

Evidence-based preventive practice guidelines

Qualitative study of useful resources on the Internet

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ABSTRACT

OBJECTIVE To explore family physicians' perspectives on how best to provide evidence-based preventive clinical practice guidelines (CPGs) to physicians on the Internet.

DESIGN Focus groups.

SETTING A large, urban centre and a rural community hospital.

PARTICIPANTS Thirty-four of more than 150 family physicians who subscribed to an e-mail discussion group.

METHOD Qualitative survey of four focus groups, analysis of transcripts and researchers' notes.

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

CONCLUSION Physicians want quick, easy access to trustworthy information. A website for preventive CPGs with these characteristics would be a useful resource.

RÉSUMÉ

OBJECTIF Examiner les points de vue des médecins de famille concernant la meilleure façon de leur offrir sur Internet des guides de pratique clinique préventive fondés sur des données probantes.

CONCEPTION Des groupes témoins.

CONTEXTE Un grand centre urbain et un hôpital communautaire en milieu rural.

PARTICIPANTS Parmi plus de 150 médecins de famille abonnés à un groupe de discussion par courriel, 34 ont participé à l'étude.

MÉTHODE Un sondage qualitatif auprès de quatre groupes témoins, une analyse des transcriptions et les notes des chercheurs.

PRINCIPALES CONCLUSIONS Quatre thèmes se dégagent des préférences des participants quant à la diffusion des guides de pratique clinique préventive sur Internet: les attentes entourant le contenu; un accès facile et rapide à des renseignements; la fiabilité de l'information; et leur sens pour la pratique clinique.

CONCLUSION Les médecins veulent un accès rapide et aisé à des renseignements fiables. Un site Web regroupant des guides de pratique clinique préventive répondant à ces critères constituerait une précieuse ressource.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 2001;47:1577-1583.

RESEARCH

Evidence-based preventive practice guidelines

With the emergence of the Internet, accessibility to health and medical information for both physicians and consumers has increased. The Internet provides access through a range of methods: e-mail, listservs, on-line journals, and informative websites.¹ Many Internet resources provide evidence-based information. Websites from individual developers of clinical practice guidelines (CPGs) and guideline clearinghouses allow users to compare recommendations produced by different organizations.²

Some barriers to using CPGs in clinical practice are related to the way physicians seek and use information.^{3,4} These barriers include lack of time and information overload; lack of training in use of information sources; inadequate information management skills and systems; and lack of training in evaluating and applying research evidence.⁵

A meta-analysis of information sources for physicians found that physicians prefer using books and journals to access needed information, and they often consult with their colleagues for answers to clinical and research questions.⁶ Similarly, the authors of a study to understand the information preferences, needs, and uses of Canadian physicians⁷ reported that informal discussions had the greatest effect on clinical decision making. More formal training and reading were also influential. The sources reported to have the least effect were pocket notes, CPGs, brief updates, original research articles, position papers, computerized literature searches, and insurance plan policies.

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

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than factors related to quality (ie, reliability and completeness of the information).⁸ When evidence-based information is made easily available to physicians, use of the evidence increases.⁹ One of the challenges of disseminating information to physicians is increasing the accessibility of that information.

Despite increasing access to information sources on the Internet, the role the Internet will play in meeting primary care information needs remains uncertain.¹⁰ We do know physicians are using the Internet more. In 2000, more than 66% of general practitioners and family physicians used the Internet, compared with 60% in 1999 and 50% in 1998.¹¹⁻¹³ Physicians most commonly use the Internet for e-mail, searching the World Wide Web, and searching bibliographic databases.¹²

While physicians are using the Internet more, so are consumers.¹⁴ Some authors have suggested that Internet health information is affecting the way patients and physicians interact.^{15,16}

The Canadian Task Force on Preventive Health Care (CTFPHC), formerly called the Canadian Task Force on the Periodic Health Examination, which produces evidence-based recommendations on prevention of illness, has developed a website containing its reviews and recommendations. When the website was developed, physicians' on-line information needs were not well understood. This study was designed to explore how the CTFPHC could best make its evidence-based information available to family physicians in a convenient and usable form on the Internet.

METHODS

This exploratory study used focus groups¹⁷ to gain an understanding of family physicians' perceptions of how preventive CPGs should be disseminated on the Internet. We explored participants' thoughts and opinions on how to make a preventive CPG website useful to practising physicians.

Choosing a sample

Local family physicians in an e-mail discussion group called FERN (Family medicine Educational and Research Network) were recruited for the focus groups because it was assumed they would be familiar with the Internet. As an incentive to participate, a \$40 gift certificate was given to each participant.

The Thames Valley Family Practice Research Unit (TVFPRU) at the University of Western Ontario in London sponsors FERN. Currently, slightly more than 150 area family physicians are members of FERN. These physicians are provided with an e-mail account

and software to access the local University server. The TVFPRU gave our research team permission 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 thought 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 on 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. We did not sample specifically for demographic variables such as age and sex.

Ethics approval for the study was received from the University of Western Ontario Ethics Review Board.

Focus group conduct and analysis

A trained moderator conducted the focus groups; an assistant moderator audiotaped the discussion and took field notes. Discussions lasted from 1 to 1.5 hours. An interview guide was developed, outlining specific questions on the type of on-line preventive CPGs and information physicians want and how they want that information presented. The moderator was free to word and sequence questions in the most appropriate manner for each group and to pursue areas in greater depth if desired.¹⁸

Throughout the focus groups, the moderator summarized feedback, allowing participants to offer additional information or correct errors in interpretation, a process called member-checking.¹⁹ 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, they decided 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 analyzed 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.¹⁹

FINDINGS

Four focus groups were held in spring 1999. A total of 34 physicians participated, 23 male and 11 female. Three of the four focus groups were held in a large urban centre; the fourth was held in a small community hospital. Most participants were practising family physicians; three were completing residencies. Participants ranged in age from 31 to 70 years. Two thirds of these physicians had been using the Internet for 2 or more years; 23 had computers with Internet access in their offices; and 33 had computers with Internet access at home. Fourteen participants had visited the CTFPHC website before attending the focus group.

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

Content expectations

Using phrases such as "one-sheet algorithm or summary" and "single screen with knowledge summarized in algorithmic fashion," participants indicated they wanted a brief summary of the important information (ie, CTFPHC recommendations) presented in a synthesized form with minimal text. In this summary, participants wanted:

Simple ideas about how often we should be doing whatever the intervention is or what the patient should be doing, but also how good is the information, some assessment [or] some rating of the quality of the evidence.

Beyond the summary, participants wanted to be able to access more detailed explanations of guidelines and

RESEARCH

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Evidence-based preventive practice guidelines

evidence to support recommendations. They asked for evidence in various forms including reference lists, article abstracts, links to journal articles, and summaries of key evidence. In addition, they wanted the website to include links to other sites with guidelines on prevention topics. "List the top three or four organizations that have published guidelines... so you could just point and click and it would take you to that." 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 might 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 resorted to getting information from easily accessible textbooks. "Mostly I would head for the book rather than [the Internet] because I don't know my way through the Internet." Also, it took too long for participants to connect to the Internet.

[T]o log into the Internet between patients, or step out for a second and log into the Internet just doesn't happen. I mean, the connections are too slow, the start-up time is too long. It's not an efficient use of resources.

Participants recommended providing easy options for users to download sections of a website to their hard drive or to distribute the information on CD-ROM to avoid lengthy Internet connection times and the slow transfer of information over telephone lines. Direct Internet access through a network or cable was identified as another option, although many participants thought cost could be a barrier to this alternative. Time seemed to prevent participants from accessing Internet information during the day. As a result, they often looked for information at night: "If I ever go it's at night. Usually I go to bed instead, but I don't have an opportunity in the daytime."

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 as they wanted. Initial screens should provide a brief

summary of the recommendations and have links to more information, either by highlighting key words in the text or by giving a menu of items.

I see this as levels. So for instance, level one is what are the guidelines for breast cancer screening. I'd like to be able to just click on that, read what it says and get out of there. Now if I find that I want to go farther, I'd like to be able to expand on it and maybe look at where they came from and what the text was, what studies you referenced and so on. But I don't want to have to see all that at first because maybe all I'm asking is a very simple question like should I do this test at this age or not.

Several participants also requested that summaries be easy to print on a single page to place in a patient's chart or to refer to later. Many recommended that use of graphics be minimized to increase the speed of download.

Participants suggested many 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 sex would help users find answers quickly.

You've got however you want to break it down—age-specific, organ-specific, or then even under that the certain diseases, and then you can just sort of click, click, click, all the way through and there's your guideline.

Participants advocated 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. "I would like to see something where you could take your patient's age, gender, if they have any risk factors present, things like that." The inclusion of a "What's New" 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 participants also wanted information to be trustworthy. The credibility of information was often determined by 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 "that's why having those references will be useful."

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 that recommendations on the Internet would remain current and be regularly updated.

It should also include the date of the update. Therefore, it will be incumbent on the Task Force to be constantly updating.... If it's not updated, then it loses its credibility and nobody would use it.

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."

At least if we know when we come to this site that it is run by this—like some of the money comes from this... this is our editorial board, or this is our research board, or whatever. Then we have some way of kind of checking them out and find out what their reputation is. Then at least you know where the bias might be or you feel a bit more comfortable looking at that.

Applications to clinical practice

Participants' discussions also highlighted how additional features could enhance the usefulness of a website or CD-ROM on preventive CPGs. Many suggested that versions of the guidelines for patients would be valuable for practising physicians. They spoke of the challenge of increasing numbers of patients bringing in information from the Internet.

Patients come in based on Internet-related material that is hard to [know what to do] with it. Basically it can cause problems trying to sort out what's authentic and valuable information and what isn't.

As a result, participants liked the idea of being able to show their patients a trustworthy source of information.

Both the doctor and patient could, with a couple of clicks, get some information that would come up on the screen and it would be a point of discussion and then easily print off a hard copy. I mean I think that's the future, and your website should be designed with that in mind.

In addition, participants wanted the website to include information about other organizations' guidelines and

Table 1. Key messages for developers of websites for physicians

PHYSICIANS WANT QUICK, EASY ACCESS TO INFORMATION AT TWO LEVELS:

By having technical capabilities to get on the Internet and the knowledge and ability to locate relevant websites, and

By being able to find relevant information on a specific website, which could be facilitated by:

- information organized in layers;
- site indexed by disease, organ system, screening test, grade of recommendation, age, and sex; and
- interactive tools to tailor information to patients.

INTERNET INFORMATION MUST BE TRUSTWORTHY, AS INDICATED BY:

Source credibility

Evidence to support the information

Currency of the information

PHYSICIANS WOULD USE PREVENTIVE CLINICAL PRACTICE GUIDELINES ON THE INTERNET IN PRACTICE:

To educate patients (ie, by printing information for handouts, or providing uniform resource locators [website addresses] to patients)

To remain up-to-date and fill gaps in knowledge

To keep current on uncertainties and controversies in the available evidence

To compare guidelines from various developers of clinical practice guidelines

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 focus groups was the need for quick, easy access to information (**Table 1**). Accessibility is known to be an important factor influencing physicians' use of information.^{8,9} This study revealed that there are two steps involved in accessing Internet health information. The first is being able to access a website, which involves having the technical capability to get on the Internet and the knowledge and ability to locate relevant websites; the second involves finding relevant information on a specific

RESEARCH

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Evidence-based preventive practice guidelines

website. Websites must be designed to allow users to find the information they want quickly and easily.²⁰

Participants also suggested websites should include interactive tools to allow users to enter specific characteristics, such as a patient's age, sex, and risk factors, and have the website generate relevant information. In theory, relational databases could make this possible,²¹⁻²³ but at this time, available evidence-based guidelines on many topics do not cover all the variables of sex, age, and risk factors, so it might 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 *Index Medicus*.²⁴ Attention to aspects of system design, including simplicity of search interfaces, comprehensive index systems, and provision of summary formats, can enhance physicians' on-line searching experiences.²⁵

In fact, these results are congruent with those of Verhoeven et al,²⁴ in that an index was seen, in many ways, as preferable to an internal search engine: "You don't have to create an internal search engine yet. So just like a book, like an index." Ultimately, if accessibility can be improved, then the chances of physicians retrieving Internet information on preventive CPGs will be increased. According to our participants, on-line preventive CPGs would be most useful and would have the greatest potential for affecting 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 main source of information, they must trust the quality of its information.

If groups such as the CTFPHC can provide physicians with quick, easy access to trustworthy preventive CPGs, then their websites will be useful resources for practice (**Table 1**). Furthermore, Internet access to task force guidelines would help physicians remain up-to-date and fully knowledgeable.²⁶ 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.

Limitations

It is important to note that the transferability of these

findings is limited to populations similar to the participants in this study. Specifically, choosing physicians with at least some Internet experience could limit the ability to generalize these results to physicians who currently do not use the Internet. The findings regarding strategies for providing on-line 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 development of this website, so data more specific to this goal are also incorporated into the results. The extent to which the design criteria identified by our participants are applicable to other contexts requires future research.

Because the four focus groups were conducted within a 2-week period, 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.¹⁷ The researchers addressed these issues through debriefing meetings after each focus group. The specific focus of the project and time limitations meant that exploration of some issues was limited. For example, more in-depth exploration of the effect of Internet health information on patient-physician relationships is required. Future research into characteristics of effective website design and accessibility of Internet information useful to clinical practice is also warranted.

Conclusion

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 indicate that there is merit in pursuing strategies to overcome barriers and in providing physicians with high-quality information they can use in clinical practice. Physicians want quick, easy access to trustworthy information. A website on preventive CPGs with these characteristics would be a useful resource. ❀

Contributors

Dr Feightner was involved in conceptual development of the study, preparing the funding proposal, developing the research

Editor's key points

- This qualitative study examined family physicians' preferences for dissemination of clinical practice guidelines (CPGs) on the Internet.
- Family physicians preferred CPGs to be presented in clinically useful algorithms. Access had to be quick and easy, and the information was expected to be trustworthy.
- Participants also suggested there should be versions of CPGs for patients and that the CPGs should have links to other organizations' guidelines.

Points de repère du rédacteur

- Cette étude qualitative examinait les préférences des médecins de famille quant à la diffusion de guides de pratique clinique (GPC) sur Internet.
- Les médecins de famille préféraient des GPC offrant des algorithmes utiles sur le plan clinique. Il faut un accès rapide et facile et les renseignements doivent être dignes de confiance.
- Les participants ont également suggéré la disponibilité de versions des GPC à l'intention des patients et proposé que les GPC comportent des liens à des lignes directrices d'autres organisations.

design, final decisions on data acquisition and analysis, and manuscript preparation, revision, and final editing. Drs Marshall and Quintana were involved in research design, data analysis, and manuscript preparation and revision. Ms Sangster helped design the research plan, had primary responsibility for data collection and analysis, and participated in manuscript preparation and revision. Ms Wathen participated in conceptual development, funding proposals, research design, data collection and analysis, and preparing the manuscript for publication.

Competing interests

None declared

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