

***Providing Evidence-Based Preventive Practice Guidelines on the Internet:
Physicians' Perspectives***

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ABSTRACT

Objective: To explore family physicians' perspectives of how best to provide evidence-based preventive clinical practice guidelines to physicians on the Internet.

Design: Qualitative focus groups.

Method, Setting & Participants: Four focus groups were conducted with family physicians - three in a large urban centre, and one in a rural community hospital. There were a total of 34 participants (23 male, 11 female).

Main Findings: Four themes characterized participants' perceptions of disseminating preventive CPGs on the Internet: content expectations; quick, easy access to information; trustworthy information; and implications for clinical practice.

Conclusions: Physicians want quick, easy access to trustworthy information. A website on preventive CPGs with these characteristics will be a useful information resource. Participants identified a number of important ways they could use this resource in practice.

Keywords: Internet; Prevention; Continuing Medical Education; Family Physicians; Focus Groups

BIOGRAPHICAL NOTES

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INTRODUCTION

With the emergence of the Internet, the accessibility of health and medical information to both physicians and consumers has increased. The Internet provides access to a wide range of medical information, from e-mail, listserves and online journals, to informative websites, including those focused on continuing medical education.<1> There are a variety of Internet resources providing evidence-based information, including websites from individual clinical practice guideline (CPG) developers, and guideline clearinghouses that allow users to compare recommendations produced by different organizations.<2>

A number of the barriers to implementation of CPGs in clinical practice are related to physician information seeking and use behaviours <3,4>. These barriers include: lack of time, information overload; lack of training in the use of information sources; inadequate information management skills and systems; and lack of training to evaluate and apply research evidence.<5>

A meta-analysis of physician information sources found that physicians have a preference to use books and journals to access needed information. Furthermore, they often consult with their colleagues for answers to clinical and research questions.<6> Similarly, in a study of Canadian physicians to understand their information preferences, needs and uses, it was reported that informal discussions had the greatest impact on clinical decision-making. More formal training and reading were also influential. The sources reported as having the least impact on clinical decision-making were: pocket notes, clinical practice guidelines, brief updates, original research articles, position papers, computerized literature searches, and insurance plan policies.<7>

Accessibility appears to be an important factor in influencing family physicians' use of information, and has in some cases been shown to be more important than factors related to

quality (i.e. reliability and completeness of the information).<8> Similarly, when evidence-based information is made easily available to physicians, the use of the evidence will increase.<9> One of the challenges in disseminating information to physicians is to increase the accessibility of that information.

Despite the increasing access to information sources on the Internet, the role that the Internet will play in meeting primary care information needs remains uncertain.<10> We do know that physician use of the Internet is increasing. In 1999, 60% of general practitioners/family physicians used the Internet, compared to 50% in 1998 <11,12>. The most common activities of physicians on the Internet included e-mail, searching the world-wide-web, and bibliographic database searching.<11>

While physician Internet use is increasing, so is that of consumers.<13> It has been suggested that Internet health information is affecting the way patients and physicians interact.<14, 15>

The Canadian Task Force on Preventive Health Care* (CTFPHC), which produces evidence-based recommendations on clinical prevention, has developed a website providing Internet access to its reviews and recommendations. At that time, physicians' online information needs were not well known. The purpose of this study was to explore how the Task Force could best make its evidence-based information available to family physicians in a convenient and usable format on the Internet.

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METHODS

This exploratory study used focus groups <16> to gain an understanding of family physicians' perceptions of disseminating preventive CPGs on the Internet. We explored participants' thoughts and opinions on how to make a preventive CPG website useful to practicing physicians.

Local family physicians on an e-mail discussion group were recruited for the focus groups because it was assumed they would be familiar with the Internet. As an incentive to participate, a \$40.00 gift certificate was given to each participant. Ethics approval for the study was received from the University of Western Ontario Ethics Review Board.

Family physicians were recruited for the focus groups using a family physician e-mail discussion group called FERN (**F**amily medicine **E**ducational and **R**esearch **N**etwork). The Thames Valley Family Practice Research Unit (TVFPRU) at the University of Western Ontario, London, Ontario, sponsors FERN. Currently, there are just over 150 area family physicians that are members of this e-mail discussion group. These physicians are provided with an e-mail account and software to access the local University server. TVFPRU provided permission to our research team to use the list of FERN members.

The FERN e-mail discussion group list was chosen as the initial recruitment vehicle because all FERN members have access to the Internet in some form. Although access to the Internet does not guarantee Internet use, the research team felt it was reasonable to assume these physicians were somewhat familiar with the Internet. Limiting participants to those with at least some understanding of the Internet would help focus discussions towards how information should be presented on the Internet. Our interest was in learning from those who were sufficiently computer literate to interact with the Internet and provide insight based on

experience. All FERN users who expressed interest in participating were contacted to arrange their attendance at a specific group, convenient in time and location to them. We did not sample specifically for such demographic variables as age and gender.

Focus Group Conduct and Analysis A trained moderator conducted the focus groups with an assistant moderator who audiotaped the discussion and took field notes. The groups ranged in length from 1 to 1½ hours. An interview guide was developed, outlining specific questions about what type of online preventive practice guidelines and information physicians want, and how they want that information presented. However, the moderator was free to word and sequence questions in the most appropriate manner and to pursue areas in greater depth if desired.<17>

Throughout the focus groups, the moderator summarized feedback, allowing the participants to offer additional information or correct errors in interpretation, a process called member-checking.<18> Audiotapes from each focus group were transcribed verbatim.

Following each focus group, the moderator and assistant moderator discussed the feedback and prepared debriefing notes. After the fourth group, it was felt that saturation of physicians' thoughts and opinions on the design of a preventive CPG website had been reached. After all focus groups were completed, the moderator and another member of the research team analysed the transcripts. They independently read each transcript looking for key words and themes, then met to discuss their independent analyses of each focus group. During these meetings, the transcripts were coded using a list of key words and themes developed from the researchers' independent analyses.

Following this process, the moderator completed a secondary analysis of the data, examining similarities and differences across and within the focus groups by each theme area. The entire research team, with the exception of the assistant moderator, then discussed a comprehensive written summary of this secondary analysis. This led to clarification and agreement on themes relevant to all groups. Independent of this process, the assistant moderator prepared a list of key messages based on an analysis of her debriefing notes and the transcripts. This list was compared with the other investigators' analysis to ensure that the findings were grounded in the perceptions of the participants, and not the biases of the researchers.<18>

FINDINGS

Four physician focus groups were held in the spring of 1999. A total of 34 physicians participated, 23 male and 11 female. Three of the four focus groups were held in a major urban centre. The fourth was held in a small community hospital. All participants were practicing family physicians except for three, who were completing residencies. The participants ranged in age from 31 to 70. Approximately two-thirds of these physicians had been using the Internet for 2 or more years. Twenty-three had a computer with Internet access at their office, and 33 had a computer with Internet access at home. Fourteen of the participants had visited the CTFPHC website prior to attending the focus group.

Four themes characterized the participants' perceptions of disseminating preventive CPGs on the Internet: content expectations; quick, easy access to organized information; trustworthy information; and implications for clinical practice.

Content expectations Using phrases such as and participants indicated they wanted a brief summary of the key information (i.e. CTFPHC recommendations), presented in a synthesized form with minimal text. In this summary, participants wanted .

Beyond the summary, participants wanted to be able to access more detailed explanations of the guidelines and evidence to support the recommendations. They asked for evidence in various forms including reference lists, article abstracts, links to journal articles, and summaries of key evidence. In addition, participants wanted the website to include links to other sites with guidelines on prevention topics. Some participants also wanted links to treatment-oriented websites.

Quick, easy access to organized information Participants saw the Internet as a vast but untamed source of information. Although good medical information may be available, they did not see the Internet as a tool for providing quick answers to their clinical questions. Time became a barrier to Internet use because most participants did not know where to go to find answers to their questions. As a result, many would resort to getting information from easily accessible textbooks. “Furthermore, it took too long for participants to connect to the Internet.

Participants recommended providing easy options for users to download sections of a website to their hard drive, and/or distributing the information on CD-ROM to avoid lengthy Internet connection times and the slow transfer of information over phone lines. Direct Internet access via a network or cable was identified as another option, though many participants thought cost could be a barrier to this alternative. It appeared that time prevented participants from accessing Internet information during the day. As a result they would often look for the information at night. .

Despite lack of time, participants liked the idea of being able to access CTFPHC recommendations using a computer-based medium. Further discussion focused on ways that website design, organization and navigation could increase the speed and ease of access to this information. Participants strongly recommended that the website present information in layers so users could select as much or as little information as they wanted. Initial screens should provide a brief summary of the recommendations, with links to more information, either by highlighting key words in the text or a list of menu items.

A number of participants also requested that summaries be easy to print on a single page to place in the patient's chart or to refer to at a later time. Many recommended that the use of graphics be minimized to increase the speed of download from the Internet to the user's computer.

Participants identified a number of ways to organize the information to make navigation efficient and allow users access to what they wanted. Categorizing and indexing information by disease, organ system, screening test, grade of recommendation, age and gender would help users find answers to their questions as quickly as possible.

Participants advocated the use of simple searching tools. Some also indicated they wanted to access information by entering individual patient characteristics and have the site generate information from the recommendations relevant to that patient. The inclusion of a section was also strongly advocated as a means of staying up-to-date with new or revised recommendations.

Trustworthy information Quick, easy access to information was a dominant theme in the focus groups, but it was not the participants' only criterion for an information source. The information also had to be trustworthy. The credibility of information was often determined by

the inclusion of evidence in the form of references to support the recommendations. One participant suggested that at times it is difficult to determine why the grade of recommendation is an A or B without seeing the evidence and .

In addition to evidence, currency of information was critical to establishing its credibility. Participants wanted to know the date of the recommendation. There was also an assumption the recommendations on the Internet would remain current and be regularly updated.

Some participants wanted background information about the organization, including funding agencies, member and author names, an outline of the process followed to develop the recommendations, and a definition of "evidence".

Applications to clinical practice Participants' discussions also highlighted how additional features could enhance the usefulness to clinical practice of a website or CD-ROM on preventive CPGs. Many suggested that patient versions of CTF guidelines would be valuable for practicing physicians. Participants spoke of the challenge of increasing numbers of patients bringing in information from the Internet. As a result, participants liked the idea of being able to show their patients a trustworthy source of information.

In addition, participants wanted the website to include information about other organizations' guidelines and explanations of uncertainties or controversies with available evidence. Participants expressed frustration with the inconsistencies between guidelines and the lack of specific recommendations in some areas. They wanted the website to provide them with information to help them understand these issues.

DISCUSSION

The dominant theme across the focus groups was the need for physicians to have quick, easy access to information. Accessibility is an important factor influencing physicians' use of information.<8,9> Easy access and navigation are critical if physicians are going to use information from the Internet in their daily practice. This study revealed that there are two steps involved in accessing Internet health information. The first step is being able to access a website online. This involves having the technical capabilities to get on the Internet and the knowledge and ability to locate relevant websites. The second step involves finding relevant information on a specific website. This demands that websites be designed to allow users to find the information they want quickly and easily.<19>

Participants also suggested that websites should include interactive tools to allow users to enter specific characteristics such as a patient's age, gender and risk factors, and have the website generate the relevant information. In theory, relational databases could make this possible.<20-22> However, as the available evidence-based guidelines for many topics do not as yet cover all the variables of gender, age and risk factors, it may be difficult to construct comprehensive interactive databases incorporating these factors.

Provision of simple searching tools can facilitate physicians' online searches. Studies have shown that, in general, family physicians are more comfortable and proficient at searching printed resources, such as .<23> Attention to aspects of system design, including simplicity in search interfaces, comprehensive index systems, and provision of summary formats, are factors that can enhance physicians' online searching experiences.<24> In fact, these results are congruent with those of Verhoeven et al. <23>, in that an index was seen, in many ways, as preferable to an internal search engine: .

Ultimately, if accessibility can be improved, then the chances of physicians retrieving Internet information on preventive CPGs will be increased. According to our participants, online preventive CPGs would be most useful, and have the greatest potential for impact on practice, if they were designed for direct integration into established clinical information systems.<2>

In addition to issues of accessibility, Internet information must also be trustworthy. Historically, physicians have relied on personal discussions with trusted colleagues and consultants as their primary information sources.<7> If physicians are to start using the Internet as a major source of information, they must trust its quality (see Table 1).

If groups such as the CTFPHC can provide physicians with quick, easy access to trustworthy preventive CPGs, then their websites will be useful information sources. Participants in this study identified a number of important ways they could use this resource in practice (see Table 1). Furthermore, Internet access to Task Force guidelines would help participants remain up-to-date and fill knowledge gaps.<25> Participants also suggested that explanations of uncertainties and controversies in the available evidence, as well as comparisons with other CPGs, would help them cope with the volume of information available.

It is important to note that the transferability of these findings is limited to those physician populations similar in description to the participants in this study. Specifically, focusing the sample to physicians with at least some Internet experience may limit the ability to generalize of these results to those who currently do not use the Internet. We recognize that one could also conduct focus groups with physicians not using the Internet to explore barriers to using it for preventive health information, however this was not the purpose of our study. The findings regarding strategies to provide online CPGs to physicians could be transferred to situations beyond the specific case of the CTFPHC website. Participants were asked general questions

about their use of the Internet to access practice information, and their broader needs for prevention information beyond the Internet. Much of the data presented here reflects this more general discussion, as applied to our specific example. Of course, participants were aware of the work of the CTFPHC and understood that a key purpose of the discussions was to guide the development of this website, thus data more specific to this goal is also incorporated into these results. The extent to which the key design criteria identified by our participants are applicable to other contexts requires future research.

Because the four focus groups were conducted within a two-week period, the opportunity for concurrent data collection and interpretation was reduced. Therefore, there was limited opportunity to modify the data collection process to ensure the research questions were being adequately addressed and new issues were being explored.<16> The researchers addressed these issues through debriefing meetings after each focus group. Due to the specific focus of the project and time limitations, the exploration of some issues was limited. For example, more in-depth exploration of the impact of Internet health information on the patient-physician relationship is required. Future research into the characteristics of effective website design and accessibility of Internet information that is useful to clinical practice is also warranted.

In summary, physicians identified an important role for Internet information in preventive clinical practice. They also identified some potential barriers, including accessibility and trustworthiness of the information. Participants' perceptions of the Internet as a valuable tool indicates that there is merit in pursuing strategies to overcome potential barriers, and to provide physicians with high quality information usable in clinical practice.

CONCLUSIONS

Physicians want quick, easy access to trustworthy information. A website on preventive CPGs with these characteristics will be a useful information resource. Participants identified a number of important ways they could use this resource in practice.

Table 1: Key Messages for Developers of Websites for Physicians

1. Physicians want quick, easy access to information at two levels:
 - technical capabilities to get on the Internet and knowledge/ability to locate relevant websites
 - being able to find relevant information on a specific website, facilitated by:
 - information organized in layers
 - site indexed by disease, organ system, screening test, grade of recommendation, age and gender .
 - provide interactive tools to tailor information to patients
2. Internet information must be trustworthy, as indicated by:
 - source credibility,
 - evidence to support the information
 - currentness of the information
3. Physicians would use Internet preventive CPG information in practice:
 - to educate patients (i.e. by printing information for handouts, or providing URL to patients)
 - to remain up-to-date and fill knowledge gaps
 - to be current with uncertainties and controversies in the available evidence,
 - to be able to compare guidelines from different CPG developers

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