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Tobacco Intervention Practices of Primary Care Physicians Treating Lower Socioeconomic Status Patients

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Abstract

Tobacco use greatly contributes to overall socioeconomic health disparities and physicians are a major source of information about effective methods for tobacco cessation. This study examined the tobacco intervention practices of primary care physicians in Arkansas who treat a high proportion of lower SES patients. Greater than 70% of respondents' patients were covered by Medicaid and/or Medicare or paid for primary care services without health insurance. Although physicians were highly motivated and considered cessation to be very important, 74% had no training of any kind in the treatment of tobacco dependence and familiarity with the free treatment services in Arkansas was low. Younger and non-white physicians and physicians with any type of training in treating tobacco dependence reported more positive attitudes, more frequent intervention behaviors, and more familiarity with treatment services. More frequently seeing the effects of tobacco use on the health of patients as well as increased knowledge, preparedness, and perceived effectiveness of treatments was related to a higher frequency of providing cessation assistance. More frequently seeing the effects of tobacco use on patients, as well as increased familiarity with treatment services was related to a higher frequency of referring patients to treatment services. These findings suggest that training experiences that increase physician awareness of the multiplicity of consequences of tobacco use as well as increase knowledge, preparedness, perceived effectiveness of treatments, and familiarity with treatment services will increase the frequency with which physicians assist and refer this important patient population.

Keywords

Smoking cessation; brief interventions; tobacco dependence; physician training; socioeconomic status

INTRODUCTION

Tobacco use is the greatest cause of preventable death and disease in the United States and significantly contributes to socioeconomic health disparities primarily due to an unequal

burden of tobacco-related disease from a disproportionate share of smokers in lower socioeconomic status (SES) groups.¹⁻³ Americans with household incomes of \$15,000 or less and Medicaid beneficiaries smoke at three times the prevalence rate (~36%) of those with incomes of \$50,000 or more (~12%).^{4, 5} Greater than 40% of smokers make at least one attempt to quit each year, but without evidence-based assistance, 95% will fail to achieve long-term abstinence.⁶⁻⁸

Physicians have an extended reach into the tobacco using population and are a trusted source of personalized health information about the effects of tobacco use and effective methods for quitting.^{6, 9, 10} The Public Health Service (PHS) Clinical Practice Guideline for Treating Tobacco Use and Dependence provides evidence-based recommendations: (a) ASK every patient about tobacco use at every visit; (b) ADVISE every tobacco user to quit; (c) ASSESS interest in quitting tobacco; (d) ASSIST interested tobacco users by setting a quit date and providing counseling and medication; and (e) ARRANGE for timely follow-up services.⁶ Every state in the United States and province in Canada now provides free, proactive telephone treatment through “quitlines” most of which also proactively contact physician referrals when the referral is faxed to their toll-free number.¹¹ Performing the recommended interventions in primary care triples the odds of smokers achieving long-term abstinence in controlled trials.⁶

Although the primary care specialties (i.e., family medicine, general medicine, internal medicine, and obstetrics and/or gynecology) tend to provide more assistance than other specialties, physicians in general fail to provide the recommended interventions.¹²⁻¹⁴ Lower SES groups are even less likely to receive assistance from a physician.¹⁵⁻¹⁷ This is a particular concern because lower SES groups, including Medicaid beneficiaries, in addition to smoking at high prevalence rates and suffering from a disproportionate amount of tobacco-related disease, are less likely to have accurate information about nicotine replacement, use evidence-based tobacco dependence treatments, and successfully quit when they attempt to quit.^{5, 18, 19}

Certain physician characteristics are associated with the delivery of tobacco-related interventions. Women, younger practitioners, and those who do not use tobacco are more likely to provide assistance.^{12, 20} Barriers include lack of motivation, knowledge, confidence, and counseling skills.^{21, 22} Physicians with formal training in treating tobacco dependence are more likely to provide assistance than those without training and physicians who are familiar with treatment services are more likely to refer than those who are not.^{20, 23-27} Paying for performance of specific tobacco intervention services is also associated with significant increases in the frequency of physician tobacco-related interventions.²⁸ However, it is unknown whether these and other factors function similarly when a high proportion of the patient population is of lower SES and clearly in greater need of the preventative services.

Thirty-seven percent of Arkansans with incomes under \$15,000 per year smoke daily.⁴ Arkansas is one of only 5 states with poverty rates above 17% and second only to Mississippi in the depth of poverty experienced by residents.²⁹ Arkansas is the 6th highest state in percent of population enrolled in Medicare (18%) with 24% eligible for Medicaid as well.^{30, 31} During 2008, when this study was conducted, the telephone and in-person tobacco treatment programs had provided treatment services for about 6 years, the fax referral for three and one half years, and Arkansas Medicaid had provided reimbursement (\$20–25) up to 3 times per year to physicians for providing a brief intervention to eligible patients for 4 years. Approximately 1% of Arkansas smokers utilized the telephone and in-person treatment services each year. Given the demographics of the state and the extent of the available tobacco dependence treatment services, Arkansas provides a unique opportunity to

examine physician tobacco-related attitudes, behaviors, and familiarity with treatment programs in the context of a high proportion of lower SES patients.

This descriptive study examined Arkansas primary care physician tobacco treatment-related attitudes, behaviors, and familiarity with treatment services. We expected Arkansas physicians to report a high proportion of patients who utilized Medicare, Medicaid, or paid for primary care services themselves. Differences among physicians in terms of sex, age, minority status, training status, and physician specialty were examined. Factors that predicted the provision of cessation assistance and referring patients to the free treatment services were examined as well.

METHOD

Procedure

This study was approved by the Institutional Review Board at the University of Arkansas for Medical Sciences. A list of physicians licensed in Arkansas was purchased from the Arkansas Medical Board. Those identified as having a primary, secondary, or tertiary specialty in primary care (Family/General Medicine (FM), Internal Medicine (IM), and Obstetrics and/or Gynecology (OBGYN); n=2,688) were mailed the one-page information sheet, the one-page survey, and a postage-paid return envelope. Physicians who were no longer practicing in Arkansas were excluded (n=305). Three mailings were conducted from April 2008 to October 2008, followed by an effort to reach non-respondents by fax in November 2008.

Survey Instrument

The 32-item questionnaire was based on previously utilized and validated instruments.^{23, 25, 32} Items included provider demographics, tobacco use history and training, work setting, percent of patients who pay for services with Medicare, Medicaid, or self-pay, and 19 content items listed in Table 1. Tobacco training history was assessed with three questions, "Have you had formal training for treating tobacco use?" (yes/no), followed by "If yes, how did you receive this training?" with three options, "Workshop or seminar," "Online or self-study," and a fill-in the blank, "Other." All content items were assessed on a Likert-type, discrete analogue scale of 0 to 10 with 0 being "none or not at all" and 10 being "the most possible."

Analysis

SPSS version 18 was used to conduct the analyses.³³ Differences among responders and non-responders were examined by specialty and by location. Characteristics of the responders in terms of sex, age, minority status, training status, and specialty were examined using frequencies, means, χ^2 , and analysis of variance. Differences on each of the content items by sex, minority status, training status, and specialty were examined with multivariate analyses of variance controlling for significant differences among characteristics. Pillai's Trace was used to test for significant effects in the multivariate analyses.³⁴ The Bonferroni correction was utilized to control for family-wise error in post-hoc testing.³⁵ To alleviate unbalanced cell sizes, the 5 racial categories were re-categorized into white and non-white. Generalized linear regression models were used to predict the frequency with which physicians 1) assisted patients by discussing cessation strategies, setting a quit date, or medications and 2) referred patients to a tobacco dependence treatment program. Sex, age, minority status, training status, specialty, and each of the remaining content measures were entered as predictors. Level of significance for all analyses was set at $\alpha=0.05$.

RESULTS

Description of Respondents

Of the 2,383 qualified physicians surveyed, 29.50% (n=703) responded (98% by mail and 2% by fax). The respondents were primarily middle-aged (M=50.85 years SD 12.56), male (75.00%) and white (85.86%); 6.77% were Asian or Pacific Islander, 4.51% were African-American, and 2.86% were other. The majority were FM (55.19%; n=388) physicians, 32.57% (n=229) were IM physicians, and 12.23% (n=86) were OBGYN physicians. The majority never used tobacco (77.44%), 20.30% formerly used tobacco, and 2.26% currently used tobacco.

Just over one-quarter (26.47%) of respondents reported some training in the treatment of tobacco dependence. Of those, 43.38% received it in a workshop/seminar, 16.40% online, and 40.21% in a wide variety of other settings (residency, experience, journal articles, etc.). Most (69.52%) were in private practice; 13.51% practiced in academic settings; 4.80% in Veteran's Administration settings, and 12.16% in other settings. The mean number of clinical practice hours was 41.41 (median = 40.00; SD = 16.92). Greater than 70% of respondents' patients were insured by Medicaid and/or Medicare or paid for primary care services without healthcare insurance (Medicare M= 34.85% (SD 22.98), median = 30.00%; Medicaid M=19.71% (SD 17.93), median = 15.0%; uninsured M=17.07% (SD 19.18), median = 10.0%).

There were no significant differences in the proportion of respondents versus non-respondents among the specialties or located in any one city in Arkansas. Age was unrelated to specialty, but associated with sex and minority status. Female and non-white physicians were significantly younger than the male and white physicians (female M=45.54 years (SD 10.74) versus male M=52.39 years (SD 12.55), $F(1,625)=38.30$, $p < .01$; non-white M=43.73 (SD 9.72) years versus white M=52.14 (SD 12.59) years, $F(1,616)=34.62$, $p < .01$). Sex was unrelated to specialty, but minority status differed by specialty. IM physicians were the most likely to be of minority status ($\chi^2=27.21$ df=2, $p < 0.01$). Training status was unrelated to age, sex, or minority status, but differed by specialty. OBGYN physicians were the least likely to have received training in the treatment of tobacco dependence ($\chi^2=17.29$ df=2, $p < 0.01$).

Attitudes, Behaviors, and Familiarity with Treating Tobacco Dependence

Respondents saw the effects of tobacco use on their patients' health frequently, regarded tobacco cessation as highly important, believed that the barriers to providing tobacco cessation interventions were important, believed that the treatments for tobacco dependence were moderately effective, were highly motivated to help patients quit, and were moderately knowledgeable, confident, and prepared. There was only moderate interest in additional training. Respondents asked/documented tobacco use and advised patients to quit frequently, assessed willingness to quit and assisted with cessation less frequently, and arranged for follow-up and referred tobacco users even less frequently. Respondents were moderately to minimally familiar with the PHS Clinical Practice Guideline, the fax referral service, the telephone treatment program, and the in-person treatment program. See Table 1.

The Role of Age, Sex, and Minority Status

Because significant age differences were found for sex and minority status, age was included in the multivariate analysis examining differences among the content items by sex and minority status. Significant effects were found for age ($F(19, 538) = 3.46$, $p < 0.01$) and minority status ($F(19, 538) = 3.37$, $p < 0.01$), but not sex. Younger physicians were more likely to see the effects of tobacco use on their patients ($r = -0.12$, $F(1, 561) = 4.97$, $p = 0.03$),

reported higher levels of confidence ($r = -0.16$, $F(1,561)=9.16$, $p<0.01$), perceived treatment to be more effective ($r = -0.14$, $F(1,561)=10.75$, $p<0.01$), and reported higher levels of desire for more training ($r = -0.15$, $F(1,561)=4.66$, $p=0.03$) than older physicians.

Non-whites perceived treatment to be more effective ($M=6.11$ (SD 1.66) versus $M= 5.17$ (SD 1.93), $F(1, 561) = 8.15$, $p < 0.01$), more frequently arranged for follow-up ($M=5.39$ (SD 3.02) versus $M= 4.55$ (SD 3.00), $F(1, 561) = 4.95$, $p=0.03$) and referred patients to treatment programs ($M=5.15$ (SD 3.36) versus $M= 3.55$ (SD 3.03), $F(1, 561) = 31.58$, $p < 0.01$), were more familiar with the PHS Guideline ($M=5.16$ (SD 3.26) versus $M= 4.05$ (SD 3.03), $F(1, 561) = 7.37$, $p < 0.01$) and the fax referral program ($M=4.27$ (SD 3.65) versus $M= 3.22$ (SD 3.29), $F(1, 561) = 4.73$, $p = 0.03$), and expressed more desire for additional training ($M=6.96$ (SD 2.46) versus $M= 4.52$ (SD 3.03), $F(1, 561) = 31.58$, $p < 0.01$) than whites.

The Role of Training and Specialty

Because significant training and minority status differences were found among the specialties, these factors were included in the multivariate analysis examining differences among the content items by specialty. Significant effects were found for training ($F(19, 575)= 2.30$, $p < 0.01$) and specialty ($F(38,1152)=1.89$, $p < 0.01$), and similar to the analysis above, minority status ($F(19,575)=2.04$, $p < 0.01$). The effects of minority status will not be repeated here. Trained physicians reported greater levels of knowledge ($F(1,605)=5.78$, $p=0.02$), confidence ($F(1, 605)=4.00$, $p=0.05$), and preparedness ($F(1, 605)=6.53$, $p=0.01$), referred patients to treatment more frequently ($F(1, 605)=8.15$, $p<0.01$), and were more familiar with the PHS Guidelines ($F(1, 605)=6.17$, $p=0.01$), the fax referral service ($F(1, 605)=6.99$, $p<0.01$), the telephone treatment program ($F(1, 605)=20.71$, $p<0.01$), and the in-person treatment program ($F(1, 605)=7.03$, $p<0.01$) than untrained physicians. See Table 2.

Among the specialties, significant differences were found on the frequency with which they saw the effects of tobacco use on their patients ($F(2,605)=3.04$, $p=0.05$), the level of knowledge ($F(2,605)=4.32$, $p<0.01$), the frequency with which physicians advised patients to quit ($F(2,605)=7.01$, $p<0.01$) and assisted patients with cessation ($F(2,605)=6.24$, $p<0.01$) as well as the levels of familiarity with the PHS Clinical Practice Guideline ($F(2,605)=5.40$, $p<0.01$), the fax referral program ($F(2,605)=4.99$, $p<0.01$), and the in-person treatment program ($F(2,605)=3.71$, $p=0.03$). Post hoc analyses revealed IM physicians advised more frequently than FM physicians, $M=8.91$ (SD 1.47) versus $M=8.49$ (SD 1.82). All other differences were between these 2 specialties and the OBGYN physicians. See Table 3.

Predicting Assistance and Referral Behaviors

Age, the frequency with which physicians saw the effects of tobacco, advised patients to quit, assessed willingness to quit, and arranged for follow-up as well as the levels of knowledge, preparedness, and perceived effectiveness of treatment, predicted the frequency of providing assistance. Holding all other factors constant, a difference of +1 on any of the above significant factors increased the frequency of assisting (measured on a scale of 0–10) by that factor's B . For example, for every increase in one point in the level of physician preparedness, the frequency of providing cessation assistance increased by 0.182 or 1.82 percentage points (just under one-fifth of a point on the 0–10 scale of frequency of providing assistance); for every increase in 1 point in the frequency of assessing patients' willingness to quit, the frequency of providing cessation assistance increased by 0.413 or 4.13 percentage points (just under one-half of a point on the 0–10 scale of providing assistance). See Table 4. In summary, physicians are more likely to assist patients with cessation when they see the effects of tobacco use, feel knowledgeable and prepared, perceive treatments to be effective, and also engage in other treatment components (i.e., advise patients to quit, assess level of readiness, and arrange for follow-up).

The frequencies with which physicians saw the effects of tobacco use and arranged for follow-up as well as levels of familiarity with the treatment and referral services and the level of desire for formal training predicted the frequency with which physicians referred patients. Holding all other factors constant, a difference of +1 on any of the above significant factors increased the frequency of referring by that factor's *B*. For example, for every increase in 1 point in the level of familiarity with Arkansas' fax referral service, the frequency of referring patients to cessation programs increased by 1.74 percentage points (just under one-fifth of a point on the 0–10 scale of frequency of referring); for every increase in one point in the level of familiarity with Arkansas' telephone counseling service, the frequency of referring patient to cessation programs increases by 2.2 percentage points (just over one-fifth of a point on the 0–10 scale of frequency of referring). See Table 5. In summary, physicians are more likely to refer patients to tobacco cessation programs when they see the effects of tobacco use, desire additional training for treating tobacco use, and are familiar with the treatment and referral programs and thus use them to arrange for follow-up.

DISCUSSION

This is the first comprehensive examination of tobacco treatment-related attitudes and behaviors among physicians who treat a high proportion of lower SES patients and one of the few studies that examine familiarity with free treatment and referral services. With more than 70% of the respondents' patients covered by Medicare and/or Medicaid or without primary care benefits, the respondents' patient populations were primarily lower SES and were likely to smoke at a high prevalence rate and suffer from a disproportionate amount of tobacco-related disease. Although providing as much cessation and referral assistance as possible is an important aspect of addressing the disproportionate amount of tobacco-related disease in this patient population, these findings offer no indication that Arkansas physicians are providing an optimal level of assistance.⁶

Respondents felt that tobacco cessation was very important and were highly motivated to help tobacco users quit, but relatively few performed all the recommended interventions and even fewer referred patients to the free treatment services. Similar to other studies, the performance of the 5A's decreased sequentially.^{13, 36} Having had some form of training in treating tobacco dependence was clearly associated with more positive attitudes and a greater frequency of referring patients to treatment services (see Table 2); however, nearly three-quarters of physicians reported no training of any kind in the treatment of tobacco dependence, and familiarity was quite low with both the free treatment services and the PHS Clinical Practice Guideline that describes the 5As as a comprehensive intervention. This begs the question as to the reasonableness of expecting physicians to perform evidence-based interventions without appropriate training and to refer to programs with which they are unfamiliar.

Although methodological differences preclude most direct comparisons, the findings from this study are similar to those obtained from surveys in Mississippi and New Jersey.^{12,23} Although the Arkansas and New Jersey respondents were more diverse than respondents in Mississippi, (86 and 76% white versus 91% white in Mississippi), the respondents in all three states were nearly identical in terms of age and sex and about 70% of both the New Jersey and Arkansas respondents practiced in private settings. The Arkansas respondents were slightly less likely to have received formal training in the treatment of tobacco dependence than the Mississippi respondents (30% in Mississippi versus 27% in Arkansas), but the frequency with which the Arkansas and Mississippi physicians performed the 5As was remarkably similar. The mean level of familiarity with the Clinical Practice Guideline in Arkansas in 2008 was quite low (19% reported "0" level of familiarity on a scale of 0–

10); however, these findings compare favorably with those found in Mississippi in 2000 and New Jersey in 2002 where 62% and 45% of physicians respectively reported no awareness of the PHS Guideline. Although there is no evidence of an increase in the frequency with which physician provide assistance in any of these states when compared with national studies conducted in the mid-1990s,¹⁴ the increase in awareness of the Clinical Practice Guideline over the past 10 years in these studies might reflect a positive trend in awareness of the legitimate importance of providing these brief interventions.

Similar to other studies, physician demographics were related to several tobacco-related attitudes and intervention behaviors.^{12, 20,23} Non-whites perceived treatment to be more effective and, being more familiar with the treatment and referral programs, they were more likely to arrange for follow-up and refer to treatment programs. Younger physicians saw the effects of tobacco use on their patients more frequently, were more confident in their ability to assist patients quit, and perceived treatment to be more effective. With no age-related differences in training status, these findings suggest that there might be an age-cohort effect, unrelated to training, or perhaps the training provided to the younger physicians was of better quality than that provided to the older physicians. Nonetheless, younger and non-white physicians expressed more desire for additional training than older and white physicians suggesting more enthusiasm for addressing the issue.

Although training status did not directly predict the frequency with which physicians assisted patients with cessation or referred to cessation services, training was associated with increased knowledge and preparedness, and increased familiarity with each of the treatment services, which predicted a higher frequency of providing assistance and referring patients. These findings suggest that improving knowledge and preparedness as well as familiarizing physicians with the treatment programs and how to refer to them are likely to increase the frequency of providing cessation assistance and referrals. Additionally, a higher frequency of seeing the effects of tobacco use on patients predicted a higher frequency of assisting and referring patients. This might be associated with the characteristics of particular patient populations, but suggests that heightening physicians' awareness of the multiplicity of consequences of tobacco use will also increase the frequency with which they assist and refer patients. In this study, training positively influenced all the tobacco-related attitudes and behaviors as well as familiarity with treatment services. The training history of respondents included a wide variety and intensity of training experiences. This suggests that these important factors might be approached through a similarly wide variety of training media.

OBGYN physicians saw the effects of tobacco use on patients less frequently, were less knowledgeable, advised and assisted less frequently, and were less familiar with the Clinical Practice Guideline and some of the treatment services. These findings might be related to the relatively unique role that this specialty plays in primary care and the characteristics of their patient population (i.e., fewer patients experiencing the more obvious health consequences of smoking because of younger age), but also might be related to the unique challenges associated with treating women and pregnant women. This disparity in practices is particularly disconcerting given that lung cancer caused by smoking kills twice as many women as breast cancer and smoking is the leading preventable cause of low birth weight in infants.³⁷ These findings suggest that disseminating this specialized knowledge to OBGYN physicians as well as information about treatment services will improve levels of knowledge and familiarity, which predict a higher frequency of assisting and referring patients.

Limitations

The modest response rate is a limitation of this study and raises questions about whether the sample was representative of Arkansas primary care physicians; however, the response rate

was similar or better than that found in similar studies surveying large physician databases.^{12, 23} Nonetheless, one of the most important aspects of this study was surveying physicians who treat primarily lower SES patients, the population at greatest risk for tobacco-related disease. With at least 70% of the respondents' patients of lower SES, this was achieved. The study was also limited by our inability to compare respondents and non-respondents on a variety of measures found to affect tobacco-related practices such as age, sex, and minority status. Unfortunately, the contact data purchased from the Arkansas licensing board did not include this data. Nonetheless, interest in the treatment of tobacco dependence might have been lower among non-respondents. Non-respondents may have had lower motivation to address tobacco dependence as well as different priorities and more demands on their time. Respondents may have been more likely to have stronger feelings about tobacco use, higher interest in the issues, and be more likely to have received training and to perform tobacco intervention behaviors.

Conclusions

These findings suggest that there is clearly room for improving physician tobacco-related intervention behaviors in Arkansas. Given the tobacco-related socioeconomic disparities, the essential role of physicians as a major source of personalized information about effective methods for quitting, and the effectiveness of tobacco dependence treatments, even minimal increases in the amount of cessation aid provided by Arkansas physicians to this important population is likely to have a large impact on the health of lower SES smokers.⁶ These findings add to the evidence indicating that training increases physician intervention behaviors. The widespread health consequences of smoking, the lack of training in practicing physicians, the lukewarm interest in further training, the significant impact that training has on provider attitudes and behaviors, and the wide definition of training used in this study suggest training in the treatment of tobacco dependence should be a requirement of basic medical education and that a variety of training experiences should be provided to practicing physicians using creative methods to attract trainees.

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Table 1

Descriptive characteristics of questionnaire content items.

Questionnaire item [†]	Mean (SD)
How often do you see the effects of tobacco use on the health of your patients?	7.95 (1.94)
How important is tobacco cessation to you in providing preventative care?	9.02 (1.62)
How knowledgeable are you in performing tobacco cessation interventions?	6.97 (2.14)
How motivated are you to help someone stop using tobacco?	8.54 (1.74)
How confident are you in your ability to assist patients with tobacco cessation?	7.21 (2.20)
How prepared are you to provide tobacco cessation interventions?	7.32 (2.25)
How important are the barriers you experience when providing tobacco cessation interventions?	7.24 (2.31)
How effective are treatments for tobacco use?	5.33 (1.94)
How often do you Ask and Document your patients' tobacco use status?	8.33 (2.17)
How often do you Advise patients to stop using tobacco?	8.64 (1.74)
How often do you Assess your patients' willingness to stop using tobacco?	7.42 (2.24)
How often do you Assist patients to stop using tobacco by discussing strategies, techniques, setting a quit date, or medications?	7.12 (2.37)
How often do you or your staff Arrange for follow-up as part of a tobacco cessation intervention by scheduling an extra visit, making a referral, sending a card or letter, or making a follow-up telephone call?	4.70 (3.02)
How familiar are you with the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence?	4.27 (3.11)
How familiar are you with the following Arkansas state-funded programs?	
Fax referral for treatment of tobacco use?	3.29 (3.36)
Telephone counseling or "quitline" for tobacco use?	3.84 (3.53)
In-person treatment for tobacco use?	3.48 (3.34)
How often do you refer your tobacco users to a tobacco cessation program?	3.74 (3.11)
How much do you desire formal training for treating tobacco use?	4.89 (3.09)

[†] All items measured on a scale of 0 to 10 with 0 being "none or not at all" and 10 being "the most possible."

Table 2

Differences among trained and untrained physicians

Questionnaire item [†]	Training status	
	Trained Mean (SD)	Not trained Mean (SD)
How often do you see the effects of tobacco use on the health of your patients?	8.33 (1.58)	7.81 (2.03)
How important is tobacco cessation to you in providing preventative care?	9.41 (1.03)	8.86 (1.78)
How knowledgeable are you in performing tobacco cessation interventions? *	7.99 (1.43)	6.54 (2.25)
How motivated are you to help someone stop using tobacco?	8.97 (1.27)	8.38 (1.86)
How confident are you in your ability to assist patients with tobacco cessation? *	8.04 (1.68)	6.86 (2.29)
How prepared are you to provide tobacco cessation interventions? **	8.30(1.53)	6.92 (2.38)
How important are the barriers you experience when providing tobacco cessation interventions?	7.80 (2.14)	7.00 (2.34)
How effective are treatments for tobacco use?	5.51 (1.83)	5.23 (1.95)
How often do you Ask and Document your patients' tobacco use status?	8.65 (1.78)	8.18 (2.30)
How often do you Advise patients to stop using tobacco?	8.91 (1.32)	8.55 (1.84)
How often do you Assess your patients' willingness to stop using tobacco?	8.06 (1.65)	7.17 (2.36)
How often do you Assist patients to stop using tobacco by discussing strategies, techniques, setting a quit date, or medications?	7.82 (1.75)	6.81 (2.50)
How often do you or your staff Arrange for follow-up as part of a tobacco cessation intervention by scheduling an extra visit, making a referral, sending a card or letter, or making a follow-up telephone call?	5.87 (2.79)	4.27 (3.00)
How Familiar are you with the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence? **	5.83 (3.02)	3.65 (2.93)
How familiar are you with the following Arkansas state-funded programs?		
Fax referral for treatment of tobacco use? **	5.02 (3.57)	2.66 (3.04)
Telephone counseling or "quitline" for tobacco use? **	5.78 (3.35)	3.15 (3.32)
In-person treatment for tobacco use? **	5.51 (3.34)	2.77 (3.02)
How often do you refer your tobacco users to a tobacco cessation program? **	4.77 (3.18)	3.32 (2.96)
How much do you desire formal training for treating tobacco use?	4.69 (2.99)	5.00 (3.13)

[†] All items measured on a scale of 0 to 10 with 0 being "none or not at all" and 10 being "the most possible."

* p<0.05;

** p<0.01.

Table 3

Attitude, intervention behavior, and familiarity differences by physician specialty

Questionnaire item [†]	Specialty Mean (SD)		
	FP/GP	IM	OB/G
How often do you see the effects of tobacco use on the health of your patients? *	8.13 ^a (1.77)	8.14 ^a (1.92)	6.48 ^b (2.19)
How important is tobacco cessation to you in providing preventative care?	9.01 (1.65)	9.08 (1.57)	8.75 (1.72)
How knowledgeable are you in performing tobacco cessation interventions? **	7.16 ^a (1.94)	6.95 ^a (2.36)	5.70 ^b (2.19)
How motivated are you to help someone stop using tobacco?	8.63 (1.62)	8.60 (1.75)	7.91 (2.13)
How confident are you in your ability to assist patients with tobacco cessation?	7.45 (2.06)	7.12 (2.30)	5.99 (2.26)
How prepared are you to provide tobacco cessation interventions?	7.60 (2.02)	7.20 (2.43)	6.04 (2.48)
How important are the barriers you experience when providing tobacco cessation interventions?	7.28 (2.30)	7.28 (2.40)	6.69 (2.04)
How effective are treatments for tobacco use?	5.20 (1.97)	5.57 (1.86)	5.03 (1.83)
How often do you Ask and Document your patients' tobacco use status?	8.09 (2.20)	8.48 (2.21)	8.82 (1.86)
How often do you Advise patients to stop using tobacco **	8.49 ^b (1.82)	8.91 ^a (1.47)	8.60 ^{a,b} (1.85)
How often do you Assess your patients' willingness to stop using tobacco?	7.36 (2.10)	7.65 (2.25)	6.94 (2.68)
How often do you Assist patients in quitting by discussing strategies, setting a quit date, or medications **	7.23 ^a (2.06)	7.19 ^a (2.58)	5.99 ^b (2.84)
How often do you or your staff Arrange for follow-up as part of a tobacco cessation intervention by scheduling an extra visit, making a referral, sending a card or letter, or making a follow-up telephone call?	4.96 (2.92)	4.83 (3.10)	2.97 (2.81)
How familiar are you with the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence?	4.33 ^a (2.97)	4.54 ^a (3.30)	2.84 ^b (2.78)
How familiar are you with the following Arkansas state-funded programs?			
Fax referral for treatment of tobacco use? **	3.58 ^a (3.36)	3.34 ^a (3.44)	1.76 ^b (2.62)
Telephone counseling or "quitline" for tobacco use?	4.16 (3.47)	3.82 (3.60)	2.46 (3.21)
In-person treatment for tobacco use? *	3.92 ^a (3.31)	3.29 ^a (3.38)	2.03 ^b (2.93)
How often do you refer your tobacco users to a tobacco cessation program?	3.69 (3.07)	3.96 (3.17)	3.00 (2.87)
How much do you desire formal training for treating tobacco use?	4.76 (3.06)	5.08 (3.19)	5.13 (2.97)

[†]Measured on a scale of 0–10 with 0= not at all and 10 = most possible.

* p<0.05;

** p<0.01; Different superscripts within question item indicate locations of significant differences from post hoc tests. FP/GP = Family practice/general practice; IM= Internal medicine; OB/G = Obstetrics and/or gynecology.

Table 4
Factors predicting the frequency with which providers Assist patients to stop smoking

Questionnaire items included in the model	Wald χ^2	$B^\dagger$	Standard Error B	95% Wald Confidence Interval of B	
				Lower	Upper
Specialty Family Medicine [^]	0.196	0.100	0.2250	-0.341	0.541
Specialty Internal Medicine [^]	0.032	-0.044	0.2428	-0.520	0.432
Male [^]	0.011	0.013	0.1301	-0.241	0.268
White [^]	1.592	-0.209	0.1657	-0.534	0.116
Trained [^]	1.720	-0.169	0.1288	-0.421	0.084
Age ^{**}	7.138	0.015	0.0057	0.004	0.026
How often do you see the effects of tobacco use on the health of your patients? ^{†***}	6.988	0.107	0.0404	0.028	0.186
How important is tobacco cessation to you in providing preventative care? [†]	3.406	-0.091	0.0491	-0.187	0.006
How knowledgeable are you in performing tobacco cessation interventions? ^{†**}	4.202	0.107	0.0523	0.005	0.210
How motivated are you to help someone stop using tobacco? [†]	0.128	0.023	0.0636	-0.102	0.148
How confident are you in your ability to assist patients with tobacco cessation? [†]	0.807	0.057	0.0630	-0.067	0.180
How prepared are you to provide tobacco cessation interventions? ^{†***}	9.822	0.182	0.0581	0.068	0.296
How important are the barriers you experience when providing tobacco cessation interventions? [†]	3.055	0.078	0.0447	-0.009	0.166
How effective are treatments for tobacco use? ^{†***}	6.381	0.089	0.0351	0.020	0.157
How often do you Ask and Document your patients' tobacco use status? [†]	0.079	-0.010	0.0364	-0.082	0.061
How often do you Advise patients to stop using tobacco? ^{†***}	8.536	0.180	0.0615	0.059	0.300
How often do you Assess your patients' willingness to stop using tobacco? ^{†***}	71.278	0.413	0.0490	0.317	0.509
How often do you or your staff Arrange for follow-up as part of a tobacco cessation intervention by scheduling an extra visit, making a referral, sending a card or letter, or making a follow-up telephone call? ^{†***}	14.844	0.120	0.0312	0.059	0.181
How familiar are you with the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence? [†]	0.862	-0.032	0.0343	-0.099	0.035
How familiar are you with the following Arkansas state-funded programs? [†]					
Fax referral for treatment of tobacco use? [†]	2.259	-0.057	0.0379	-0.131	0.017

Questionnaire items included in the model	Wald χ^2	$B^{\ddagger}$	Standard Error B	95% Wald Confidence Interval of B	
				Lower	Upper
Telephone counseling or "quitline" for tobacco use?	0.205	0.016	0.0346	-0.052	0.083
In-person treatment for tobacco use?	3.452	0.058	0.0313	-0.003	0.120
How often do you refer your tobacco users to a tobacco cessation program? [†]	0.121	-0.009	0.0263	-0.061	0.042
How much do you desire formal training for treating tobacco use? [‡]	0.337	0.015	0.0265	-0.037	0.067

[†] Measured on a scale of 0–10 with 0= not at all and 10 = most possible;
^{*} p<0.05;
^{**} p<0.01;
[‡] Given that all other factors are the same, a difference of +1 on each of the above factors is expected to increase the frequency of providing assistance by B.
[^] Reference values Obstetricians/Gynecologists, female, minority, not trained.

Table 5
Regression analysis predicting frequency with which providers referred patients to tobacco cessation programs

Questionnaire items included in the model	Wald χ^2	$B^{\dagger}$	Standard Error B	95% Wald Confidence Interval of B	
				Lower	Upper
Specialty Family Medicine ^{***^}	6.736	-0.623	0.2400	-1.093	-0.153
Specialty Internal Medicine [^]	1.78	-0.346	0.2592	-0.854	0.162
Male [^]	0.017	0.029	0.2232	-0.408	0.467
White [^]	3.637	-0.546	0.2864	-1.107	0.015
Trained [^]	0.458	-0.158	0.2337	-0.616	0.300
Age ^{**}	0.519	0.006	0.0082	-0.010	0.022
How often do you see the effects of tobacco use on the health of your patients? ^{†***}	8.125	0.139	0.0486	0.043	0.234
How important is tobacco cessation to you in providing preventative care? [†]	1.285	-0.072	0.0636	-0.197	0.053
How knowledgeable are you in performing tobacco cessation interventions? [†]	0.373	-0.043	0.0703	-0.181	0.095
How motivated are you to help someone stop using tobacco? [†]	0.375	0.049	0.0795	-0.107	0.205
How confident are you in your ability to assist patients with tobacco cessation? [†]	0.504	0.048	0.0671	-0.084	0.179
How prepared are you to provide tobacco cessation interventions? [†]	0.706	-0.054	0.0638	-0.179	0.071
How important are the barriers you experience when providing tobacco cessation interventions? [†]	0.475	-0.031	0.0456	-0.121	0.058
How effective are treatments for tobacco use? [†]	0.659	0.044	0.0547	-0.063	0.151
How often do you Ask and Document your patients' tobacco use status? [†]	1.620	0.059	0.0460	-0.032	0.149
How often do you Advise patients to stop using tobacco? [†]	0.621	-0.061	0.0771	-0.212	0.090
How often do you Assess your patients' willingness to stop using tobacco? [†]	0.355	0.039	0.0660	-0.090	0.169
How often do you or your staff Arrange for follow-up as part of a tobacco cessation intervention by scheduling an extra visit, making a referral, sending a card or letter, or making a follow-up telephone call? ^{†***}	12.854	0.159	0.0443	0.072	0.246
How familiar are you with the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence? [†]	2.258	0.078	0.0517	-0.024	0.179
How familiar are you with the following Arkansas state-funded programs? [†]					
Fax referral for treatment of tobacco use? ^{**}	6.201	0.174	0.0697	0.037	0.310

Questionnaire items included in the model	Wald χ^2	$B^\dagger$	Standard Error B	95% Wald Confidence Interval of B	
				Lower	Upper
Telephone counseling or “quitline” for tobacco use? ^{**}	13.066	0.220	0.0609	0.101	0.340
In-person treatment for tobacco use? ^{**}	7.128	0.149	0.0559	0.040	0.259
How much do you desire formal training for treating tobacco use? ^{†**}	7.865	0.103	0.0368	0.031	0.175

[†] Measured on a scale of 0–10 with 0= not at all and 10 = most possible;

^{**} p<0.01;

[‡] Given that all other factors are the same, a difference of +1 on each of the above factors is expected to increase the frequency of providing assistance by B.

[^] Reference values Obstetricians/Gynecologists, female, minority, not trained.