Tobacco attitudes, practices, and behaviors: A survey of dentists participating in managed care

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Tobacco cessation knowledge, attitudes, and behaviors of dentists participating in a large national managed care dental plan were assessed using a mailed survey. The survey was administered to dentists recruited to participate in an evaluation of a CD-ROM and supportive electronic detailing to promote increased tobacco cessation activities. General dentists who met specific technological criteria, had an active E-mail account, and at least 200 adult patients were eligible to participate in this study. A total of 184 dentists, located in 29 states, agreed to participate. The survey instrument included questions that addressed (a) Ask, Advise, Assess, Assist, and Arrange behaviors, (b) self-efficacy including knowledge, confidence, and success regarding tobacco cessation, (c) success of various tobacco cessation strategies, (d) barriers to tobacco cessation, and (e) demographics including year of graduation, gender, and race/ethnicity. Self-reported baseline tobacco intervention–related behaviors were low, with 28% of dentists reporting that they asked their patients about tobacco or recorded tobacco use in their patients' charts at least 41% of the time. For Advise behavior, approximately half of the dentists advised tobacco-using patients to quit at least 41% of the time. Although self-reported lack of knowledge was high, 71% of respondents indicated that their lack of knowledge was either not a barrier or a slight barrier to incorporating tobacco cessation into their practices. The survey revealed that dentists do not routinely incorporate tobacco cessation into their practices. Newer information-transfer technologies may serve as vehicles for increased smoking cessation activities by dentists.

Introduction

Tobacco cessation activities in the dental office

Brief interventions by dentists and physicians that involve simply advising patients to quit have been shown to have a small beneficial effect (Folsom & Grimm, 1987; Richmond, Austin, & Webster, 1986), but a somewhat more intensive intervention is more effective: About 10%–15% of smokers are induced to abstain for at least 1 year (Chapman, 1993; Warnakulasuriva, 2002).

Dental providers have many opportunities to reduce the prevalence of smoking. Even so, tobacco cessation activities do not play a prominent role in dental practice. Dental treatment often necessitates multiple visits, providing a mechanism for initiation, reinforcement, and support of tobacco cessation activities. Dental patients (especially those with dental insurance) receive care on a regular basis. An estimated 50% of smokers visit a dentist annually (Mucci & Brooks, 2001; Tomar, 2001; Tomar, Husten, & Manley, 1996), which gives the dental provider the opportunity to associate cessation advice with readily visible changes in oral status. Therefore, the dental office may be ideally suited to help patients quit smoking.

Interest is increasing in more broadly inclusive public health interventions that involve low-cost, self-help materials and minimal support from professionals, as an alternative to intensive clinical programs (Mecklenburg, 2001; Mecklenburg et al., 1991). Dentists and dental hygienists are a largely untapped resource for providing advice and brief
counseling to tobacco-using patients and there are good reasons to believe they can be effective in this role (Gordon & Severson, 2001; Mecklenburg & Sommerman, 2000). Dental professionals are in a unique position to provide salient, proximal information about tobacco use and oral health that can motivate tobacco users to quit (Martin, Bouquot, Wingo, & Heath, 1996). Surveys, however, suggest that only approximately half of U.S. dentists ask their patients about smoking on a frequent basis (Albert, Ward, Ahluwalia, & Sadowsky, 2002; Dolan, McGorray, Grinstead-Skigen, & Mecklenburg, 1997; Severson, Eakin, Stevens, & Lichtenstein, 1990; Simoyan, Badner, & Freeman, 2002). In addition, with less than 20% of dentists using an office-based smoker identification system (Hastreiter, Bakdash, Roesch, & Walseth, 1994), and fewer than 5% providing follow-up services to help patients quit (Jones et al., 1993), tobacco cessation advice provided within dental offices is sporadic and grossly inadequate.

An earlier study by the authors (Albert et al., 2002) provided additional evidence that supports and reinforces the notion that dentists could be more effective in promoting tobacco cessation. Although the earlier study was limited to four states, had different eligibility criteria than the one reported here, and used different intervention techniques, data derived from that study indicated that most dental practitioners surveyed were not using evidence-based approaches to reduce their patients' use of tobacco products. They were, however, willing or very willing (95.2%) to receive training in tobacco cessation.

In recent years, organized dentistry has embraced tobacco cessation as a component of dental practice. Several issues of nationally prominent dental journals, including The Journal of the American Dental Association (Jones, 2000; “Tobacco-use prevention and cessation,” 2000; “Tobacco-use control and cessation resources,” 2000) and The Journal of Dental Education (“Tobacco and oral disease,” 2001), have featured tobacco cessation. In addition, dental literature has featured articles on the 5A’s (Ask, Advise, Assess, Assist, Arrange) and on the link between tobacco and periodontal disease and oral cancer. In New York, tobacco cessation training is now mandatory to obtain dental licensure (Kerr & Cruz, 2002).

**Tobacco and health**

In addition to being associated with a number of cancers and coronary conditions, tobacco use plays a role in the etiology of a number of oral conditions—it is a primary risk factor for oral cancer as well as leukoplakia (a white patch or plaque that can appear anywhere on oral mucosa and is considered to be a precancerous or premalignant lesion because the frequency of its transformation into malignancy is greater than that associated with normal mucosa [Neville, Damm, Allen, & Bouquot, 2002, p. 337]). It also is a risk factor for periodontitis and delayed wound healing (Christen, 1992; Day et al., 1993; Dietrich et al., 1992; Mashberg & Samit, 1995). Alcohol and tobacco use contribute to almost 75% of all oral cancer incidence (Canto & Devesa, 2002; Shiboski, Shiboski, & Silverman, 2000). Maternal tobacco use has been related to primary caries development in children (Aligne, Moss, Auinger, & Weitzman, 2003; Shenkin, Broffitt, Levy, & Warren, 2004; Williams, Kwan, & Parsons, 2000).

Chronic smoking can lead to the increased prevalence and severity of periodontal disease, contributing to the loss of teeth and the development of edentulism (toothlessness) (Molloy, Wolff, Lopez-Guzman, & Hodges, 2004; U.S. Department of Health and Human Services, 2004). Cigarette smoking is one of the most important risk factors for periodontitis in that it fulfills all of the stipulated epidemiological criteria required to impute causation. As much as 50% of periodontitis in the population can be attributed to smoking alone (Martinez-Canut, Lorca, & Magan, 1995; Papapanou, 1996; Tomar & Asma, 2000). Longitudinal studies of both treated and untreated periodontitis have shown higher progression of attachment loss or bone loss in smokers than in nonsmokers (Bergstrom, Eliasson, & Dock, 2000) and that nonsmokers respond better to periodontal therapy than do smokers (Christen, 1992). A dose-response relationship between exposure to smoking, measured in pack-years, and the extent and severity of progressive periodontitis has been demonstrated as well.

Cigar smoking also may pose serious health risks. In addition, cigar smokers have an increased risk for periodontal disease, which can lead to tooth and alveolar bone loss (Albandar, Streckfus, Adesanya, & Winn, 2000). Cigar smokers also suffer from excessive tooth staining and chronic halitosis (Baker et al., 2000).

Smokeless tobacco use is associated with halitosis, loss of taste, periodontal disease, stained teeth, altered sense of smell, and intraoral lesions. Smokeless tobacco use also increases the risk for oral, pharyngeal, and esophageal cancers (Silverman, 2001). In addition, most smokeless tobaccos contain substantial quantities of nicotine, leading to a pattern of addiction similar to that seen with cigarette smoking (Severson, 1993). The risk of cancer in soft oral tissues is almost 50 times greater in long-term users than in nonusers (Winn et al., 1998). Other dangers from smokeless tobacco use include gum recession that results in exposed roots and increased sensitivity to heat and cold, drifting and tooth loss.
from damage to gingival tissue, and tooth decay caused by sugar added to loose-leaf tobacco to improve its taste (National Institutes of Health, 1988).

In this paper, we describe tobacco cessation behaviors of dentists drawn from a sample of dentists participating in a national managed care plan. The influence of year of graduation, race/ethnicity, self-efficacy, emphasis on prevention, and the availability of printed tobacco cessation education materials on dentist provision of tobacco cessation activities is ascertained. We identify predictors for the provision of tobacco cessation behaviors for Ask, Advise, Assist, and Arrange.

Method

Recruitment

A mailed survey was used to assess the tobacco cessation knowledge, attitudes, and behaviors of dentists participating in a large national managed care dental plan. The survey was administered to dentists recruited to participate in a research program to test the use of a tobacco cessation CD-ROM and supportive electronic detailing to promote increased tobacco cessation activities by dentists. The baseline data collected was a necessary precursor for an intervention study planned as a second stage to determine whether attitudes and behaviors could be changed using a CD-ROM intervention device.

General dentists who met specific technological criteria and who had at least 200 adult patients were eligible to participate in this study. The technical requirements for participation included having a computer that (a) was purchased after 1998 and was Windows based, (b) was located either at home or at a site in the office other than at the front desk, (c) had a minimum of 128 MB of RAM, (d) had audio and video capabilities, (e) had an Internet connection, and (f) had a CD-ROM drive. We also requested that the dentist have an E-mail account. Information on the technical capabilities of the offices was obtained via surveys sent to 1,508 dental offices in the Aetna Dental network with at least 200 patients over age 18 years. A US$5 honorarium check was included with the survey. Responses were received from 501 dentists; 224 (44.7%) met all seven inclusion criteria. A total of 184 of the eligible dentists (located in 29 states), representing 12% of the dentists contacted, agreed to participate and were randomly assigned to either the intervention or control condition in January 2003.

Measures

Prior to randomization, all eligible dentists completed the 21-item baseline survey that assessed (a) the staff person responsible for tobacco use, (b) tobacco use by patients, (c) Ask, Advise, Assess, Assist, and Arrange behaviors, (d) self-efficacy including knowledge, confidence, and success regarding tobacco cessation, (e) tobacco cessation activities, (f) tobacco cessation as a component of preventive dentistry, (g) the success of various tobacco cessation strategies, (h) barriers to tobacco cessation, and (i) demographics including year of graduation, gender, and race/ethnicity.

Data analysis

Analyses were sometimes limited to frequencies and distributions. Other analyses included chi-square and Fisher’s exact tests when categorical variables were compared and correlations and multivariable modeling when continuous variables were analyzed. Comparisons were made between tobacco behaviors and attitudes and (a) year of graduation dichotomized to pre-1980 and post-1980 (which included 1980) as proxy for ages, (b) race/ethnicity, (c) presence in the waiting room of educational materials on tobacco cessation, (d) tobacco cessation importance to preventive dentistry, and (e) dentist estimation of overall cigarette use by patients. Pearson’s correlations were calculated between key variables: (a) knowledge about helping people stop using tobacco, (b) perceived success in helping patients quit, (c) asking patients about tobacco use, (d) recording of tobacco use in patients’ charts, (e) discussion of specific strategies for quitting, (f) prescription of nicotine patch, and (g) year of graduation from dental school.

We conducted backward stepwise logistic regression analyses using the dichotomous dependent variables Ask, Advise, Assist, and Arrange. The selection of independent variables for the analysis was influenced by findings from previous surveys of dental practitioners (Albert et al., 2002). Only variables meeting significance criteria of $p$ values less than .05 were retained in the final prediction model.

Results

Respondent dentists ($N=184$) were located in 29 states, and the mean year of graduation was 1980 ($SD=10.17$ years). The race/ethnicity of the overall sample was predominantly White, followed by Asian/Pacific Islander. The overall sample was dichotomized into graduation dates prior to 1980 and graduation dates of 1980 or later. Asian dentists represented a larger percentage of the post-1980 cohort, compared with the pre-1980 cohort (23.9% vs. 4.5%), $\chi^2(1)=17.23$, $p<.001$, and the percentage of White dentists was smaller in the post-1980 cohort.
than in the pre-1980 cohort (66.3% vs. 84.3%), χ²(1)=8.14, p=.005. Most of the female graduates were in the post-1980 cohort (19.4%), and few were present in the pre-1980 cohort (3.3%), χ²(1)=11.56, p=.001.

**Staff person in charge of tobacco cessation activities**

The staff person responsible for tobacco cessation activities was identified as the dentist in 57% of offices (n=102) and as the dental hygienist in 11.2% of offices (n=20). No tobacco cessation activities were reported in 27.2% of offices (n=50). A comparison of hygienist-led vs. dentist-led offices showed a statistically significant difference in the recording of patient tobacco use, with dentists reporting higher personal recording behaviors in offices in which a dentist led the effort, χ²(1)=5.46, p=.023. In addition, dentists rated their own tobacco cessation counseling as more effective when they were personally in charge of the office tobacco cessation effort, χ²(1)=4.00, p=.046. These behaviors were self-reported by dentists; no data were obtained from hygienists within these offices.

**Dentists’ counseling behaviors**

The 27% of dentists who did not conduct tobacco cessation activities in their offices were instructed to skip the questions on dentist counseling behaviors. Table 1 presents information for dentists who indicated they conducted any tobacco cessation behavior (any of the 5A’s). The table reports findings for four of the 5A’s (Ask, Advise, Assist, and Arrange) identified by the U.S. Department of Health and Human Services as part of their guideline for clinicians (Fiore et al., 2000). For Ask behavior, approximately two-thirds of dentists reported that they asked their patients about tobacco (n=84) or recorded tobacco use in their patients’ charts (n=87) occasionally (less than 40% of the time). For Advise behavior, approximately half (n=73) of dentists advised tobacco-using patients to quit occasionally. Approximately one-third of the respondents frequently (81%–100% of the time) conducted Ask and Advise behaviors. For Assist behavior, approximately one-half reported that setting a quit date (n=99) and referral of patients to tobacco cessation clinics or programs (n=106) were not a part of their practices for patients who use tobacco products. For Arrange behavior, few dentists provided follow-up to patients trying to quit (n=10).

**Dentist self-efficacy**

Table 2 summarizes dentists’ responses to self-efficacy questions. Only 27.9% (n=37) of the dentist respondents reported that they were “somewhat successful” to “successful” in helping patients stop using tobacco. A total of 47% (n=86) were “somewhat confident” to “confident” in their ability to help patients stop using tobacco, and 45% (n=82) rated their knowledge about helping people stop using tobacco as good to excellent. Surprisingly the low assessment of knowledge, confidence, and success did not lead to a concomitant expression that insufficient knowledge was a barrier to tobacco cessation implementation in practice; 70.4% of respondents (n=126) indicated that lack of knowledge

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**Table 1.** Dentist tobacco cessation counseling behaviors.\(^a\)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Number of dentists (n)(^b)</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask(^b)</td>
<td>Identify</td>
<td>132</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>Flag chart</td>
<td>132</td>
<td>3.21</td>
</tr>
<tr>
<td>Advise(^b)</td>
<td>To quit</td>
<td>131</td>
<td>3.65</td>
</tr>
<tr>
<td>Assist(^b)</td>
<td>Setting quit date</td>
<td>133</td>
<td>1.93</td>
</tr>
<tr>
<td></td>
<td>Referral for cessation</td>
<td>134</td>
<td>1.86</td>
</tr>
<tr>
<td>Arrange(^b)</td>
<td>Follow-up</td>
<td>133</td>
<td>1.35</td>
</tr>
</tbody>
</table>

**Note.** \(^a\)Dentists reporting that no cessation activities were conducted in their office were instructed to skip these questions. \(^b\)The N value varies due to missing data. \(^c\)1= “never a part” to 5= “always a part.”

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**Table 2.** Dentist self-efficacy.\(^a\)

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of dentists (n)(^b)</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How successful have you been in helping patients stop using tobacco?</td>
<td>133</td>
<td>2.09</td>
<td>0.85</td>
</tr>
<tr>
<td>2. How confident are you in your ability to help someone stop using tobacco?</td>
<td>183</td>
<td>2.42</td>
<td>1.10</td>
</tr>
<tr>
<td>3. Is lack of knowledge a barrier to incorporating tobacco cessation activities?</td>
<td>177</td>
<td>2.94</td>
<td>1.22</td>
</tr>
<tr>
<td>4. Overall, how would you rate your knowledge about helping people stop using tobacco?</td>
<td>184</td>
<td>2.47</td>
<td>1.07</td>
</tr>
</tbody>
</table>

**Note.** \(^a\)5-point Likert scales: Question 1, 1=“not successful” to 5=“successful.” Question 2, 1=“not confident” to 5=“confident.” Question 3, 1=“not a barrier” to 5=“a barrier.” Question 4, 1=“poor” to 5=“excellent.” The N value varies due to missing data. 2Dentists reporting that no cessation activities were conducted in their office were instructed to skip this question.
was either not a barrier or a slight barrier to incorporating tobacco cessation activities into practice.

**Barriers to incorporating tobacco cessation into practice**

Dentists strongly identified a variety of barriers as precluding them from incorporating tobacco cessation into practice. Some 60% or more of respondent dentists indicated that patient resistance (66.7%, n=118), amount of time (75%, n=135), lack of reimbursement (76%, n=136), concerns about effectiveness (69.3%, n=124), lack of educational materials (62.4%, n=111), and lack of referral services (72.4%, n=129) were obstacles to putting tobacco cessation into practice (“slight barriers” to “a barrier”). Resistance by staff to tobacco cessation did not receive the same amount of concern as the categories reported above; however, almost half of the offices (48.6%, n=87) reported that staff concerns were a barrier to the incorporation of tobacco cessation into practice.

**Dentists’ estimations of patients’ tobacco use**

Slightly over one-third of respondents estimated that 21%-40% of their patients used cigarettes, and 18% estimated cigarette use to be higher than 40%. The median estimation for cigar use, pipe use, and smokeless tobacco use was low (1%–2%). When dentists’ estimations for patients’ cigarette use was dichotomized (<40% vs. ≥41%), we found significant differences for asking about use, \( \chi^2(3)=6.30, p=.012 \), and for recording of patients’ tobacco use, \( \chi^2(3)=11.90, p=.036 \), with dentists providing more of these counseling behaviors in offices with higher estimations of patients’ cigarette use. In addition, a significant relationship was found between dentists’ estimations of patients’ smokeless tobacco use (≥5% vs. <5%) and the importance of tobacco cessation as a preventive practice, \( \chi^2(4)=10.40, p=.034 \).

**Relationships of key variables**

Chi-square analyses were performed to assess the relationship of year of graduation, ethnicity, presence of educational materials, and importance of tobacco cessation as a part of preventive dentistry with various dentists’ behaviors. When Ask behavior was dichotomized (“a part” vs. “not a part”), we found statistically significant differences when comparing pre-1980 and post-1980 graduates, \( \chi^2(1)=7.23, p=.007 \). We examined race/ethnicity for the post-1980 group and recoded this group as Asian (n=19) and non-Asian (n=49). Non-Asian dentists included all respondents who identified themselves as White, African American, Hispanic, or other. Asian dentists were more likely than non-Asian dentists to spend more time counseling patients on tobacco cessation, \( \chi^2(1)=7.95, p=.005 \).

The presence or absence of educational materials was related to confidence in ability to help patients quit, \( \chi^2(1)=5.51, p=.019 \), knowledge, \( \chi^2(1)=5.97, p=.015 \), advice on nicotine patch and gum, \( \chi^2(1)=14.84, p=.000 \), prescription of bupropion, \( \chi^2(1)=9.82, p=.002 \), and referral of patients to tobacco cessation programs and follow-up with patients, \( \chi^2(1)=16.35, p=.003 \). Dentists who evaluated tobacco cessation as an important component of preventive dentistry provided more asking, \( \chi^2(1)=14.90, p=.000 \), advising, \( \chi^2(1)=13.34, p=.000 \), and counseling behaviors, \( \chi^2(1)=4.48, p=.034 \). In addition, dentists who indicated tobacco cessation was an important component of preventive dentistry spent more time counseling patients on general health, \( \chi^2(1)=12.03, p=.001 \) (Table 3).

We examined key variables using Pearson’s correlations. Dentist self-efficacy (knowledge about helping people stop using tobacco and perceived success in helping patients quit) was correlated with most tobacco cessation behaviors. For example, the perception that a dentist is successful in helping patients quit smoking was correlated with Ask behavior (r=0.392, p<.001). The strongest correlations with self-efficacy (knowledge and perceived

**Table 3. Differences in dentist tobacco cessation behaviors as a part of preventive dentistry.**

<table>
<thead>
<tr>
<th>Dentist behavior(^a,b)</th>
<th>Dichotomous variable</th>
<th>Tobacco cessation is part of preventive dentistry, n (percent)</th>
<th>Tobacco cessation is not a part of preventive dentistry, n (percent)</th>
<th>(p) value(^c,d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask patients about tobacco use (n=132)</td>
<td>&gt;41% of encounters</td>
<td>50 (45.5)</td>
<td>1 (4.2)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Advise patients to quit (n=131)</td>
<td>&gt;41% of encounters</td>
<td>58 (52.3)</td>
<td>3 (12.0)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Amount of time spent counseling patients (n=132)</td>
<td>≥3 minutes</td>
<td>32 (29.1)</td>
<td>2 (8.3)</td>
<td>.039</td>
</tr>
<tr>
<td>Discussion of tobacco use with general health (n=134)</td>
<td>A part</td>
<td>99 (90.8)</td>
<td>16 (64.0)</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. \(^a\)Dentists reporting that no cessation activities were conducted in their office were instructed to skip these questions. \(^b\)The n value varies due to missing data. \(^c\)Chi-square test. \(^d\)Degrees of freedom = 1 for all comparisons.
success) were found for discussion of specific strategies for quitting ($r = 0.557, p < .001; r = 0.506, p < .001). Asking patients about tobacco use was highly correlated with the recording of tobacco use in patients’ charts ($r = 0.629, p < .001). Weaker correlations were found between providing advice to quit and the prescription of nicotine patch ($r = 0.257, p < .01), the discussion of tobacco use and oral disease ($r = 0.240, p < .01), and counseling patients regarding tobacco cessation, ($r = 0.311, p < .001). The year of graduation from dental school (pre-1980 or post-1980; a proxy for age) was not correlated with most tobacco prevention attitudes or tobacco cessation behaviors, with the exception of Ask behavior ($r = 0.203, p < .05) with younger dentists doing more asking about tobacco use. Spending more time counseling patients regarding tobacco cessation was positively correlated with discussing specific strategies for quitting ($r = 0.391, p < .001), discussing setting specific quit dates ($r = 0.333, p < .001), and discussing nicotine gum and patch ($r = 0.274, p < .01; r = 0.314, p < .001).

Logistic regression model for Ask, Advise, Assist, and Arrange behaviors

Table 4 summarizes the risk factors contributing to dentists’ Ask, Advise, Assist, and Arrange behaviors. To account for these behaviors, we used SPSS v. 12 to perform multivariable logistic regression analyses. Backward stepwise multiple logistic regression identified the following predictors for Ask behavior: estimated percentage of cigarette use by patients, year of graduation, confidence in ability to help patients quit, and discussion of tobacco and general health. Confidence in the effectiveness of counseling on tobacco cessation was the strongest predictor of Ask behavior. When dentists were confident in their cessation knowledge, they were six times more likely to ask their patients about their tobacco use.

For Advise behavior, we identified the following predictors: cessation knowledge, asking patients about tobacco use, and success in helping patients. Asking patients about their tobacco use was the strongest predictor of Advise behavior. When dentists asked their patients about their tobacco use they were seven times more likely to advise their patients to quit. For Assist behavior, we identified the following predictors: advising about tobacco use, provision of written take-home materials, and advice on the use of nicotine patch. Advising patients to quit smoking was the strongest predictor of Assist behavior. When dentists advised about tobacco use they were 13 times more likely to assist or discuss specific strategies for quitting with their patients. For Arrange behavior, we identified the following predictors: discussion of specific strategies for quitting and cessation knowledge. The discussion of specific strategies for quitting was the strongest predictor of Arrange behavior. When dentists discussed specific strategies for quitting they were 12 times more likely to engage in Arrange behavior or follow-up with their patients.

Discussion

The findings from the present survey indicate that dentists’ perceived knowledge about tobacco cessation interventions is low. In addition, they do not appear to have adopted the evidence-based guidelines for clinicians promulgated by the U.S. Department of Health and Human Services (Fiore 2000). The dependent variables were dichotomized as follows: Ask (≥41% of patients, <40% of patients), Advise (≥41% of patients, <40% of patients), Assist (sometimes a part to always a part, never a part), Arrange (≥41% of patients, <40% of patients). Discuss strategies for quitting. Follow-up.

Table 4. Logistic regression models for Ask, Advise, Assist, and Arrange behaviors. a,b

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>β</th>
<th>Standard error (β)</th>
<th>p value</th>
<th>Odds ratio</th>
<th>95% Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask</td>
<td>Estimated percentage of cigarette use by patients</td>
<td>1.20</td>
<td>0.47</td>
<td>0.01</td>
<td>3.33</td>
<td>1.31–8.43</td>
</tr>
<tr>
<td></td>
<td>Year of graduation</td>
<td>0.86</td>
<td>0.43</td>
<td>0.05</td>
<td>2.36</td>
<td>1.01–5.51</td>
</tr>
<tr>
<td></td>
<td>Confidence in ability to help patients quit</td>
<td>1.76</td>
<td>0.45</td>
<td>0.00</td>
<td>5.83</td>
<td>2.41–14.08</td>
</tr>
<tr>
<td></td>
<td>Discuss tobacco and general health</td>
<td>0.44</td>
<td>0.21</td>
<td>0.04</td>
<td>1.56</td>
<td>1.03–2.36</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>−2.09</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advise</td>
<td>Cessation knowledge</td>
<td>0.90</td>
<td>0.46</td>
<td>0.05</td>
<td>2.47</td>
<td>1.01–6.07</td>
</tr>
<tr>
<td></td>
<td>Ask patients about tobacco use</td>
<td>1.97</td>
<td>0.44</td>
<td>0.00</td>
<td>7.15</td>
<td>3.01–17.00</td>
</tr>
<tr>
<td></td>
<td>Success in helping patients</td>
<td>1.14</td>
<td>0.05</td>
<td>0.03</td>
<td>3.13</td>
<td>1.12–8.71</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>0.30</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assist</td>
<td>Advise about tobacco use</td>
<td>1.84</td>
<td>0.50</td>
<td>0.00</td>
<td>12.77</td>
<td>4.77–34.18</td>
</tr>
<tr>
<td></td>
<td>Provide written take-home materials</td>
<td>1.52</td>
<td>0.59</td>
<td>0.00</td>
<td>4.59</td>
<td>1.45–14.48</td>
</tr>
<tr>
<td></td>
<td>Advise use of nicotine patch</td>
<td>2.55</td>
<td>0.50</td>
<td>0.00</td>
<td>6.31</td>
<td>2.36–16.90</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>0.44</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrange</td>
<td>Discuss strategies for quitting</td>
<td>2.50</td>
<td>0.70</td>
<td>0.00</td>
<td>12.29</td>
<td>3.38–44.69</td>
</tr>
<tr>
<td></td>
<td>Cessation knowledge</td>
<td>1.04</td>
<td>0.53</td>
<td>0.05</td>
<td>2.83</td>
<td>1.01–7.98</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>−1.74</td>
<td>0.33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. a Backward stepwise logistic regression model, dentist behaviors retaining a significance criteria of $p < .05$ were included in the final prediction model. b The dependent variables were dichotomized as follows: Ask (≥41% of patients, <40% of patients), Advise (≥41% of patients, <40% of patients), Assist (sometimes a part to always a part, never a part), Arrange (≥41% of patients, <40% of patients). Discuss strategies for quitting. Follow-up.
Dentists are in an ideal setting to serve as patient educators on the adverse effects of smoking on oral and systemic health, and to implement smoking cessation. Physicians’ offices are not the locus of regular well visits in the 20- to 44-year age group, a critical age group, when tobacco cessation strategies may have their greatest impact in preventing morbidity and mortality. Visits to physicians often
are made only if mandated by employers or are “problem oriented.” Dental visits, in contrast, are usually preventive (Manski & Moeller, 2002). Furthermore, patients who attend dental offices for problem-oriented visits are mainstreamed into prevention programs and regular exam and hygiene visits after completion of treatment. Thus dentists must expand their preventive and therapeutic armamentarium to include smoking cessation strategies.

A significant association exists between tobacco cessation, its importance within preventive dentistry, and key tobacco cessation activities such as Ask and Advise. The regression models developed for the dependent variables Advise and Arrange included knowledge regarding tobacco cessation as an independent variable. The inclusion of tobacco cessation in dental school curriculum is, therefore, paramount to improving tobacco cessation behaviors in practice. Curriculum changes in dental schools need to be undertaken to include didactic and clinical cessation and prevention activities. The association of self-efficacy with tobacco cessation behaviors creates impetus for the improvement of knowledge and confidence levels of clinicians. Continuing education programs in tobacco cessation also should be implemented for clinicians in practice to improve skills and confidence to carry out the office-based interventions.

Newer information-transfer technologies such as the Internet and CD-ROMs can serve as vehicles for increased smoking cessation activities by dentists, by reducing some of the perceived barriers (patient resistance, lack of reimbursement, amount of time required) to the implementation of tobacco cessation in practice. To further reduce or eliminate these barriers, clinicians and health care delivery systems (including administrators, insurers, and purchasers) must move toward the consistent identification, documentation, and treatment of every tobacco user seen in a health care setting.

Some 62% of respondent dentists considered the lack of educational materials to be a barrier to incorporation of tobacco cessation into practice. Having materials present in practices was significantly associated with dentists’ tobacco cessation behaviors, including advice on nicotine replacement therapies and bupropion. This relationship extended to Arrange behavior (follow-up); dentists who did not have access to educational materials exhibited the lowest frequency of this tobacco cessation behavior. When materials were present, dentists were more likely to provide this service. Dentists’ confidence in their ability to help patients quit and their knowledge about tobacco cessation also were significantly associated with the presence of educational materials. The logistic regression model for Assist included the provision of written take-home materials as a significant independent variable. These findings support the development and distribution of patient educational materials to dental practices.

The present study has some limitations. The data obtained via the survey instrument may not represent current practices of dentists in the United States. Dentists were recruited for the present study from a list of general dentists participating in a large managed care plan. Also, because of stringent eligibility requirements, only 12% of the dentists contacted participated in the experimental program and therefore completed the baseline survey. The sample of general dentists surveyed contained more Asian and African American dentists and fewer White dentists than currently present in general practice in the United States (Brown, & Lazar, 1999).

Some 81% of active private practitioners were in general practice in 1997. Most of the Asian dentists (18 of 21) in this sample graduated after 1980. When the Asian dentists from this cohort were compared with other post-1980 cohorts, they were found to spend more time counseling their patients on tobacco cessation. Dental graduates of Asian descent tend to practice in Asian communities, where tobacco prevalence is lower in the aggregate (12.1%) than in the overall U.S. population (23.1%; Brown, Wagner, & Johns, 2000; Centers for Disease Control and Prevention, 2003). The lower prevalence may have an impact on dentists’ personal attitudes about tobacco that are then translated into practice. However, it is naïve to characterize Asians in the United States as though they were a homogeneous group. Smoking amongst Asian groups is not uniform, with higher prevalence observed for some groups, particularly for Asian men. As the number of Asian graduates of dental schools grows and these graduates practice with more diverse patient populations, and as the older cohort of predominantly White dentists retire, additional changes in dentist attitudes, practices, and behaviors are expected.

Dentists who completed the survey instrument also were required to have and use a high level of communication and information technology, such as the Internet, E-mail, and a computer capable of playing CD-ROMs. Because dentists were required to have all elements and were excluded if one technology component was missing, 44.8% of offices were included. These highly connected offices may not be representative of all dental practices. Furthermore, the dentists were recruited from 501 dental offices that responded to the technical capacity survey. These dentists may not be representative of the 1,007 dental offices that did not respond to the technical capacity survey. Generalization of findings to all dentists in managed care offices should be made cautiously. It should be noted that the
technological sophistication of dentists in the United States is increasing, and the majority are now using computers in their dental practices (Byers, 2000). Approximately 90% of dentists responding to the technology survey had a computer and Internet connection in their practice.

The widespread acceptance of tobacco cessation as a component of dental activities in recent years is evidenced by prominent displays of tobacco cessation on the cover of dental journals and the recent action of the New York State Department of Professional Licensing mandating tobacco cessation training for all dentists prior to licensure or relicensure (Kerr & Cruz, 2002). As a primary care clinician, the dentist should identify tobacco users and be prepared to intervene. Epidemiological data suggest that more than 70% of the 50 million smokers in the United States today have made at least one prior quit attempt, and approximately 46% try to quit each year (Centers for Disease Control and Prevention, 1993, 2003). Moreover, 50% of smokers visit a dentist each year. Dentists can therefore play a vitally important role in helping their patients to stop using tobacco products.

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References


