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THE NEED FOR TOBACCO CESSATION IN A FREE CLINIC POPULATION

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Abstract

Introduction—Free clinics are a unique safety net provider in that they exclusively serve the uninsured. Because free clinic providers are often volunteers, it is unclear whether uninsured patients seeking care in these clinics receive evidence-based tobacco cessation support.. Here we report baseline data on prevalence and correlates of tobacco use and provider cessation advice among a sample of uninsured patients at six free clinics.

Methods—Patient exit interviews were conducted after a healthcare provider visit. Logistic regression analysis was used to assess correlates of tobacco use.

Results—Of the 158 patients interviewed, 83 (53%) were tobacco users. Tobacco use was less likely among Hispanics (AOR 0.13 [95% CI 0.03–0.64] and high school graduates (AOR=0.20 [95% CI 0.08–0.55]). Among tobacco users, 62% made at least one quit attempt in the past year and the majority were in the Contemplation (33%) or Preparation (39%) stage of readiness. 70% of all patients were screened in the past 3 months, although screening was more likely among tobacco users than nonusers (AOR 3.56 [95% CI 1.47–8.61]). At the current visit, 18% of tobacco users were advised to quit and 16% were asked if they were willing to quit.

Conclusions—The prevalence of tobacco use among uninsured free clinic patients was more than twice the national average. There is substantial opportunity to increase tobacco screening among all patients and cessation advice among tobacco users. Free clinics present an untapped

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opportunity to reduce tobacco harm in a population at high risk for tobacco morbidity and mortality.

Keywords

Cessation; Treatment and Intervention; Special Populations

1. Introduction

Despite overall declines in the prevalence of tobacco use, tobacco-related health disparities persist (CDC, 2011). Socioeconomic status (SES) is a powerful determinant of tobacco-related health disparities (Pleis, 2007). Smoking among the unemployed is 45%, compared to 28% among full-time workers (CDC, 2011). Smoking prevalence among those without health insurance is 34%, compared to 18% among those with private insurance (Pleis, 2007). Although low SES smokers are as likely to make a quit attempt as their high SES counterparts, they are only half as likely to succeed (Kotz, 2009). Those with the lowest SES, many of whom are uninsured, are at the highest risk for tobacco-related morbidity and mortality (Vidrine, 2009; Ward, 2004).

The US Public Health Service guidelines (PHS Guidelines) recommend that health providers use the evidence-based 5-A's approach - ask, advise, assess, assist, and arrange - to identify and counsel tobacco users (Fiore, 2008). Three-minute tobacco cessation interventions by primary care providers can increase the odds of quitting by 30% (Kreuter, 2000; Fiore, 2000). However, the uninsured are three times less likely than those with insurance to receive smoking advice from a healthcare provider (Parnes, 2002). The lack of access to smoking cessation interventions among the uninsured contributes to tobacco-related health disparities in this population (Parnes, 2002).

Free clinics, of which there are over 1,200 across the U.S., are one of the few health care resources exclusively for the uninsured (Darnell, 2010; Darnell, 2011). Free clinics are private, non-profit organizations which provide medical care free of charge. They rely primarily on volunteer medical staff and do not accept reimbursement from third-party payors (Fleming, 2005). Because they do not receive governmental funding, they have limited resources and are also exempt from most public oversight, including the Joint Commission on Accreditation of Healthcare Organizations guideline that requires hospitals to be smoke-free to gain accreditation. With a predominately volunteer workforce and lack of policy infrastructure that mandates tobacco cessation counseling, we hypothesized that free clinic patients would have higher than average tobacco use rates and receive lower than average cessation advice and counseling from their healthcare providers.

Because free clinics fill such an important gap in access to healthcare and may represent an opportunity to reach low SES tobacco users, their implementation of the PHS guidelines is essential. This report, part of a larger study to increase free clinics' adoption of the PHS guidelines, describes the need for tobacco cessation in a free clinic population.

2. Materials and Methods

2.1 Sample

The 74 free clinics that were members of the North Carolina Association of Free Clinics at the start of the study were assessed for eligibility. Of the 46 clinics that responded, 1 was excluded because they did not provide medical and/or dental services, 5 were excluded due to being located further than a 3-hour drive from the research team, 7 were excluded due to being open fewer than 2 days per week, and 20 were excluded because they reported that

they already provide comprehensive tobacco services (defined as offering at least 8 of the 12 PHS Guideline recommended tobacco services) (Foley, 2008; Fiore, 2000; Fiore, 2008). The remaining 13 clinics were deemed eligible and 6 clinics were randomly selected and invited to participate. One clinic refused to participate and a replacement clinic was randomly drawn from the remaining pool of eligible clinics.

2.2 Intervention

Guided by the PHS Guidelines, the intervention included onsite provider training in tobacco cessation. Clinics were provided with free printed resources and fax referral forms to the North Carolina Quitline.

2.3 Procedure

To assess the need for tobacco cessation in free clinics at baseline, patient exit interviews were conducted prior to the intervention. Patients age 18 were approached by data collectors immediately following a clinic visit and invited to participate. Data collectors obtained written informed consent and administered a 15-minute, face-to-face interview in a private clinic space. Interviews were offered in English or Spanish. A \$10 gift card was provided to participants. Clinic providers were aware of the study and its purpose. Data collectors aimed to interview approximately 25 consecutive patients per clinic, for a total of 150 patients across six clinics. This study was approved by the Institutional Review Boards of Wake Forest School of Medicine and Davidson College.

2.4 Measures

2.4.1 Patient Characteristics—Patients were asked about demographics, chronic medical conditions, frequency of clinic visits, and whether they saw tobacco cessation materials in the clinic at today's visit.

2.4.2 Tobacco Use Prevalence and Correlates—All patients were assessed for tobacco use behavior (“Have you smoked at least 100 cigarettes in your entire life?”; “Do you now smoke cigarettes every day, some days, or not at all?”; “Have you ever used smokeless tobacco at least once?”; “Have you used smokeless tobacco products in the past month?”; “Do you now use smokeless tobacco products every day, some days, or not at all?” [CDC, 2010; Balluz, 2002]). Current tobacco use was defined as self-reported, past 30-day use of cigarettes and/or smokeless tobacco.

2.4.3 Quit Behavior and Stages of Readiness to Change—Current tobacco users were asked about quit behavior (“During the past 12 months, have you stopped smoking, or using smokeless tobacco, for one day or longer because you were trying to quit?” [“Yes” response defines past 12-month quit attempt]; “When was your last quit attempt?”; “How long did you actually stay off cigarettes or smokeless tobacco the last time you stopped?”; “Are you seriously thinking about quitting tobacco use?” [CDC, 2010; Balluz, 2004]). Tobacco users’ readiness to change was assessed using the Smoking Stages of Change algorithm (Prochaska, 2002). Preparers are seriously considering quitting within the next 30 days and have made a quit attempt during the past 12 months; Contemplators are seriously considering quitting within the next thirty days to six months and have not made a quit attempt during the past 12 months; and Precontemplators are not seriously considering quitting within the next six months.

2.4.4 Receipt of Provider Screening and Intervention—Patients were asked whether they have been screened for tobacco use by a provider (“During the past 3 months, did any doctor, nurse, or other health professional ask if you use tobacco, including cigarettes, snuff

or other types of tobacco?" [CDC, 2010]). A series of questions was designed to assess receipt of provider quit advice among current tobacco users ("During the past 3 months did any doctor, nurse, or other health professional... advise you to quit using tobacco?, ask if you were willing to quit?, prescribe or recommend any kind of medicine to help you quit?, help you set a specific date to stop using tobacco?, suggest you go to a class about quitting, call a quitline, or seek counseling?, provide you with booklets, brochures, or other materials?"). A "Yes" response to any of the provider advice questions triggered follow-up questions: "If yes, did this occur at this clinic?"; "If yes, did this occur today?").

2.5 Analysis

Descriptive and chi-square statistics were used to summarize the sample characteristics and associations between patient characteristics and each outcome. In addition, to assess correlates of tobacco use, we employed a two-step procedure. In the first step, we examined univariate associations between each risk factor and the outcome variable. Variables with $p < 0.10$ in univariate analyses were entered into the multivariable model. Since patients within a clinic are likely to be more like one another than they are to be like patients in other clinics (Murray, 1995; 1996), we used a random-effects logistic regression model with adaptive Gaussian quadrature in SAS PROC GLIMMIX Version 9.2 to account for within-clinic correlation.

3. Results

3.1 Patient Characteristics

Of 160 free clinic patients who were invited to participate, 158 patients completed the exit interview and two (1%) patients declined. As seen in Table 1, the majority were female (77%), African American (46%) or white (41%), non-Hispanic (92%), and high school graduates (70%). The mean age of participants was 45 years. Most patients reported living with a smoker (64%) and having a chronic disease (78%) such as hypertension, diabetes, or asthma. The vast majority of patients reported a visit at the same clinic within the past year (93%), and most visited the same clinic within the past month (55%).

3.2 Tobacco Use Prevalence and Correlates

Current tobacco use was reported by 53% of participants. The following variables with p -value of < 0.1 were included in the multivariable model: gender (female vs. male, $OR=0.44$; $95\%CI=0.19, 1.02$), ethnicity (Hispanic vs. non-Hispanic, $OR=0.28$; $95\%CI=0.07, 1.15$), employment status (unemployed vs. others, $OR=1.80$; $95\%CI=0.90-2.58$), education (high school graduate vs. non-graduate, $OR=0.30$; $95\%CI=0.13, 0.66$), and screened for tobacco use by provider (yes vs. no, $OR=4.21$; $95\%CI=1.94, 9.14$). In the multivariable analysis (Table 2), tobacco use was significantly lower among Hispanics than non-Hispanics and among high school graduates compared to non-graduates. Tobacco users were significantly more likely than nonusers to report being asked about tobacco use by a provider.

3.3 Quit Behavior and Stages of Readiness to Change

Sixty-four percent of tobacco users reported at least one quit attempt in the past year, almost half of which had their most recent attempt in the past month. An assessment of the stages of readiness to change indicated that 39% were in the preparation stage, 33% were in the contemplation stage, and 29% were in the pre-contemplation stage.

3.4 Receipt of Provider Screening and Intervention

Of all participants, 70% were asked about tobacco use by their provider in the past 3 months. Regarding provider behavior over the past 3 months, 65% of tobacco users reported

being advised to quit, 45% were assessed regarding their readiness to quit, 18% were assisted with pharmacotherapy, and 7% were assisted with setting a quit date or accessing a Quitline. When tobacco users that reported receiving a provider intervention in the past 3 months were asked if they received it at today's visit, 18% said they were advised to quit, 16% were assessed regarding their readiness to quit, 8% were assisted with pharmacotherapy, and 1% were assisted with setting a quit date or accessing a Quitline.

4. Discussion and Conclusions

This study describes the prevalence and correlates of tobacco use and provider cessation advice among a novel population of uninsured free clinic patients. We found that 53% of free clinic patients currently used tobacco, twice the national and North Carolina average (both 21%) and higher than previous literature describing the uninsured (up to 34%) (CDC, 2010; NC Tobacco Prevention and Control Branch, 2008; Pleis, 2007). Despite this high rate of use, the screening rate fell well below the PHS recommendation to screen every patient at every visit (Fiore, 2008). Further, provider intervention rates fell short of the guideline to intervene among every tobacco user. Nevertheless, the rates of screening and intervention found in this study are comparable to that found in other settings (Fiore, 2008).

Rates of chronic disease were high despite the relatively young age of the group, emphasizing the need for tobacco cessation to reduce secondary comorbidity. In addition, one-third of tobacco users had children who may be exposed to secondhand smoke, which represents another avenue for intervention. Many uninsured patients use free clinics as a medical home for both acute and chronic medical care (Felt-Lisk, 2002; Buettgens, 2011; Gertz, 2011), and 93% of patients in the current study reported a visit to the same free clinic within the past year.

Limitations of this study include a small sample size and the pilot nature of the project. Further, provision of comprehensive tobacco services was based on clinic self-report and receipt of provider screening and advice was based on patient self-report. Lastly, there is a possibility of sampling selection bias since participating clinics did not already provide comprehensive tobacco services. Nonetheless, this study is the first to report the need for tobacco screening and intervention in free clinic settings and may be generalizable to as many as 1,200 free clinics nationwide if they do not already provide comprehensive tobacco services.

Although most free clinic providers are volunteers, their rates of screening and brief intervention are on a par with providers in other settings. Further, the ongoing contact that free clinics have with these patients creates a rare opportunity to provide routine anti-tobacco messages and assist patients with quitting. Considering that 40% of patients in this population were in the preparation stage of readiness to change, free clinics are in a unique position to make a strong impact through screening and brief intervention.

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References

- Balluz L, Ahluwalia IB, Murphy W, Mokdad A, Giles W, Harris VB. Surveillance for Certain Health Behaviors Among Selected Local Areas - United States, Behavioral Risk Factor Surveillance System, 2002. *MMWR*. 2002; 53:1–100. [PubMed: 15269697]

- Buettgens M, Hall MA. Urban Institute Real Time Policy Analysis. Urban Institute, March 10, 2011. Who Will be Uninsured After Health Insurance Reform. 2011 Available at: <http://www.rwjf.org/coverage/product.jsp?id=71998>.
- Centers for Disease Control and Prevention. Adult Tobacco Survey – 19 States, 2003–2007. Surveillance Summaries. MMWR. 2010; 59:1–74.
- Centers for Disease Control and Prevention. Vital Signs: Current Cigarette Smoking Among Adults Aged 18 Years - United States 2009. MMWR. 2010; 59:1135–1140. [PubMed: 20829747]
- Centers for Disease Control and Prevention. CDC Health Disparities and Inequalities Report – United States, 2011. MMWR. 2011; 60:1–109.
- Darnell JS. Free Clinics in the United States: A Nationwide Survey. Arch Int Med. 2010; 170:946–953. [PubMed: 20548006]
- Darnell JS. What is the Role of Free Clinics in the Safety Net? Med Care. 2011; 49:978–984. [PubMed: 22005605]
- Felt-Lisk S, McHugh M, Howell E. Monitoring local safety-net providers: do they have adequate capacity? Health Aff. 2002; 21:277–283.
- Fiore MC. Treating tobacco use and dependence: an introduction to the U.S. Public Health Service Clinical Practice Guideline. Respir Care. 2000; 45:1196–1199. [PubMed: 11203101]
- Fiore, MC.; Jaen, CR.; Baker, TB.; Bailey, W.; Benowitz, N.; Curry, SJ., et al. Clinical Practice Guidelines on Tobacco Use and Cessation: the 2008 Update. Bethesda, Maryland: United States Public Health Service; 2008.
- Fleming O, Mills J. Free clinics in North Carolina: a network of compassion, volunteerism, and quality care for those without healthcare options. NC Med J. 2005; 66:127–129.
- Foley KL, Sutfin EL. Availability of Tobacco Cessation Services in Free Clinics. NC Med J. 2008; 69:270–274.
- Gertz AM, Frank S, Blixen CE. A Survey of Patients and Providers at Free Clinics Across the United States. J Community Health. 2011; 36:83–93. [PubMed: 20532596]
- Kotz D, West R. Explaining the social gradient in smoking cessation: it's not in the trying, but in the succeeding. Tob Control. 2009; 18:43–46. [PubMed: 18936053]
- Kreuter MW, Chheda SG, Bull FC. How does physician advice influence patient behavior? Evidence for a priming effect. Arch Fam Med. 2000; 9:426–433. [PubMed: 10810947]
- Murray DM, Short B. Intraclass correlation among measures related to alcohol use by school aged adolescents: estimates, correlates and applications in intervention studies. J Drug Educ. 1996; 26:207–230. [PubMed: 8952207]
- Murray DM, Short B. Intraclass correlation among measures related to alcohol use by young adults: estimates, correlates and applications in intervention studies. J Stud Alchoh. 1995; 56:681–694.
- North Carolina Tobacco Prevention and Control Branch. Current Smoking: 2007 N.C. Behavioral Risk Factor Surveillance System. Raleigh, North Carolina: North Carolina Department of Health and Human Services; 2008.
- Parnes B, Main DS, Holcomb S, Pace W. Tobacco cessation counseling among underserved patients: a report from CaReNet. J Fam Pract. 2002; 51:65–69. [PubMed: 11927066]
- Pleis JR, Lethbridge-Çejku M. Summary health statistics for U.S. adults: National Health Interview Survey, 2006. Vital Health Stat. 2007; 10:1–163.
- Prochaska JO, DiClemente CC, Norcross J. In search of how people change: Applications to addictive behaviors. Am Psychol. 2002; 47:1102–1114. [PubMed: 1329589]
- US Department of Health and Human Services, Office of the Surgeon General. Tobacco use among U.S. ethnic/racial and minority groups—African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanics: a report of the Surgeon General. Atlanta, GA: Centers for Disease Control and Prevention; 1998.
- Vidrine JI, Reitzel LR, Wetter DW. Smoking and Health Disparities. Current Cardiovascular Risk Reports. 2009; 3:403–408.
- Ward E, Jemal A, Cokkinides V, Singh GK, Cardinez C, Ghafoor A, et al. Cancer disparities by race/ethnicity and socioeconomic status. CA Cancer J Clin. 2004; 54:78–93. [PubMed: 15061598]

Highlights

- We assess a sample of uninsured patients at six free clinics.
- We report on prevalence and correlates of tobacco use and provider cessation advice.
- The prevalence of tobacco use was more than twice the national and state average.
- Rates of tobacco screening and cessation advice fell well below USPHS guidelines.
- Free clinics present an opportunity to reduce tobacco harm in a high risk group.

Table 1

Patient Characteristics

	Overall (N=158) N (%)	Tobacco Users (n=83) N (%)	Tobacco Nonusers (n=75) N (%)	P-Value^a
Demographics				
Female	121 (77)	60 (72)	61 (81)	.18
Hispanic	13 (8)	3 (4)	10 (13)	.03
Race	73 (46)	41 (49)	32 (44)	.75
Black or African American	64 (41)	33 (40)	31 (42)	
White	21 (13)	9 (14)	10 (11)	
Other				
Mean Age (SD)	45 (12)	43 (11)	45 (13)	.40
Never Married	56 (35)	32 (39)	24 (32)	.39
Unemployed	79 (50)	47 (59)	32 (43)	.05
Has Children	56 (36)	29 (36)	27 (36)	.93
Graduated High School	102 (70)	44 (59)	58 (83)	.001
Lives with a Smoker	100 (64)	80 (96)	20 (27)	<.0001
Has Chronic Disease	124 (78)	65 (78)	59 (79)	.96
Tobacco Use				
Current Cigarette Use (30-day)	80 (51)	80 (96)	-	-
Current Smokeless Tobacco Use (30-day)	4 (3)	4 (9)	-	-
Lifetime Smokeless Tobacco Use	24 (16)	12 (15)	12 (16)	.78
Clinical Experiences				
Typically Use This Clinic	145 (92)	77 (93)	68 (91)	.63
Past Year Visit to Same Clinic	147 (93)	76 (99)	71 (99)	.96
Past Month Visit to Same Clinic	87 (55)	46 (60)	41 (57)	.73
Usually See Same Provider	69 (44)	38 (38)	31 (42)	.53
Saw Tobacco Posters/Brochures in Clinic	33 (21)	17 (22)	16 (25)	.72
Provider Asked About Tobacco in Past 3 Months	111 (70)	70 (84)	41 (55)	<.0001

^aP-value using chi-square statistic

Table 2

Correlates of Tobacco Use among Free Clinic Population (N=139): Multivariable Logistic Regression Analysis Results^a

	AOR (95% CI) for Tobacco Use
Hispanic	0.13 (0.03–0.64) *
Graduated High School	0.20 (0.08–0.55) *
Provider Asked About Tobacco Use in Past 3 Months	3.56 (1.47–8.61) *

^a model also adjusted for gender and employment status

* p < 0.05