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Use of the Internet by medical doctors in Switzerland

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Summary

Questions under study: To investigate the utilisation of the Internet by primary care physicians for medical purposes during their daily practice, and to clarify the reasons for use or non-use of this technology.

Methods: Cross-sectional postal survey in German-speaking Switzerland employing a purpose-designed pre-validated 69-item questionnaire. A random sample of 2009 primary care physicians participated in the investigation. Main outcome measures: Number of primary care physicians with access to the Internet; reasons for using the Internet during consultations; sources of information in solving medical problems arising from concurrent patient care.

Results: 55% of the physicians returned the completed questionnaire. 75% of respondents reported access to the Internet. Only 7% use the Internet during patient consultations. The main reasons for not using the Internet were time pressure and concerns about potential negative interaction with physician-patient communication. To solve patient-specific problems arising during daily practice, 59% of the practitioners consult textbooks or colleagues. Only 14% of respondents report regularly finding useful information on the Internet. Internet users assess information quality by checking on authorship, institution, publishing company, or whether the information is sponsored by a third party with a potential conflict of interest.

Conclusions: Access to the Internet is widespread amongst German-speaking Swiss primary care physicians. Only a small minority use the Internet for information retrieval during consultation hours. Electronic information systems need to be tailored to the needs of primary care physicians.

Keywords: Internet; Switzerland; physicians; questionnaires; information; management; needs; quality; consultation; computer

Introduction

In the practice of evidence-based medicine physicians need to sift through increasing quantities of information. The Internet has been proposed as a possible tool to facilitate access to this information [1]. Investors spend vast resources on Internet-based "portals" and databases serving this aim. The claimed advantages are: short transfer times, lower costs than paper-based dissemination, and on-demand, instant, worldwide availability. These features have simplified access to medical information for health care professionals and patients at a speed, and in a volume, previously unknown. In recent years several information management systems designed to meet the information needs of practising physicians have been implemented in different countries and languages.

Previous research has shown that physicians search for information about medical problems as they arise during a consultation [2]. They expect to retrieve one or more answers within minutes [3]. In a previous study we showed that approximately half of the general practitioners in German-speaking Switzerland have access to the Internet [4]. However, only 7% actually use the Internet during the consultation. In the present study we set out to clarify the reasons for not consulting the Internet and identify the alternative sources of information for problem-solving during patient care.

Subjects and methods

We performed a cross-sectional study amongst primary care physicians in German-speaking Switzerland. We randomly selected 2009 candidate participants from the complete primary care physician registry listing 5936 enrollees. A purpose-designed questionnaire was mailed with a prepaid return envelope. The replies were anony-

mous. The questionnaire was mailed in May 2000. Physicians were asked to return the completed forms within 6 weeks. No reminder was sent.

The 69-item questionnaire assessed baseline demographic data including gender, age, medical speciality and questions concerning use of the computer, of the Internet and of Internet-based information systems. The questionnaire comprised two sets of items. The first set evaluated actual use of the Internet and attitudes to Internet-based information systems. The second set concerned the sources of information primary care physicians use when solving a medical problem. Questions were presented as yes-no options, or as Likert scales (never, rarely, sometimes, often, always).

The questionnaire was pilot-tested and finalised with a peer-focus group of five primary care physicians. Data are presented as descriptive statistics.

Results

Within the predefined period 1103 of 2009 questionnaires (55%) were returned. Eighteen questionnaires were incomplete and excluded from further analysis. The mean age of respondents was 49 ± 5 years, 87% were males, 49% were general practitioners, 33% specialists in internal medicine, and 18% paediatricians or gynaecologists.

Internet was available to 75% of all participating physicians. 24% reported access in the consulting room. Every fifth physician without Internet was planning to gain access in the near future. However, only 7% reported using the Internet for information retrieval during patient consultations. The primary reasons for not using the Internet were inappropriate time demands and possible interference with the physician-patient relationship. Further reasons for not using the Internet are listed in table 1. The main reasons for using the Internet during consultations were retrieval of information on drugs (50%), patient-specific information (50% of users), vaccination recommendations and advice to persons travelling to foreign countries (8%), and computation of the risk of atherosclerotic disease (2%).

When physicians encounter a medical problem, the majority of respondents report consulting a textbook or a professional colleague (figure 1), and only a minority regularly search the Internet for appropriate answers. 65% of physicians considered the Internet of no help in solving medical problems, while 14% report regularly finding useful information. The most often-used information sources were MEDLINE (40%), online journals (21%) and the Cochrane Library (14%). Doctors use the Internet to keep up to date in a general way. It is important to note that most of this information retrieval occurs outside patient consultation hours.

Respondents reported appraising the quality of Internet-retrieved information on the basis of the following items: institution, publishing company, authorship and time of last update. A third of the physicians also check whether the information source or its content is sponsored by a third party with a potential conflict of interest (figure 2). Nine of 10 physicians have had experience of patients bringing Internet-retrieved information to the consultation, although for most physicians this remains a rare event in every day's practice.

More than 80% of doctors would use "portals" as a possible solution to handling of information retrieval and quality assessment. In this context we defined a portal as a database tailored to the information needs of health care professionals. Physicians expressed particular interest in services that conduct literature searches. They would prefer to receive regular newsletters containing relevant and valid abstracts of the published literature. However, fewer than 50% of respondent Swiss physicians are willing to pay for such services.

Currently, 59% of participants regard the Internet as of minor importance on medical issues. They expect a transition within the next three years: the majority (81%) foresee a major gain in the overall importance of the Internet for the medical profession, while 19% predict continuing minor relevance for the practising physician.

Table 1

Reasons for not using the Internet during primary care consultations (multiple answers were possible, n = 614) .

Reason	n	%
Too time-consuming	473	77
Disturbs patient-doctor communication	437	71
Information content is confusing	240	39
Potentially bothering for the patient	174	28
No access in the consultation room	79	13
Concerns regarding security of data transmission	39	6
No experience in using the Internet	7	1

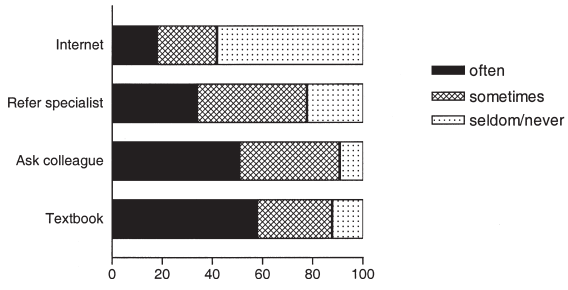

Figure 1

Information sources for handling of medical problems (n = 888).

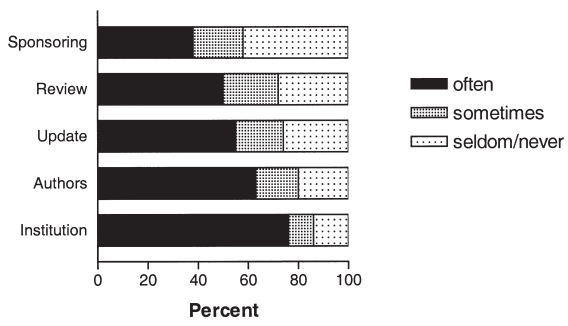

Figure 2

Criteria used by general practitioners for quality assessment of the information retrieved from the Internet (n = 620).

Discussion

In this study we evaluated the physicians' self-reported reasons for using or not using the Internet. Although access to and use of the Internet has considerably increased in the past three years (from 45% to 75%), physicians actually using Internet retrieval of information during consultations (7%) are still only a minority.

Only 14 % reported regularly finding useful information. Fewer than a fifth of all Internet-using physicians consider the medium a source of useful information, and most physicians continue to consult textbooks or seek information from colleagues in solving medical problems [3, 5, 6]. Apparently little has changed since a North American survey showed – more than 15 years ago – that "most physicians find the effort to get information from the literature to be a major problem" [7]. Despite the documented rapid increase in use of computers and access to the Internet [8], information management seemingly remains confined to methods dating from before the advent of the Internet.

What are the reasons for this discrepancy between access and utilisation? The Internet undoubtedly provides a fast channel for the transfer of medical information into the office of the health care professional. However, little has probably been achieved in teaching physicians how to effectively retrieve and organise information [9]. Although the Internet contains a number of sites in several languages that aim to provide evidence-based medical knowledge [10], 58% of respondent physicians reported "never" finding useful information when confronted with a new medical problem arising from their practice. Several reasons may account for this: first, information retrieval from the Internet may still be much more time-consuming and awkward than consulting a trustworthy colleague or a textbook. Second, information retrieval from the Internet requires additional information appraisal and processing skills [11]. Third, physicians are concerned that information retrieval from the Internet during consultation may negatively affect doctor-patient communication [15, 20].

If the benefits of modern information technology are to be delivered to ambulatory patient care, probably the primary objective should not be merely to increase the amount of content on the Internet. Rather, researchers and developers of portals and databases alike should improve existing information systems [21, 22]. Currently these systems work well for an apt librarian or skilled researcher, but seem not to be tailored to the specific needs of the practising physician [23]. Most practising colleagues will spend at least 10 minutes retrieving an appropriate answer from the Internet to simple questions such as the recommended vaccination before travelling to Kenya. Unless useful information pops up soon after typing "Kenya, travel, vaccination?", the predicted growth in the Internet's importance will not materialise. Unless major progress is made towards simplifying retrieval and management of information, use of the Internet will remain confined to back-office sessions after consultation hours. Whether the new portals and information databases being published on the web will satisfy these requirements remains to be clarified (e.g. summaries of systematic reviews as presented on www.cochrane.org or structured summaries of relevant papers in the physician's native language, e.g. for German at www.evimed.ch). Follow-up studies are to this extent warranted, particularly after faster networking access has become standard.

A major limitation of the present survey is the participation rate of 55%. The present data may be biased towards participation of physicians who have access to Internet. Hence the true access and utilisation rate may be even lower than presented. Caution should be exercised when generalising these data beyond German-speaking Switzerland or to non-primary care physicians.

Although the Internet has facilitated the transfer of information into the physician's office, the use of these vast amounts of available information is still in its infancy. Information management must be taught, learned, practised and continuously improved, before the new technology can begin to have an impact on routine patient care [23].

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References

1 Fraser HS, Kohane IS, Long WJ. Using the technology of the World Wide Web to manage clinical information. BMJ 1997; 314:1600–3.

2 Gardner M. Information retrieval for patient care. BMJ 1997; 314:950–3.

3 Ely JW, Osheroff JA, Ebell MH, Bergus GR, Levy BT, Chambliss ML, et al. Analysis of questions asked by family doctors regarding patient care. BMJ 1999;319:358–61.

4 Simic P, Steurer J. Einsatz des Internets in der Arztpraxis: Resultate einer Umfrage bei 1500 Ärzten. Schweiz Ärztezeitung 1999;80:1811.

5 Smith R. What clinical information do doctors need? BMJ 1996;313:1062–8.

6 Ely JW, Burch RJ, Vinson DC. The information needs of family physicians: case-specific clinical questions [see comments]. J Fam Pract 1992;35:265–9.

7 Williamson JW, German PS, Weiss R, Skinner EA, Bowes F, III. Health science information management and continuing education of physicians. A survey of U.S. primary care practitioners and their opinion leaders. Ann Intern Med 1989; 110:151–60.

8 Blonde L, Cook JL, Dey J. Internet use by endocrinologists. Recent Prog Horm Res 1999;54:1–29.

9 Gorman PN, Helfand M. Information seeking in primary care: how physicians choose which clinical questions to pursue and which to leave unanswered. Med Decis Making 1995; 15:113–9.

10 Sandvik H. Health information and interaction on the internet: a survey of female urinary incontinence. BMJ 1999;319:29–32.

11 Chi-Lum BI, Lundberg GD, Silberg WM. Physicians accessing the Internet, the PAI Project. An educational initiative [editorial]. JAMA 1996;275:1361–2.

12 Detmer WM, Friedman CP. Academic physicians' assessment of the effects of computers on health care. Proc Annu Symp Comput Appl Med Care 1994;558–62.

13 Chi-Lum BI, Durkin RM. Physicians assessing the Internet: the PAI project. JAMA 1999;282:633–4.

14 Eysenbach G, Diepgen TL. Towards quality management of medical information on the internet: evaluation, labelling, and filtering of information. BMJ 1998;317:1496–500.

15 Als AB. The desk-top computer as a magic box: patterns of behaviour connected with the desk-top computer; GPs' and patients' perceptions. Fam Pract 1997;14:17–23.

16 Ridsdale L, Hudd S. Computers in the consultation:the patient's view. Br J Gen Pract 1994;44:367–9.

17 Greatbatch D, Heath C, Campion P, Luff P. How do desk-top computers affect the doctor-patient interaction? Fam Pract 1995;12:32–6.

18 Eberhart-Phillips J, Hall K, Herbison GP, Jenkins S, Lambert J, Ng R, et al. Internet use amongst New Zealand general practitioners. N Z Med J 2000;113:135–7.

19 Wilson SM. Impact of the Internet on Primary Care Staff in Glasgow. JMIR 1999;1(2):e7. Available from: URL: http://www.symposion.com/jmir/1999/2/e7/

20 Hjortdahl P, Nylenna M, Aasland OG. Internet and the physician-patient relationship – from "thank you" to "why?". Tidsskr Nor Laegeforen 1999;119:4339–41.

21 Hayward JA, Wearne SM, Middleton PF, Silagy CA, Weller DP, Doust JA. Providing evidence-based answers to clinical questions. A pilot information service for general practitioners. Med J Aust 1999;171:547–50.

22 Anderson JG, Casebeer LL, Kristofco RE. Medcast: evaluation of an intelligent pull technology to support the information needs of physicians. Proc AMIA Symp 1999;466–70.

23 Gray JA. Where's the chief knowledge officer? To manage the most precious resource of all [editorial]. BMJ 1998;317:832.

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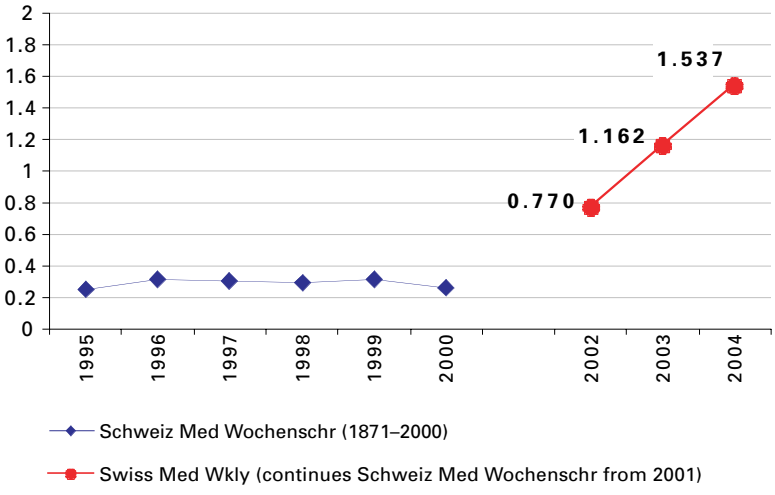

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