Physician knowledge, attitudes and practices regarding a widely implemented guideline

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Abstract

Rationale, aims and objectives Although clinical practice guidelines have been promoted widely, there is considerable concern that physicians have not incorporated them into their practice. Models suggest that a ‘knowledge–attitude–behaviour’ sequence is important in modifying physician practice patterns. To address this, we examined physicians’ knowledge of, attitudes towards and compliance with a widely implemented guideline – the Agency for Health Care Policy and Research (AHCPR) smoking cessation guideline. Methods A survey was mailed to a random sample of physicians at 128 veterans health administration facilities, which had implemented the guideline 2 years previously. Results Completed surveys were received from 879 physicians (50.3% response rate). Only 26% of physicians reported receiving a copy or summary of the guideline, 44% reported little or no familiarity with it, 42% did not know if they agreed with it, 40% did not know if they complied with it and 46% did not know if it was effective. However, a high percentage of physicians reported that they always or usually explain the health risks of smoking (86%) and that they always or usually suggest that their smoking patients stop (94%). Conclusions In spite of little familiarity with the guideline, the responding physicians reported practice patterns consistent with adherence to it. Knowledge is only one of a spectrum of barriers that affects physician adherence to guidelines. There are numerous opportunities for health care organizations to overcome the barriers to physician adoption of clinical practice guidelines in their day-to-day practice.

Introduction

Although clinical practice guidelines have been promoted for more than a decade (Field & Lohr 1992), there is considerable concern about the apparent lack of influence of guidelines on the day-to-day practice of physicians (Brook 1989; Delamothe 1993; Klazinga 1994). Studies aimed at improving guideline use have considered three broad areas: (i) the approach to guideline development; (ii) the process of guideline dissemination and implementation, and (iii) attitudes and working practices of physicians that present barriers to the use of guidelines (Langley et al. 1998). The first two concerns (guideline development and implementation) have received much greater attention than the third (bar-

In a recent review, Cabana et al. (1999) analysed 76 articles on potential barriers to physician guideline adherence. After classifying possible barriers into common themes, they found that the articles covered seven categories of barriers, which fell into three themes: physician knowledge (lack of awareness or lack of familiarity), attitudes (lack of agreement, lack of self-efficacy, lack of outcome expectancy or the inertia of previous practice) and behaviour (external barriers). Physician knowledge and attitudes were noted as barriers to guideline adherence twice as often as barriers involving physician practice behaviours. However, the average number of barriers examined was only 1.67 per article. Consequently, they concluded that these previous studies failed to investigate the range of physician knowledge, attitudes and behaviours.

As a departure from the literature, we undertook to investigate a spectrum of barriers affecting physician adherence to clinical practice guidelines. Specifically, we chose to investigate physician familiarity, agreement and outcome expectancy regarding a specific guideline, along with physician perception of organizational policies and procedures that could affect adherence. We were greatly aided in this goal by the US Veterans Health Administration (VHA), which has instituted a policy of adopting several clinical practice guidelines annually for implementation at all VHA facilities. In 1997, the VHA adopted for implementation the Agency for Health Care Policy and Research (AHCPR) smoking cessation guideline (Fiore et al. 1996). This widely accepted guideline recommends that physicians:

(i) systematically identify tobacco users and document their status;
(ii) strongly urge all smokers to quit;
(iii) identify smokers willing to make a quit attempt;
(iv) aid the patient in quitting by helping with a quit plan, offering nicotine replacement therapy, giving advice and providing supplementary information, and
(v) schedule follow-up contact (Fiore et al. 1996).

This ‘evidence-based’ guideline is appropriate for use by all physicians who treat adults, especially those in primary care. However, to our knowledge, physicians’ knowledge, attitudes and practices regarding this widely disseminated guideline have not been reported.

Methods

Survey

We created a survey to assess VHA physicians’ knowledge of, attitudes about and adherence to the VHA/AHCPR smoking cessation guideline. Specifically, physicians were asked to indicate the extent to which they were familiar with the VHA smoking cessation guideline, agreed with it, complied with it and thought it was effective. Responses used a five-point Likert scale, with an option for ‘don’t know.’ Physicians were asked six questions about how the guideline was disseminated in their facility. In addition, physicians were asked to indicate the extent to which they engaged in the seven practices called for in the guideline, using a Likert scale. Physicians were also asked for demographic information to help characterize the sample. The specific questions are shown in the tables and figures.

Sample

The sample was drawn from a national database of physicians (excluding residents and consultants) assigned to two VHA cost centres – medicine or clinical ambulatory care. Twenty physicians (if available) from each facility were chosen randomly to receive the survey. In facilities with fewer than 20 physicians, all available physicians received the survey. Forty additional physicians from the 10 largest VHA facilities pilot-tested the survey. The survey was sent to all VHA acute care medical centres in 21 of the 22 Veterans Integrated Service Networks (VISN) in 1999. A covering letter instructed respondents who did not spend time in ambulatory care to return the blank survey.

Procedure

Approval was obtained from The University of Iowa institutional review board and the Iowa City VAMC research committee. A letter of support from the VISN director was included with the survey. After 3 weeks, those sampled who did not respond to the
first mailing were sent a second survey, which included a letter of support from the chief public health and environmental hazards office of the VHA. After another 3 weeks, those still not responding were sent a third copy of the survey. For those facilities with fewer than five respondents, phone calls were also made, although this yielded only a handful of additional responses. Double-key data entry was used. Discrepancies were resolved by consensus of two of the authors. Analyses were completed using SAS.

Results

Sample characteristics

The survey was mailed to 2319 physicians, of which 234 were returned because the physician had left the VHA facility; 338 physicians indicated that they were not in ambulatory care and 15 physicians returned the survey without completing it. Completed surveys were received from 879 of the 1747 eligible physicians, representing a 50.3% response rate.

The characteristics of the sample are shown in Table 1. The sample was 73% male, with an average age of 48.7 years. The physicians indicated that, on average, they spent 60% of their time working in the ambulatory care clinic. Their mean tenures in the VHA system and at their current facility were 11.0 and 9.2 years, respectively. These data suggest that the sample was probably well informed of VHA clinical ambulatory care processes.

Physician knowledge of the smoking cessation guideline

The VHA/AHCPR smoking cessation guideline was adopted system-wide for implementation 2 years before the survey was administered and was still in effect. However, as shown in Table 2, only a quarter of physicians said they had received a copy of the guideline (26%) or a brief summary (23%), and few had received a pocket card summary (7%). Physicians reported that specific training, such as a grand rounds presentation (7%) or other educational session (18%) on the guideline, occurred infrequently. A majority (62%) of physicians reported not receiving any of these implementation measures.

Correspondingly, a relatively high percentage (44%) of responding physicians were unfamiliar with the VHA smoking cessation guideline. As shown in Fig. 1, 44% were not at all familiar, familiar to a very

Table 1 Sample characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Response options</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>72.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>27.1</td>
</tr>
<tr>
<td>Age</td>
<td>20–34 years</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>35–49 years</td>
<td>53.6</td>
</tr>
<tr>
<td></td>
<td>50–64 years</td>
<td>36.7</td>
</tr>
<tr>
<td></td>
<td>65 years or older</td>
<td>5.8</td>
</tr>
<tr>
<td>Race or ethnic background</td>
<td>White, not of Hispanic origin</td>
<td>68.3</td>
</tr>
<tr>
<td></td>
<td>Asian or Pacific Islander</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>Latino or Hispanic</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Native American or Alaskan Native</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>Black, not of Hispanic origin</td>
<td>2.8</td>
</tr>
<tr>
<td>Speciality area</td>
<td>General internal medicine</td>
<td>55.9</td>
</tr>
<tr>
<td></td>
<td>Speciality internal medicine</td>
<td>33.5</td>
</tr>
<tr>
<td></td>
<td>Family practice</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>Other specialty (e.g. psychiatry)</td>
<td>3.6</td>
</tr>
<tr>
<td>Work setting</td>
<td>Time working in the ambulatory care clinic</td>
<td>60.2</td>
</tr>
</tbody>
</table>
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Table 2 Physician memory of smoking cessation guideline implementation

<table>
<thead>
<tr>
<th>When the VHA smoking cessation guideline was implemented at your facility</th>
<th>Don’t know (%)</th>
<th>No (%)</th>
<th>Yes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you receive a copy of the complete guideline?</td>
<td>27</td>
<td>47</td>
<td>26</td>
</tr>
<tr>
<td>Did you receive a brief 1–3 page summary?</td>
<td>27</td>
<td>51</td>
<td>23</td>
</tr>
<tr>
<td>Did you receive a pocket card summarizing the key points?</td>
<td>20</td>
<td>73</td>
<td>7</td>
</tr>
<tr>
<td>Was there a grand rounds presentation on the guideline?</td>
<td>32</td>
<td>61</td>
<td>7</td>
</tr>
<tr>
<td>Were there other educational sessions to inform you about the guideline?</td>
<td>34</td>
<td>48</td>
<td>18</td>
</tr>
</tbody>
</table>

Figure 1 Physicians’ knowledge and attitudes about the VA smoking cessation guideline (lighter areas indicate lesser extent, darker areas indicate greater extent).

little extent or didn’t know if they were familiar with it. Only 28% were familiar with it to a great or very great extent.

Similarly, 39% of physicians were not familiar with the External Peer Review Program (EPRP) data. The EPRP is a VHA-wide programme of chart reviews and institutional-level assessment of specific VHA quality-of-care measure performance, including the smoking cessation guideline. More physicians were familiar to ‘a great extent’ or ‘a very great extent’ with the EPRP programme (39%) than with the smoking cessation guideline (28%).

Physician attitude toward the VHA smoking cessation guideline

Consistent with the high percentage of physicians unfamiliar with the VHA smoking cessation guideline, a similar fraction reported that they did not know if they agreed with the guideline (42%), complied with it (40%), or whether it was effective (46%). At the other end of the continuum, as shown in Fig. 1, 37% of physicians reported agreeing to a great or very great extent with the guideline. Notably, 40% of physicians reported compliance to a great or
Figure 2 Physicians’ self-reported practices for patients who are current smokers (lighter areas indicate less often, darker areas indicate more often).

very great extent with the guideline. However, only 12% of physicians thought it was effective to a great or very great extent, and only 16% responded that a current smoker undergoing a routine exam is receptive to counselling about smoking cessation to a great or very great extent.

Physician practices pertaining to the VHA smoking cessation guideline

The physicians were asked the extent to which they used the practices recommended in the VHA/AHCPR guideline with their patients who were current smokers. As shown in Fig. 2, 93% of physicians reported that they always or usually suggest that their patients stop smoking. Likewise, 86% of physicians reported that they always or usually explain the health risks of smoking. Seventy per cent of physicians reported that they always or usually follow up on their patients’ progress regarding smoking cessation. In contrast, relatively few physicians reported that they give their patients written information about smoking cessation always (8%) or usually (14%). Over half of the physicians reported that they consistently refer their patients to smoking cessation programmes (always, 24%; usually, 33%). Most respondents (62%) reported that their facility had a policy restricting nicotine replacement therapy and Zyban prescriptions to patients enrolled in a smoking cessation programme. Consistent with this, relatively few physicians reported writing prescriptions for these cessation aids.

Discussion

There are many barriers to changing physician practice behaviour (Conroy & Shannon 1995). Cabana et al. (1999) categorized barriers to physician adherence to practice guidelines into three general mechanisms of action – the knowledge, attitudes, behaviour framework. This framework maintains that before a practice guideline can affect patient outcomes, it first affects physician knowledge, then attitudes and finally practice behaviour (Pathman et al. 1996; Cabana et al. 1999; Worrall 1999).

The results of the current analyses give little support to this theoretical framework. In the current sample, a high percentage of physicians reported engaging in the primary behaviours that were recommended by the smoking cessation guideline, even
though many reported little familiarity with the guideline and many did not know if they agreed with it or complied with it. Thus, self-reported practice patterns contrast with the physicians’ self-reported knowledge and attitudes. Likewise, the responding physicians expressed a relative lack of agreement with and favourable outcome expectancy regarding the guideline and their counselling efforts. This lack of agreement and outcome expectancy is usually seen as a barrier to guideline adherence (Wells et al. 1986; Kottke et al. 1994), and specifically to physician smoking cessation counselling (Thompson et al. 1993). Consequently, it is noteworthy that the responding physicians expressed such negative attitudes but nevertheless practised in a manner consistent with adherence to the guideline.

These findings suggest a potential disconnection in the knowledge–attitudes–behaviour sequence that theoretically promotes physician adherence to guidelines. We suggest that this apparent disconnection could be explained by other factors that may play a stronger role in driving the rate at which physicians adhere to guidelines.

One factor that could play a strong role in affecting physicians’ adherence to a guideline is the absence or existence of system-wide barriers. To some extent, this is the case in the VHA, where 62% of respondents reported that their facility had a policy restricting nicotine replacement therapy and Zyban prescriptions to patients enrolled in a smoking cessation programme. This policy explains why there were low rates of adherence to the prescribing recommendations in the guideline but high rates of adherence to the other components of the guideline. This inconsistent pattern of physician adherence to various components of the guideline points to the role of institutional-level organizational, programme and other factors that apparently influence the adherence to clinical practice guidelines, but which have been investigated infrequently.

Another factor that can increase physician adherence to a guideline is feedback. The use of an audit of compliance with feedback has been shown to be one of the most important means of increasing physician compliance with guidelines (Mandelblatt & Kanetsky 1995). The EPRP data is a VHA-wide programme of chart reviews and feedback of physician adherence to specific VHA clinical practice guidelines, including the smoking cessation guideline. Therefore, the existence of this audit-plus-feedback system may have greater influence over physician adherence to the VHA guidelines than physicians’ relative lack of familiarity or positive attitudes towards the guideline would suggest. In fact, the two practice behaviours included in the EPRP audit (i.e. explain the health risks of smoking, suggest patients stop smoking) were the behaviours most frequently reported by the physicians responding to the survey. Pathman et al. (1996) found support for a four-step awareness-to-adherence model for pediatric vaccines, but suggest that this model may only hold for voluntary compliance with guidelines. The current findings are consistent with their suggestion that for cases where guideline compliance is ‘forced’, other factors override the awareness-to-adherence model. Thus, the Pathman et al. (1996) findings supporting the model may be generalizable to managed care and similar settings where practice patterns can be influenced by organizational policies and procedures.

A third consideration in interpreting these findings, and a potential limitation of the current study, is the reliance on physician self-report of adherence behaviours. A bias could result from physicians reporting a higher level of service delivery than they actually practise. For example, there are numerous reports in the literature offering conflicting data on the rates at which physicians assess or treat tobacco use. Physicians report a high rate of counselling (Strange et al. 1994; Wechsler et al. 1996). However, only half of smokers being seen by a primary care physician in the past year report being asked whether they smoke (Anda et al. 1987; Frank et al. 1991; Robinson et al. 1995) and fewer than half of smokers report being advised by their physician to quit smoking (Centers for Disease Control and Prevention 1993). For the current study, external data suggest that the respondents were not over-reporting their behaviours. EPRP data for 1998 (shortly before the survey was conducted) are available for patients with certain chronic conditions who had at least three visits to the VHA in the preceding year. These chart review data indicate that 74% of patients who reported smoking were counselled regarding tobacco use; this is consistent with the current findings. This
high rate in the VHA is believable given its audit-plus-feedback system and the high level of emphasis placed on screening and counselling VHA patients. Since the VHA is the largest integrated health care delivery system in the US, it is in a rare position to enact wide-ranging policy changes. In essentially mandating that the AHCPR smoking cessation guideline be implemented at every VHA facility nationwide, the VHA has taken a bold step towards ensuring that smokers are identified, counselled and offered treatment. VHA physicians are, to a large extent, ‘doing the right thing’ in terms of counselling their patients who smoke to quit.

The VHA and other health care systems can increase physician adherence to clinical practice guidelines in a number of ways. Firstly, the literature indicates that there is some effect of knowledge and attitudes on practice behaviours. Our findings indicate that the VHA can do more to disseminate guidelines through a variety of distribution means. Special training to increase physicians’ skill-set regarding guideline procedures may improve their self-efficacy in this area. Secondly, organizational barriers to guideline adherence must be addressed. In the case of the VHA, the guideline promotes primary care physicians prescribing nicotine replacement therapy and Zyban. Yet, as a cost-saving measure, policies in many VHA facilities prohibit this. Attention must be paid to aligning policies within an organization. Thirdly, the literature suggests that feedback is one of the most important means of increasing physician adherence. The VHA has an established system of auditing physician adherence to the guidelines, but distribution of these reports is determined locally and many providers clearly do not receive these reports. It would seem important to distribute these reports to all clinicians, in order to use this tool and influence practices maximally. Other approaches to the use of these data could be tested, such as establishing targets for given clinics, developing provider- or clinic-specific reports to be shared confidentially, or using specific provider incentives to improve performance.

In summary, many physicians report a high level of practice behaviours that are consistent with adherence to the VHA/AHCPR smoking cessation guideline. There are a spectrum of barriers to physician adherence to guidelines, but numerous opportunities for health care organizations and systems to overcome the barriers to physician adoption of clinical practice guidelines in their day-to-day practice.

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References

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