considered active tobacco smokers at the start of the project, tobacco smoking cessation counseling and/or intervention strategies such as phone and text counseling and tobacco cessation mediations or nicotine replacement were offered by the physician. Current smokers were defined as an adult who has smoked 100 cigarettes in his or her lifetime and who currently smokes cigarettes.

The inner setting for the intervention was one university-based ID clinic. The outer settings affecting implementation efforts included the background patterns of tobacco smoking in PLHIV. The individuals involved included the patient, three clinic nurses, two HIV pharmacists, and the ID physicians. Prior to the project start, all clinic staff were educated on the pilot process, EMR tabs, and project intervention. Physician providers in the clinic were provided three-minute smoking cessation counseling scripts to engage patients in a discussion of benefits of and options for smoking cessation counseling and treatment (see Appendix). This included specific contacts for telephone/text message smoking cessation counseling which were provided to patients via a brochure created by the study team. At the project start, patients were notified of the project verbally.

Tobacco smoking status was addressed for all clinic patients. The "Ready to quit" tab in the Epic EMR Substance and Sexual History section, which can be selected after asking the patient "Are you ready to quit smoking tobacco?", was used when applicable. Proceeding with

cessation counseling and/or intervention strategies such as phone and text counseling and tobacco cessation mediations/nicotine replacement remained at the discretion of the patient and physician based on their readiness to quit. Prescriptions for smoking cessation medications or nicotine replacement were offered to those interested. Medications were individualized based on patient preference, prior cessation medication trials, past medical history, as well as review of primary insurance coverage and Missouri and Kansas Ryan White Aids Drugs Assistance Program formularies to avoid cost barriers. Patients were provided medication counseling at their visit by an HIV clinic pharmacist.

In the month following the six-month pilot project, assessment of patients who quit tobacco smoking was attempted through review of the EMR. To fill gaps or inaccuracies in documentation, follow-up phone calls were made to active tobacco smokers to attempt to confirm which patients had stopped tobacco smoking for two weeks or longer with the intent of remaining abstinent. Those who were documented in the chart or reported by phone call to have quit tobacco smoking for two weeks or longer were considered to have a "quit" episode.

Measures included the difference in PLHIV who identified as tobacco smokers at the beginning of the study and were assessed for readiness to quit both pre- versus post-intervention as well as those provided smoking cessation counseling pre- versus post-intervention. Numbers of patients were quantified by tally. The number of patients who were prescribed tobacco smoking cessation medications during the intervention period also was tallied. Quantification of these patient numbers was verified for accuracy through the review of the EMR. Finally, the total number of patients who had a quit episode during the study period was calculated. This pilot implementation project was not powered to detect statistically significant differences in reported quitters.

RESULTS

There were 603 patients with HIV followed actively in clinic at the time of the study. The clinic population included patients 18 years of age or older identifying as men, women, or non-binary. Additional demographics were not collected during this pilot project. Of the total active clinic patients, 79 were active tobacco smokers (13%). In the visit preceding the project start, 22/79 (28%) of these patients had been assessed for readiness to quit and 14/79 (18%) were provided counseling on tobacco smoking cessation. Post-intervention, this increased to 56/79 (71%) of patients who smoked being assessed for readiness to quit with 35/79 (44%) of patients being provided smoking cessation counseling (Figure 1). In total, 24 patients were provided with a smoking cessation medication or nicotine replacement and 11 patients reported quitting tobacco smoking, thus reducing the number of HIV-positive tobacco smokers following in the ID clinic by more than 5% during the pilot period of six months.

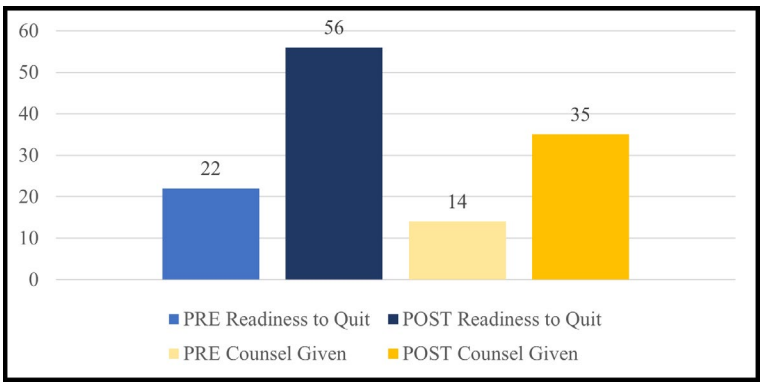

Figure 1. Number of patients who were assessed for readiness to quit smoking and for whom cessation counseling was given pre- and post-intervention.

DISCUSSION

Increased rates of depression, attempting to improve sense of well-being by smoking, and lack of social support in PLHIV may account for increased tobacco smoking prevalence in this group.[7] Simply assessing a patient's interest in quitting could be beneficial as data suggested HIV-positive patients have increased interest in quitting despite a higher prevalence of smoking.[5] Screening, along with brief interventions, and referrals for treatment programs for tobacco smoking cessation in an HIV clinic in non-treatment seeking smokers, found that those who participated in the intervention smoked fewer cigarettes per day, were less nicotine dependent, had fewer urges to smoke, and decreased withdrawal symptoms compared to non-participants.[7]

Using this framework, the pilot study had several strengths. First, tobacco smoking counseling practices of an entire ID clinic of PLHIV in a teaching hospital were evaluated. EMR visit functions were utilized as a point-in-time assessment for tobacco use status, readiness to quit, and whether counseling was provided during a visit. However, given the relatively low tobacco smoking percentage within this ID clinic population of PLHIV, it was unclear how generalizable cessation counseling practices, or the intervention, would be in larger HIV practices with a higher volume of active tobacco smokers.

As with many interventions including counseling, time can be a limiting factor in the intervention's success with potential for a cost-associated lost opportunity to address other patient or provider concerns. Provider comfort in addressing tobacco smoking and in prescribing tobacco smoking cessation medications may have created selection bias; however, efforts were made to adjust for limitations by having clinic nurses begin the workflow of assessment for smoking and by having medication discussions introduced by the same two HIV pharmacists independent of the provider. Furthermore, if patients did not report readiness to quit to the rooming nurse, additional selection bias may have been introduced as physicians may not have offered further counseling and treatment to these patients. Furthermore, assessing a quit episode of two weeks may not translate to a prolonged or permanent smoking cessation status leading to a falsely high success rate of the intervention, though the National Health Interview Survey defined a quit attempt at having stopped smoking for one day or longer with the intention of quitting.[8]

In summary, providers in the clinic were asked to provide smoking cessation counseling to HIV-positive smokers by engaging them in a three-minute provided script to discuss benefits of and options for

smoking cessation. Physicians also were asked to provide patients contacts for telephone and text message smoking cessation counseling and prescriptions for smoking cessation medications or nicotine replacement to reduce nicotine dependence[7] and improve the success rate of quitting.[1] While moderate increases were noted in the number of patients assessed for readiness to quit and in those provided counseling in this study, large gaps remain in those whose tobacco smoking was not addressed at the visit.

An implication of the pilot project was that the workflow for smoking cessation counseling is feasible and could be successful in increasing rates of tobacco use counseling and subsequent successful quit episodes in PLHIV. Further optimization of workflow within the EMR clinic visit encounter may be considered for improved capture of tobacco smoking discussions at each appointment.

As tobacco smoking tabs are not hard-stops in the EMR to proceed with the visit, a modification such as a best-practice alert presumably would increase compliance with addressing the issue. Given the multitude of goals of the physician during each routine encounter, an additional team member whose sole purpose was addressing tobacco smoking may increase time available for discussion of tobacco smoking cessation, especially if this could be conducted outside the timeframe allotted to the provider.

In considering the framework for implementation research, the implications of this pilot project were that in a larger scope and over a longer period this intervention could be successful, and this was supported by the SQUIRE framework for quality.[6,9] Developing a more efficient, yet effective tobacco smoking cessation workflow in a clinic practice could increase compliance with this quality measure and should be a priority in clinics treating PLHIV.

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Keywords: HIV infections, smoking, smoking cessation, counseling, pilot projects

APPENDIX

Example smoking assessment script for providers:
"Do you currently smoke cigarettes? (If yes) Are you ready to quit? CLICK YES OR NO BUTTON UNDER EPIC EMR SUBSTANCE & SEXUAL HISTORY.

As you know smoking has many negative health impacts. For most people, the best way to stop smoking is with a combination of medication and support. Have you tried Wellbutrin or Chantix before? (If so, how did these work for you? Did you have any side effects?) Have you tried nicotine replacement products? Which of these options do you think would work best for you?

Now let's talk about support. [Hands U-KanQuit brochure from clinic room] One way to get support for quitting is by getting set up with the U-KanQuit line. Another way is to get text message support from Smokefree TXT. Which sounds better for you? What plan can I help you make today to stop smoking?" CLICK COUNSELING GIVEN BUTTON UNDER EPIC EMR SUBSTANCE & SEXUAL HISTORY.