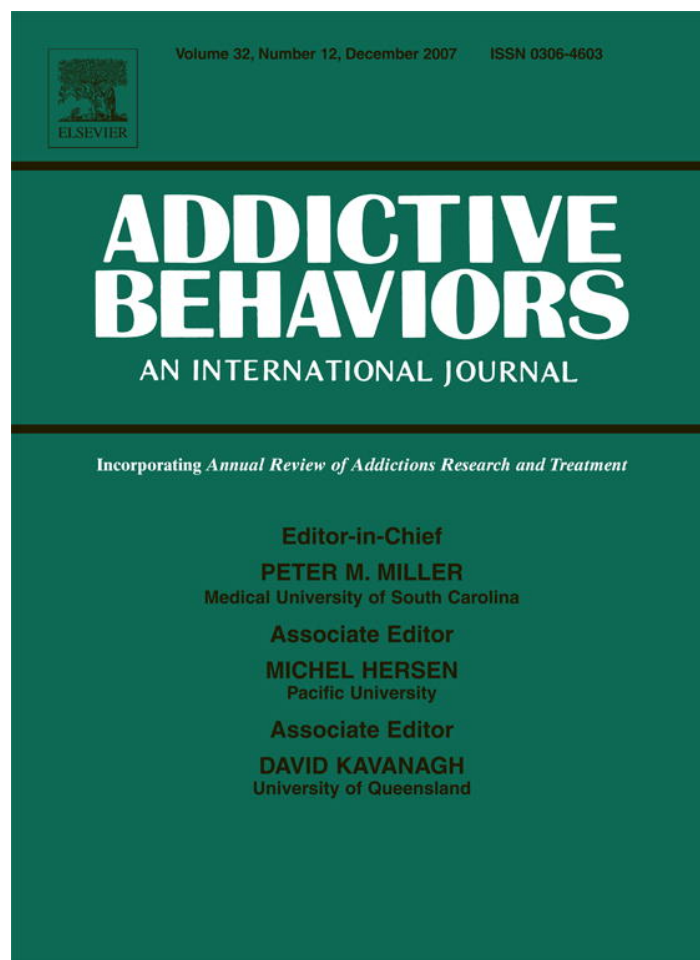


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Predictors of self-reported discussion of cessation medications by physicians in New Jersey

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Abstract

Physicians play an important role in smoking cessation, especially discussing medications. This study evaluates physician characteristics associated with higher rates of discussion of smoking cessation medications. 336 primary-care physicians in New Jersey completed a cross-sectional, self-administered, mail survey including physician demographics, practice type, previous training and confidence in treating tobacco dependence, awareness of guidelines, and perceived effectiveness of treatments. Two-thirds of respondents felt confident in using cessation medications despite only 24% having previous training and only 13% having read or implemented practice guidelines. After controlling for other variables, female physicians were more likely to discuss medications compared with males (adjusted odds ratio(AOR) 2.2; 95% confidence interval(CI) 1.0–4.6); physicians who were confident were more likely to discuss (AOR 3.0;95% CI 1.7–5.3); and physicians in private practices (solo, group, or multispecialty) were more likely to discuss than those employed by an agency (hospital, state, or federal) (AOR 3.1;95% CI 1.4–6.8). Most physicians in this sample reported routinely discussing cessation medications, with female physicians, those feeling confident, and those in private practices doing so more frequently. Considering limited resources and opportunities to access physicians, interventions to increase discussion of effective cessation treatments could be targeted to specific physician groups.

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Keywords: Physician; Smoking; Cessation; Medications; Pharmacotherapy

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1. Background

Health care providers play a key role in the identification, assessment, and treatment of smokers (Helwig, Swain, & Gottlieb, 1998; Thorndike, Rigotti, Stafford, & Singer, 1998), and have contact with approximately 70% of all smokers each year in the U.S. (Center for Disease Control (CDC), 1993). Physician counseling, combined with pharmacotherapy and follow-up increase quit rates over no or minimal contact (Fiore et al., 2000; Ockene et al., 1991; Silagy & Stead, 2001; Wilson et al., 1998). However, data consistently demonstrate that physicians' rates of counseling are not optimal (CDC, 1993; Goldstein et al., 1998; Silagy & Stead, 2001; Steinberg, Akincigil, Delnevo, Crystal, & Carson, 2006; Thorndike et al., 1998). To help providers, clinical practice guidelines for tobacco dependence treatment were developed by the National Cancer Institute, the Agency for Health Care Policy and Research, and were updated in 2000 by the U.S. Public Health Service (PHS) (Fiore et al., 2000). These evidence-based guidelines call for clinicians to conduct basic interventions for smokers; "5 A's" (Ask, Advise, Assess, Assist, Arrange).

There are limited yet growing data measuring more in-depth physician assistance with quitting, particularly prescribing cessation medications in the U.S. A previous study evaluated physicians' practices in the U.S. from 1991–1995 and found that nicotine replacement therapy (NRT) was used infrequently (less than 2.5% of visits by smokers) (Thorndike et al., 1998). However, since 1995, there have been several effective, medications introduced in the U.S. (e.g. Zyban[®], Nicotrol oral inhaler[®], Nicotrol nasal spray[®]), and some products have moved from prescription to over-the-counter status (e.g. nicotine patch and gum). A follow-up study of physician–patient encounters revealed that there has been no significant improvement in prescribing practices from 1991 to 2002 (Steinberg et al., 2006). Understanding how to improve physicians' tobacco dependence treatment is critical in addressing this leading cause of preventable death. A necessary first step in this process is a discussion between physicians and smokers regarding available cessation medications. This study evaluates characteristics associated with physicians' discussion of smoking cessation medications in order to inform interventions to improve these practices.

2. Methods

2.1. Instrument

The New Jersey Health Care Provider Tobacco Survey (NJHCPTS) was designed to target practitioners serving three patient populations: adults, adolescents, and pregnant women. The sample design and methodology of the NJHCPTS is described in detail elsewhere (Delnevo, Abatemarco, & Steinberg, 2004). The survey was a self-administered, mailed survey, sent out in up to 3 waves with reminder post-cards if no response was received.

2.2. Sample

The focus of this paper was on practitioners serving adults. The adult patient survey was administered to 700 physicians (148 family practitioners, 52 general practitioners, and 500 general internists) during 2002. All of these are primary-care specialties that treat adults, with general practitioners needing a minimum of 1 year post-graduate training, while internists and family practitioners needing a minimum of 3 years of post-graduate training. The sampling frame for physicians in New Jersey was obtained from the

American Medical Association's (AMA) master list of licensed physician. This AMA master list is not limited to AMA members and is considered to be the most complete repository of physicians' names, addresses, and specialties in the U.S. Of the original 700 physicians, 143 were determined to be ineligible for various reasons including non-patient care activities, retirement, or relocation (Delnevo et al., 2004). The final sample of eligible physicians was 557. Overall, 336 physicians responded to the survey (response rate=60.3%).

2.3. Measures

The key study variables collected included: demographics, training, practice type, hours worked, previous training for tobacco treatment, personal tobacco use history, role perception, perceived effectiveness of treatment (rated as "not at all, minimally, somewhat, or very effective"), confidence in treating tobacco dependence (rated as "strongly agree, agree, disagree, strongly disagree"), and awareness of community resources ("have you heard of/referred to resources"). The primary outcome was self-reported discussion of cessation medications. This was assessed by responding to the question, "how frequently do you discuss medication options such as NRT or bupropion/Zyban with your patients who smoke?" Responses included "never, rarely, sometimes, often, or always". Physicians were considered as routinely "discussing" if they reported performing these actions "always" or "often" since it is not reasonable to expect a physician to discuss cessation at every visit.

2.4. Analyses

Relationships between demographic characteristics, professional characteristics, and treatment practices were examined using chi-square test (χ^2) and logistic regression. The surveys and coding sheets were entered into Statistical Program for Social Sciences (SPSS) for Windows software for analysis (Version 1.0;2005).

3. Results

Table 1 describes the demographic and practice characteristics of the respondents.

Characteristics of this physician sample are generally similar to characteristics of the overall New Jersey physician population. The mean age of respondents was 49 years (range 30–86). The majority of respondents was white, male, trained in the US, worked an average of 43 h per week in direct patient care (SD 25.5) and treated an average of 23 patients per day (SD 10.4).

Nearly all providers (320/336 or 95%) felt that treating tobacco dependence was part of their role. While less than a quarter had previous training in smoking cessation, two-thirds felt confident in prescribing cessation medications. Awareness of the U.S. Public Health Service Clinical Practice Guidelines was low with nearly half of physicians having never heard of the guidelines and only 6% reporting implementing them. Sixty-one percent were interested in receiving further smoking cessation training.

Table 2 describes the rates of discussing cessation medications by physician characteristics. Female physicians were more likely to discuss than males. Those physicians practicing in solo, group, or multispecialty practices were more likely to discuss medications while those employed by hospitals or state/federal agencies were less likely. Finally, there were higher levels of discussion among physicians who were more aware of the U.S. PHS Guidelines, more confident in their ability to prescribe cessation medications, and who had prior training in smoking cessation.

Table 1
 Characteristics of physician respondents

Characteristic	Demographic distribution	
	<i>n</i>	%
Overall	336	100
Age		
35 and younger	33	10
36–45	101	31
46–64	165	50
65 and older	31	9
Gender		
Male	236	71
Female	98	29
Ethnicity/race		
White	228	69
Asian	71	21
Other	32	10
Location of training		
US	234	70
Outside US	100	30
Practice type		
Solo	125	37
Group (single specialty)	144	43
Multispecialty	17	5
Employee of hospital	29	9
Employee of state/federal agency	8	2
Other	13	4
Specialty		
Family medicine	74	22
Internal medicine	245	73
General practice	17	5
Smoking status		
Never	248	74
Former	77	23
Current	11	3
Awareness of PHS guidelines		
Never heard of guidelines	150	45
Heard of guidelines	140	42
Read guidelines	24	7
Implemented guidelines	19	6
Confident in prescribing cessation medications		
Yes	220	67
No	110	33
Had training in smoking cessation		
Yes	79	24
No	257	76

A logistic regression (Table 3) was conducted to predict discussion of cessation medications. Inclusion of location of training, specialty, or smoking status into the model did not change the findings. After controlling for other variables, female physicians were more likely to discuss medications compared with

Table 2
 Characteristics associated with discussing cessation medications

Characteristic	Discussing cessation medications		
	<i>n</i>	%	<i>p</i> -value
Overall	248	74	–
Age			NS
35 and younger	27	82	
36–45	71	70	
46–64	125	76	
65 and older	20	64	
Gender			0.004
Male	164	70	
Female	83	85	
Ethnicity/race			NS
White	168	74	
Asian	51	72	
Other	26	81	
Location of training			NS
US	169	72	
Outside US	77	77	
Practice type			0.006
Solo	96	77	
Group (single specialty)	111	77	
Multispecialty	15	88	
Employee of hospital	14	48	
Employee of state/federal agency	5	62	
Other	7	54	
Specialty			NS
Family medicine	59	80	
Internal medicine	180	74	
General practice	9	53	
Smoking status			NS
Never	185	75	
Former	55	72	
Current	8	72	
Awareness of PHS guidelines			0.007
Never heard of guidelines	101	67	
Heard of guidelines	104	74	
Read guidelines	21	87	
Implemented guidelines	19	100	
Confident in prescribing cessation medications			<0.001
Yes	181	82	
No	63	57	
Had training in smoking cessation			0.05
Yes	65	82	
No	183	71	

p-values represent differences within characteristics.

NS = not significant at the *p*=0.05 level.

Table 3
Adjusted odds ratios of discussing cessation medications

Characteristic	Adjusted odds ratio	95% confidence interval	<i>p</i> -value
Age	1.0	0.98–1.03	NS
Gender			
Male	Referent	–	
Female	2.2	1.0–4.6	0.05
Ethnicity			
White	Referent	–	
Other	1.1	0.6–2.1	NS
Hours worked per week			
Up to 39	Referent	–	
40 or more	1.4	0.8–2.5	NS
Practice type			
Employed	Referent	–	
Private practice	3.1	1.4–6.8	0.006
Awareness of guidelines			
Never heard of guidelines	Referent	–	
Heard of, read, or implemented guidelines	1.4	0.8–2.5	NS
Previous smoking cessation training			
Yes	Referent	–	
No	0.8	0.4–1.8	NS
Confident in ability to prescribe cessation medications			
No	Referent	–	
Yes	3.0	1.7–5.3	<0.001

NS= not significant at the $p=0.05$ level.

male physicians (adjusted odds ratio (AOR) 2.2; 95% confidence interval (CI) 1.0–4.6); physicians who were confident in prescribing cessation medications were more likely to discuss medications (AOR 3.0; 95% CI 1.7–5.3); and physicians practicing in private practices (solo, group, or multispecialty) were more likely to discuss medications than those employed by an agency (hospital, state, or federal) (AOR 3.1; 95% CI 1.4–6.8). Those physicians who were aware of or had implemented the U.S. PHS guidelines were more likely to discuss cessation medications, although this result was not statistically different (AOR 1.4; 95% CI 0.8–2.5). The remaining variables in the model were also not statistically significant predictors of discussing cessation medications.

4. Discussion

Overall, physicians in this sample reported routinely discussing cessation medications with most smokers. However, there were specific physician and practice characteristics that predicted higher rates such as female gender, those feeling confident in prescribing cessation medications, and those in private practices. Physicians' involvement with cessation is becoming more important as more prescription medications (e.g. varenicline) and treatment resources (e.g. quitlines and specialty clinics) exist for treatment. Previous studies have reported variable physician adherence to clinical practice guidelines for tobacco treatment (Goldstein et al., 1998; Steinberg et al., 2006; Ward et al., 2002). Other studies have evaluated the impact of guidelines on clinical practice (Worrall, Chaulk, & Freake, 1997), but have not

included more recent updates, such as the 2000 version of the U.S. PHS guidelines. Some studies suggest that direct interventions can be effective at changing physician behaviors in order to improve cessation outcomes (Goldstein et al., 2003), while other strategies include incorporating tobacco treatment into quality-measure standards (National Center for Quality Assurance (NCQA), 2005). Several barriers have been reported for cessation practices of physicians including lack of training, experience, time, and reimbursement; perception of low success; cost of treatment; and competing priorities (Ferry, Grissino, & Runfola, 1999; Jaen et al., 2001; McIlvain, Backer, Crabtree, & Lacy, 2002; Steinberg et al., 2003). Physicians in this sample reported that cessation medications are perceived as effective, with over three-quarters reporting that the nicotine patch and bupropion are somewhat or very effective, for example. Therefore, perceived lack of effectiveness of treatment should not have been a barrier to discussing medications. The optimal approach to improve physician behaviors remains unclear, although educational interventions, implementing tobacco identification systems, and adding quality standards that include smoking status as a measure could be helpful. Physicians need to be active in smoking cessation treatment, but the resources to help and access to physicians' time are limited. Therefore, it is critical to understand specific groups of physicians that are the best targets for our interventions.

Female physicians were over 2 times more likely to discuss cessation medications than their male counterparts. This may reflect the fact that female physicians have traditionally been more prevention oriented in their clinical care, such as counseling for condom use (Maheux, Haley, Rivard, & Gervais, 1997), Pap and cholesterol testing (Cassard, Weisman, Plichta, & Johnson, 1997), and drug use and sexual behaviors (Frank, & Harvey, 1996). Based on the current study, interventions to improve provider tobacco dependence treatment might be directed especially towards male physicians.

Higher levels of confidence translated into higher rates of discussing cessation medications. Receiving previous training and awareness of the U.S. PHS guidelines were each correlated to higher levels of confidence. The overall level of awareness to the U.S. PHS guidelines was quite low. This underscores a need for more provider education regarding these evidence-based guidelines. In addition, the majority of providers reported that they were interested in receiving further training for smoking cessation. Although it is not clear that following guidelines is sufficient to change behavior (Worrall et al., 1997), it appears that efforts to increase confidence, including using guidelines to do so, may increase discussion of cessation medications.

Practice type was also related to discussing cessation medications. Those providers who were employees of institutions (hospitals and agencies) were less likely to discuss treatment. This is surprising considering that most of these agencies either have defined tobacco policies (hospitals) or are involved with developing tobacco policies (e.g. state agencies). One might expect that providers working in these agencies may be more likely to discuss cessation as they are surrounded by and mandated to follow guidelines for treatment. These findings may reflect of the lack of priority that tobacco dependence treatment generally holds, and the importance of system-wide treatment interventions that can be implemented at these agencies to change providers' practices. Additionally, factors such as differences in insurance coverage for medications may influence discussion of these treatments. Previous studies show that physician perception of insurance coverage for cessation medication can influence prescribing practices (McEwen, West, & Owen, 2004). The current data do not include information regarding insurance, but this may be a factor in physicians' discussion of cessation medications in the private versus other settings.

The limitations of this study include a response rate of 60%. Although this figure is respectable for physician surveys, it is still not optimal. Also, these data reflect self-report and are not direct measures of practices, thus possibly limiting the strength of the results, although the surveys were anonymous and there was no incentive to provide favorable responses. Physician self-report is likely to generate higher

rates of the described behavior, thus the actual rates of discussing cessation medications could actually be lower than described. In a study evaluating discussion of nicotine replacement therapies (NRT) by U.K. general practitioners, only 17.6% of smokers surveyed reported discussion (Coleman, Wynn, Barrett, & Wilson, 2003). Although our study did not collect data regarding patient characteristics, as in Coleman et al., their results showed that no patient characteristics predicted discussing NRT except planning to quit within 4 weeks. Additionally, prescribing cessation medications is not indicated for all smokers, however, discussing medication options is “indicated” more often and thus we would expect this discussion to occur frequently in most encounters with smokers.

5. Conclusion

Female physicians, those who felt confident in their ability to treat, and those in private practice more often discussed cessation medications with smokers. In an environment of limited resources and opportunities to intervene with physicians, targeting groups of physicians who are most in need of interventions is important. Interventions to increase awareness of clinical guidelines, increase confidence in treatment through training, influencing institutional priorities regarding smoking cessation treatment, and educating physicians (especially males) about the benefits of treatment, may improve the delivery of smoking cessation treatment.

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