Frequency of Physician-Directed Assistance for Smoking Cessation in Patients Receiving Cessation Medications

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Background: Little is known about current physician-patient interactions regarding smoking cessation when a prescription is given for cessation medications.

Methods: We identified 1360 health plan members who were smokers and had filled prescriptions for bupropion hydrochloride or nicotine replacement products from March 26, 2002, through April 8, 2003. These members were surveyed 3 months after the order was filled to learn about the physician encounter that produced these prescriptions and the role of the physician in selecting the medication, supporting cessation, and achieving desirable outcomes.

Results: Among the 1035 eligible complete responses (adjusted response rate, 78%), only 36.4% reported being asked to set a specific quit date; 25.3%, to use cessation counseling; and 23.3%, to have any type of follow-up. The only physician action associated with the use of the medication was asking to set a quit date (90.7% vs 83.5%; \( P = .001 \)) and no action was significantly associated with cessation. Smokers with tobacco-related chronic conditions were more likely to report physician influence but less likely to report receiving information on using the quit aid (60.6% vs 66.5%; \( P = .048 \)) or being asked to set a quit date (31.7% vs 41.4%; \( P = .001 \)).

Conclusions: Despite the evidence-based guideline recommendations for more support for cessation, physician support actions for those receiving prescriptions appear to be relatively infrequent and to have little influence on the use of medication by smokers or on their smoking cessation. Other environmental changes may be needed to facilitate more thorough support.

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As part of a larger study, we had an opportunity to investigate these issues. Our hypotheses included the following:

- Smokers who filled a prescription for any form of nicotine replacement therapy (NRT) or for bupropion hydrochloride would receive little clinical assistance or follow-up from their physician beyond the medication.
- Where assistance was provided, use of the medication, attempts to quit, and quit rates would be higher.
- Because previous studies have demonstrated that physicians are more likely to provide advice to patients with chronic illness, there would be greater use and effectiveness of other forms of assistance with such patients.

**METHODS**

HealthPartners is one of the 3 major health care plans in Minnesota, covering about 700,000 members who mostly live in the Minneapolis–St Paul metropolitan area. About one third of those members receive their primary medical care in a staff-model multispecialty medical group, whereas the other two thirds are cared for by about 45 medical groups with health plan contracts. In 2000, the health plan initiated coverage for NRT or bupropion as long as prescriptions were initiated from a contracted physician. Cessation counseling was not covered or required for medication coverage.

From March 26, 2002, through April 8, 2003, we surveyed 1360 health plan members who filled a prescription for these products about 3 months after the prescription was filled. The 1360 subjects were selected for study in a structured random sample that included equal numbers of subjects with and without chronic conditions related to smoking (eg, emphysema, asthma, coronary heart disease, diabetes, hypertension, and hyperlipidemia). The study was approved by the institutional review board at HealthPartners.

The 27-item questionnaire largely comprised items previously tested in other studies. It requested information about the smoker and smoking behaviors as well as questions about the clinician encounter when the pharmacotherapy prescription was obtained. Following a modified Dillman method, the initial survey mailing was followed by a postcard reminder to all subjects in 1 week and another survey to nonrespondents 3 weeks later. Up to 10 telephone survey attempts were made to mail survey nonrespondents after another 3 weeks.

Item frequencies were computed to provide information on the likelihood of reported physician actions and levels of satisfaction with the help provided by the physician in quitting smoking. Although most analyses used single-item measures, a set of 6 items measuring physician help was reduced to 2 summary measures. The first summary measure concerned physician assistance and consisted of the count of types of assistance received of 4 possible types. The second summary measure concerned the arrangement of follow-up by the physician and was scored as a yes if a follow-up visit or telephone call was reported and as a no otherwise.

Contingency tables and χ² tests were used to assess associations between physician actions and the following 3 binary outcomes: use of the smoking cessation medication, any attempts to quit that resulted in 24 hours or more of tobacco abstinence in the past 4 months, and point-prevalent quitting status (no smoking or other tobacco use in the past 7 days). Associations between reported physician actions and satisfaction with the help provided by the physician were assessed using these same methods, as was the association between satisfaction with the physician help and the 3 outcomes.

**RESULTS**

Of the 1360 original questionnaires mailed, 1035 completed forms were returned (533 from those with chronic conditions and 502 from the others). During the administration of the survey, we identified 31 members who were ineligible for the survey (eg, use of tobacco other than cigarettes). When those ineligibles were removed, the adjusted completion rate was 78%.

The characteristics and smoking patterns of the subjects are described in Table 1. Most were older than 39 years, female, married, and educated beyond high school and used bupropion alone or in combination with NRT. The main differences between those with and without

### Table 1. Characteristics of Responding Smokers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chronic Conditions (n = 533)†</th>
<th>Others (n = 502)</th>
<th>P Value‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bupropion hydrochloride</td>
<td>55.7 (67.7)</td>
<td>28.4 (18.6)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>NRT</td>
<td>28.4 (18.6)</td>
<td>16.5 (13.6)</td>
<td></td>
</tr>
<tr>
<td>Bupropion + NRT</td>
<td>15.9 (13.6)</td>
<td>16.5 (13.6)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: NRT, nicotine replacement therapy.

†Includes emphysema, asthma, coronary heart disease, diabetes, hypertension, and hyperlipidemia.

‡Based on Pearson χ² tests for proportions and independent samples t tests for means.

§Scored on a scale of 1 to 10, with 1 indicating no confidence; 10, complete confidence.
chronic conditions were that those with chronic conditions were older and less educated, had smoked more cigarettes for longer, and were more likely to have another smoker in the home and to use NRT.

Table 2 identifies the proportion of respondents who credited the physician or other staff with providing various influences or help with this attempt to quit. With the possible exception of reports of receiving written or oral information about use, all forms of assistance or arrangements for follow-up are quite low. There were several differences between those with and without chronic diseases related to smoking in these bivariate analyses. Smokers with a chronic disease were more than twice as likely to cite physician advice as an important reason to quit now and 30% were more likely to cite it as the main reason for choosing the medication for smoking cessation compared with those not asked (95% confidence interval, 1.22-2.87). Medication use was actually lower among respondents who said that the physician’s suggestion was the main reason for using that medication (82.1% vs 87.9%; \( \chi^2 = 5.85, P = .02 \)). In a logistic regression analysis, those who were asked to set a quit date were 1.87 times more likely to use the medication compared with those not asked (95% confidence interval, 1.22-2.87). Medication use was actually lower among respondents who said that the physician’s suggestion was the main reason for using that medication (82.1% vs 87.9%; \( \chi^2 = 5.85, P = .02 \)).

**ANY QUIT ATTEMPTS IN PAST 4 MONTHS**

Of the overall group, 73.4% reported at least 1 attempt to quit resulting in 24 hours of cessation of tobacco use since receiving the medication. None of the items from Table 2 was significantly associated with having 1 or more attempts to quit in bivariate or logistic regression analysis.

**POINT-PREVALENT QUITTING**

Among all respondents, 30.2% reported using no tobacco in any form in the past 7 days. The only item from Table 2 that was significantly associated with tobacco cessation was satisfaction with the help received with quitting. Those rating physician help as very good or excellent were more likely than those with lower ratings to have quit for at least 7 days (33.0% vs 27.0%; \( \chi^2 = 4.08, P = .04 \)). In the logistic regression analysis, with each unit of increase (indicating more satisfaction) on the 5-point scale of satisfaction, the odds of quitting increased by 1.15 (95% confidence interval, 1.01-1.32).

Because satisfaction with physician help in quitting smoking was the only variable associated with tobacco cessation, additional bivariate analyses were conducted to explore associations between physician help items and

### Table 2. Physician Role in Current Smoking Cessation Efforts*

<table>
<thead>
<tr>
<th>Smoker Groups</th>
<th>Chronic Conditions† (n = 533)</th>
<th>Others (n = 502)</th>
<th>P Value‡</th>
<th>All Smokers (n = 1035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician Action/Patient Response to Physician Action</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I wanted to quit now because physician advised it</td>
<td>35.5</td>
<td>15.7</td>
<td>&lt;.001</td>
<td>25.9</td>
</tr>
<tr>
<td>I chose this medication because physician suggested it</td>
<td>32.0</td>
<td>23.6</td>
<td>.003</td>
<td>27.9</td>
</tr>
<tr>
<td>Assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Given written information about use of medication</td>
<td>63.6</td>
<td>68.9</td>
<td>.07</td>
<td>66.2</td>
</tr>
<tr>
<td>Told how to use it</td>
<td>60.6</td>
<td>66.5</td>
<td>.048</td>
<td>63.5</td>
</tr>
<tr>
<td>Asked to set a specific quit date</td>
<td>31.7</td>
<td>41.4</td>
<td>.001</td>
<td>36.4</td>
</tr>
<tr>
<td>Advised to use counseling or a cessation group</td>
<td>23.1</td>
<td>27.7</td>
<td>.09</td>
<td>25.3</td>
</tr>
<tr>
<td>Arranged follow-up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asked to make a follow-up appointment</td>
<td>12.0</td>
<td>14.7</td>
<td>.20</td>
<td>13.3</td>
</tr>
<tr>
<td>Advised to call or receive a follow-up call</td>
<td>14.1</td>
<td>16.3</td>
<td>.31</td>
<td>15.2</td>
</tr>
<tr>
<td>No assistance or arranged follow-up</td>
<td>11.8</td>
<td>8.2</td>
<td>.051</td>
<td>10.0</td>
</tr>
<tr>
<td>No. of types of assistance received (of the 4 above), mean (SD)</td>
<td>1.79 (1.2)</td>
<td>2.05 (1.2)</td>
<td>&lt;.001</td>
<td>1.91 (1.2)</td>
</tr>
<tr>
<td>Follow-up was arranged</td>
<td>21.8</td>
<td>24.9</td>
<td>.23</td>
<td>23.3</td>
</tr>
<tr>
<td>My rating of the physician on help with quitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>27.4</td>
<td>27.5</td>
<td>.41</td>
<td>27.4</td>
</tr>
<tr>
<td>Very good</td>
<td>33.7</td>
<td>31.9</td>
<td></td>
<td>32.8</td>
</tr>
<tr>
<td>Good</td>
<td>27.8</td>
<td>27.9</td>
<td></td>
<td>27.8</td>
</tr>
<tr>
<td>Fair</td>
<td>7.9</td>
<td>10.7</td>
<td></td>
<td>9.2</td>
</tr>
<tr>
<td>Poor</td>
<td>3.3</td>
<td>2.0</td>
<td></td>
<td>2.7</td>
</tr>
</tbody>
</table>

*Unless otherwise indicated, data are expressed as percentage of subjects.
†Includes emphysema, asthma, coronary heart disease, diabetes, hypertension, and hyperlipidemia.
‡Based on Pearson \( \chi^2 \) tests for proportions and independent samples \( t \) tests for means.
satisfaction with the physician’s help in smoking. Mean satisfaction ratings of physician help for quitting smoking were higher for all 4 assistance items when comparing those who received the specific type of help and those who did not ($t > 3.5$ [calculated by means of the independent samples $t$ test]; $P < .001$) and higher for those who had a physician-arranged follow-up ($t = 5.5; P < .001$). The summary count for the 4 different types of assistance (giving written information about use, telling about use, setting a quit date, and advising additional counseling) was strongly associated with satisfaction; 73% rated help very good or excellent if all 4 were provided vs only 40% if none were provided (linear trend $\chi^2 = 39.66; P < .001$). There was a stepwise increase in satisfaction with each additional type of assistance. Attempting to quit because a physician advised it and choosing the smoking cessation aid based on a physician’s advice were not associated with satisfaction with the physician.

Smokers with chronic conditions were no more likely than those without them to report use of the medication, attempts to quit, prolonged smoking cessation, or confidence that they will have quit in another 9 months. The interaction terms of physician help items and chronic status in logistic models were not statistically significant (all, $P > .13$). This indicates that the magnitude and direction of relationships between physician help items and the 3 outcomes did not vary by chronic disease status.

**COMMENT**

It is striking that for these smokers who were serious enough about quitting to obtain and fill a prescription for bupropion and/or NRT, physicians provided very low levels of any form of cessation assistance beyond how to use the medication, and less than one fourth of the smokers were asked to have any type of follow-up. In addition, we found almost no association between any physician action and reports by smokers of use of the medication, attempts to quit, or abstention. Perhaps this latter finding is owing to the low frequency of these actions and the possibility that where the assistance and follow-up actions occurred, it was due more to the smoker’s request for medications than spontaneous physician actions. In an earlier study from our institution, each of the 5 A’s was strongly associated with smokers reporting that they initiated the smoking cessation conversation with the physician. It appears that the various types of assistance provided to these patients had only 1 major effect: the increased likelihood that the smoker would report being very satisfied with the physician’s help.

Smokers with chronic conditions were more likely than smokers not to have such chronic conditions to report their physician being important to their decision to quit and to their choice of medication, but they were less likely to report receiving assistance. They were also no more likely to benefit from assistance when it was provided than were those without chronic conditions. Thus, at least for patients receiving and filling prescriptions for cessation medications, previous reports that physicians are more likely to provide cessation advice to these patients may not have resulted in better outcomes.

There are some naturalistic observational studies of primary care physician actions in regard to NRT use from the early 1990s. Orleans et al showed that only half of elderly low-income smokers filling nicotine patch claims reported receiving any advice or instructions about use from their physicians, and only 3% reported counseling referrals. Those who received more advice used their patches for a longer time, were less likely to smoke while using NRT, and were somewhat more likely to quit. Swartz et al surveyed nicotine patch users from pharmacy records and also confirmed low levels of other types of assistance and follow-up from their physicians. They found that nearly 45% reported continuing to smoke while using the patch, a behavior that seemed to be related to the low levels of counseling. Finally, Daughton et al studied 369 smokers in a randomized controlled trial of nicotine patches in 21 Nebraska primary care offices. Here the physicians had agreed to provide counseling to these study subjects during 2 office visits, and there was a clear relationship between the amount of time spent counseling (mean, 17 minutes) and smoking cessation rates, regardless of whether active drug or placebo was received. Thus, these studies suggested naturally low rates of counseling for medication users but important benefits when those rates were artificially increased in a controlled study.

Why did these earlier studies show a cessation benefit from concomitant physician counseling and our study did not? Pierce and Gilpin compared repeated California surveys from 1992 to 1999 and concluded that since becoming available over the counter in 1996, “NRT appears no longer effective in increasing long-term successful cessation in California smokers.” If true, that could be because a larger proportion of less-committed people are now using it than because of any actual loss of effectiveness. It could also be that low-intensity, infrequent physician cessation supports have also lost the effectiveness they once had.

The overall infrequent use by clinicians of various forms of assistance for smoking cessation in general is typical of what others have found as well. For example, Ellerbeck et al observed 244 office visits to 38 Kansas primary care physicians where tobacco cessation was discussed with current smokers. Assessment of an interest to quit was observed in only 37% of these discussions and any form of assistance in only 38%. Discussion of bupropion occurred only 31% of the time and NRT only 17%, so medication use was nearly the only form of assistance being offered. Sesney et al obtained questionnaires from 2037 patients, 455 of whom were smokers, immediately on exiting from a visit with a Michigan primary care physician. Only 47% of the latter reported that smoking had been discussed with them during the visit. Twelve percent reported NRT being discussed, but less than one sixth of these reported a plan for a follow-up visit.

Although the lack of insurance coverage for counseling may also play a role, one likely explanation for the low levels of assistance and follow-up is the infrequency with which practices have established office systems that enhance and support physician counseling. Office systems that involve other office staff have been demonstrated to be important for effective implementation of the 5 A’s in busy primary care practices and are recommended in the US Public Health Service guideline. McIlvain et al and Ellerbeck et al have confirmed the nearly complete ab-
sence of such systems along with low rates of the 5 A’s services through direct observational studies in many Nebraska and Kansas primary care practices. We suspect, but cannot prove from our study, that the same absence of systems was true for the practices where our subjects received their cessation medication prescriptions.

Although the present study of real-life physician support of smoking cessation medication use is important, it also has limitations. First, 3 months is a short time to assess long-term quitting, so some of these 30% who quit may resume smoking in the next year. Second, a survey 3 months after the visit may not provide completely accurate recall of events during the encounter or validated abstinence. Ward and Sanson-Fisher20 compared audiotapes of physician-patient encounters with surveys 1 week later and found that patients actually tended to overreport physician smoking cessation support actions. If true here, that would make the rate of support actions even lower than the rates reported by our respondents. Validation studies of abstinence have confirmed that the deception rate is usually small and does not affect the conclusions, so validation is usually not required in most smoking studies anymore. Finally, counts of reported actions do not account for what might be substantial variation in the style and intensity of such assistance.

CONCLUSIONS

These data show that physicians frequently fail to give optimal smoking cessation assistance to patients beyond a prescription for a relevant smoking cessation medication and encouragement to quit. Further research is needed to determine the extent to which smoker actions stimulate physician actions and whether interventions that increase the likelihood of clinical assistance and follow-up for all smokers willing to quit will result in better outcomes. We suspect that the key to such interventions is the establishment of office systems that delegate much of the ask, assist, and arrange part of the 5 A’s to other office staff. It has been clearly demonstrated that such systems are feasible and effective, although still infrequent.20,27-29

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REFERENCES