Tobacco Use Patterns in a Southern US HIV Clinic

Madelyne C. Bean, PharmD, **Lauren E. Richey, MD, MPH**, **Kristen Williams, MD**, **Amy E. Wahlquist, MS**, and **J. Michael Kilby, MD**[†]

Departments of Medicine, Psychiatry and Behavioral Sciences, and Public Health Sciences, Medical University of South Carolina College of Medicine, Charleston.

Keywords

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The Centers for Disease Control and Prevention (CDC) estimates that 18% of adults in the United States are current cigarette smokers.[1] The rate of smoking prevalence in South Carolina is higher than the general population of the United States, with survey results demonstrating 19% in Charleston County in 2012,[2] and maintaining a steady rate at 22% for the entire state in 2013.[3] Several studies have suggested that cigarette smoking is as much as two to three times higher among people living with human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) compared with the general population.[4] Medical advances in HIV treatment have resulted in near-normal life expectancies for people living with HIV/AIDS, and as a result smokers in this population are at a heightened risk for tobacco-related morbidity and mortality. In fact, it is estimated that people living with HIV/AIDS are losing more years of life from smoking than from HIV.[5] People living with HIV/AIDS are at higher risk for comorbidities including chronic obstructive pulmonary disease, recurrent bacterial pneumonia, and lung cancer.[6–9] They also experience increased barriers to smoking cessation, including higher rates of poverty, drug and alcohol abuse, mental illness, and social isolation.[6] These barriers may lead to lower utilization of medication therapies, counseling services, and health maintenance appointments; they also may have other competing priorities.

Smoking is a modifiable risk factor for the development of these conditions, and because of poorer outcomes compared with HIV-negative patients, smoking cessation should be offered to all people living with HIV/AIDS who smoke. There are many methods for improving success in smoking cessation attempts; however, busy clinics with limited face-to-face time, complex visits for multiple comorbidities, and low levels of training on smoking cessation therapies often limit provider discussion of smoking cessation with patients. For example, HIV healthcare providers within the Veterans Affairs system failed to identify current

smoking status more often than non-HIV healthcare providers, with only a minority feeling confident in the ability to influence cessation.[6] Overcoming the individual- and provider-level barriers to cessation efforts is particularly important for people living with HIV/AIDS because interest in cessation is comparable to that in the general population.[6] Alongside medication therapies approved by the Food and Drug Administration, including nicotine replacement therapy (NRT), bupropion (Zyban, GlaxoSmithKline, Research Triangle Park, NC), and varenicline (Chantix, Pfizer, New York, NY), there is support for medication management with a pharmacist to provide counseling, follow-up, and improve smoking cessation attempts and successes in both community[10] and clinical settings.[11] Pharmacists know of these therapies and may be able to improve the frequency and assist clinicians in proactively offering cessation options and counseling, which may help overcome previously noted patient barriers and increase successful cessation attempts.

The Medical University of South Carolina infectious diseases clinic provides care to approximately 1000 HIV-infected adults annually, primarily from the surrounding three counties of Charleston in the lower coastal region of South Carolina without regard to ability to pay for care. The prevalence of cigarette use is high in the general population of South Carolina and the US South at large, but the prevalence of tobacco use for this region in the population living with HIV/AIDS who smoke has not yet been established. There is evidence of increased barriers to cessation, underutilization of cessation medications, underassessment of smoking use, and overall fewer cessation attempts by patients; however, these issues have yet to be described or determined for the people living with HIV/AIDS who receive care at the Medical University of South Carolina. To categorize and better understand cigarette use, previous quit attempts, historic use of cessation therapies, and interest in cessation, a quality improvement project was implemented to survey smoking behaviors among this population of people living with HIV/AIDS. Considering the evidence that supports clinical pharmacist interventions to target and improve smoking cessation, the opportunity for and utility of hiring a clinical pharmacist to aid in smoking cessation efforts in the clinic also was assessed.

Methods

During a 4-month period (January–May 2010) HIV-infected patients arriving at the infectious diseases clinic were asked to fill out a survey about smoking in the privacy of an examination room and to return the completed form to the surveyor before the clinic visit. Patients who required assistance in completing the survey were provided with a reader/translator who filled in their spoken responses for them. This health survey was incorporated into the routine medical records. Institutional review board approval was obtained. The results of the survey were correlated with clinical and sociodemographic data, which were collected after survey completion. Descriptive statistics are presented with means and standard deviations (SDs) or counts and percentages, as appropriate. The χ^2 tests were used to determine relations between smoking status and categorical clinical and sociodemographic characteristics. For continuous measures such as age, one-way analysis of variance models were used to determine relations with smoking status. Because HIV disease markers had skewed distributions, they were categorized into dichotomous variables; both viral load and CD4 were dichotomized into <200 and 200.

Results

Of the 689 unduplicated HIV-infected patients seen in the clinic during the study period, 514 (75%) returned a completed smoking survey. Six additional patients returned a signed but otherwise blank form. The demographics of surveyed patients closely paralleled the overall clinic population seen during the same period, with the majority of patients being African American men older than 40 years (Table 1). Uninsured patients represented 35% of the population at the time of the survey, and the remainder had some form of insurance (Table 1).

Among the patients who completed the survey, 205 (40%) identified themselves as current smokers, 42 (8%) identified themselves as former smokers, and 267 (52%) identified themselves as never smokers. The prevalence of current smoking was slightly higher among men (45%) than women (31%) and higher among white (49%) than African American (37%) patients (Table 1). The characteristics for cessation attempts and cigarette use are noted in Table 2. Among former smokers, the survey found a mean (SD) of 8.3 (10.8) years reported since their last cigarette (a few listed the last smoking date as only days or weeks before the survey). The mean (SD) age at initiation of smoking was similar for current smokers as it was for former smokers, 18.3 (6.6) versus 17.3 (4.3) years, respectively. Current smokers reported a mean (SD) of 11.2 (8.4) versus the 19.2 (13.5) cigarettes per day reported by former smokers. Among current smokers, 170 (85%) reported ever having attempted to quit, with many reporting attempts to quit using more than one method. Of the current smokers, 143 (83%) reported trying to quit "on my own," 32 (19%) used NRT, 6 (4%) used bupropion, 19 (11%) used varenicline, and 5 (2.9%) used "other." Among the current smokers, pack-year estimates were calculated for 185 patients (90%) who provided complete survey information and indicated a median of 12 pack-years (mean/SD 16.3 ± 13.6). Nearly half of all current smokers, 97 (49%), reported an active interest in speaking with a physician about quitting.

Overall, within the survey population, provision of antiretroviral therapy was high, 496 (96%), among patients. Despite the small number of patients not being prescribed antiretroviral therapy, it appeared that former smokers (90%) were less likely to be receiving HIV therapy than never smokers (98%), with current smokers falling in the middle (96%). Among survey responders, 371 (72%) of patients had a most recent viral load of <200 copies per milliliter, and only 88 (17%) had an AIDS-defining CD4 cell count (Table 3). Distribution of smoking status also was not different among patients with recent high viral loads. Only 8% of current smokers had a most recent viral load of >50,000 copies per milliliter compared with 5% of former smokers and 6% of never smokers. Even smaller rates were seen for patients with most recent viral loads of >100,000 copies per milliliter, with 4% of current smokers, 5% of former smokers, and 3% of never smokers falling into this group.

Smoking status did not have meaningful relations with viral load or CD4 count (Table 3). When these analyses were stratified by race and sex to examine the relations among CD4 count, viral load, and smoking status, there were no statistically significant differences within each category.

Discussion

The results of this smoking survey demonstrate high rates of current smoking in an adult HIV clinic in the US South, approximately twice the rate estimated based on a general population survey of Charleston County.[2] This study had high participation, with nearly three-fourths of patients attending the clinic during the time period of the study participating, and more than half of the total patients in the clinic completing the survey. Most patients reported a previous attempt to quit, and approximately half had an active interest in quitting, demonstrating an overall interest and desire to partake in cessation therapy and counseling if available.

Given the higher risk of tobacco-related morbidity and mortality in this population, strategies to improve cessation are imperative. Much evidence exists for pharmacologic interventions for smoking cessation. NRT, bupropion, and varenicline increase quit rates substantially. Despite this, few patients (fewer than one-third) reported a pharmacologic-based quit attempt, with most reported attempting to quit on their own. Pharmacists often are able to work with patients to quit smoking. They are uniquely suited to make recommendations about smoking cessation because they are well versed in the use of these medications, therapeutic contraindications, and drug–drug and drug–disease interactions. Providers addressing multiple complex comorbidities during fixed face-to-face meetings during each visit are limited in the ability to address smoking cessation. In addition, discomfort or lack of knowledge about the use of smoking cessation counseling and therapies may limit this discussion. Clinical pharmacists can supplement and target interventions for smoking cessation counseling before and after provider visits, on the telephone, and during impromptu visits to the clinic. The intensity of follow-up shown to help with long-term cessation may be a barrier for busy providers in clinics, efforts that can be supplemented through clinical pharmacist interventions for smoking cessation therapy provision, monitoring, and counseling.

This project had limitations; most notably that the surveys completed for data collection were based on self-report, providing a risk of bias toward underestimation of smoking behaviors. There were no specific biomarker evaluations for nicotine use and as such, there was no objective support for patient reports of cigarette use or abstinence. This project was strengthened, however, by the high level of participation by the patients in the clinic. Further strength is provided by the clinic characteristics, a large southern HIV clinic with both urban and rural patients having similar demographics to other southern HIV clinics.

Conclusions

This is an important report that supports the fact that high rates of smoking exist in the South among people living with HIV/AIDS. This study demonstrated a great necessity for smoking cessation among these patients because many reported actively smoking. It is anticipated that the population of people living with HIV/AIDS who smoke will continue to grow as more are diagnosed and linked to care in clinics, leading to more need to provide cessation services in clinics. These data also show ample interest in and need for smoking cessation counseling and pharmacotherapy. These data have potentiated the hiring of a clinical

pharmacist to aid in the implementation of smoking cessation provision in a more systematic and formal manner.

Acknowledgments

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Key Points

- Cigarette smoking–related morbidity and mortality are important modifiable risks for people living with human immunodeficiency virus/acquired immunodeficiency syndrome who are subsequently at higher risk of comorbid diseases.

- Cigarette smoking appears to be more common in the South than in the general US population.

- Smoking cessation services would be well received by patients.

- Clinical pharmacists have been shown to play a role in increasing provision and structured interventions for smoking cessation.

Table 1

Patient characteristics for survey responders

	Current smoker, n = 205 (%)	Former smoker, n = 42 (%)	Never smoker, n = 267 (%)	P
Male sex	146 (71)	26 (62)	153 (57)	0.02
African American	133 (65)	23 (55)	205 (77)	0.002
Uninsured	81 (40)	12 (29)	87 (33)	0.04
Medicare/Medicaid insurance	104 (51)	18 (43)	130 (49)	
Age, y (mean/SD)	46.0 (10.7)	47.0 (10.7)	45.6 (11.0)	0.7

Sex, race, and insurance were compared via χ^2 tests, and age was compared via analysis of variance. The reason that no *P* value is shown for Medicare/Medicaid is that the overall test statistic compared all levels of insurance among the three groups (*P* = 0.04). SD, standard deviation

Table 2

Details of smoking cessation attempts and methods, as well as characteristics of cigarette use for survey responders

	Current smoker, n = 205 (%)	Former smoker, n = 42 (%)	*P*
Ever tried to quit*a*	170 (85)	39 (100)	0.001
No. methods tried*a*			
0	1 (0.6)	0 (0)	
1	149 (84)	35 (90)	
2	15 (8)	4 (10)	
3	9 (5)	0 (0)	
4	3 (2)	0 (0)	0.6
Interested in talking to doctor about quitting (%)*	97 (49)	1 (3)	<0.0001
Years since quit (mean/SD)	—	8.3 (10.8)	N/A
Age started smoking, y (mean/SD)	18.3 (6.6)	17.3 (4.3)	0.4
Cigarettes per day at last use (mean/SD)	11.2 (8.4)	19.2 (13.5)	<0.0001

N/A, not applicable; SD, standard deviation.

*a*Percentages are reported on the nonmissing totals.

Table 3

Smoking status and HIV-related status and factor

	Current smoker, n = 205 (%)	Former smoker, n = 42 (%)	Never smoker, n = 267 (%)	P^a
Viral load <200 copies/mL	149 (73)	29 (69)	193 (72)	0.9
CD4 count <200	38 (19)	7 (17)	43 (16)	0.8
Prescribed ART	196 (96)	38 (90)	262 (98)	0.03

ART, antiretroviral therapy; HIV, human immunodeficiency virus.

[a] χ^2 tests.