Must we appear to be all-knowing?

Patients' and family physicians' perspectives on information seeking during consultations

Steven Kahane MD CCFP FCFP   **Eric Stutz** MD CCFP   **Babak Aliarzadeh** MD MPH

Abstract

Objective To compare patients' opinions about family physicians looking up medical information during consultations with family physicians' expectations of how patients would respond to their using sources to find answers to medical questions.

Design Survey.

Setting North York, Ont.

Participants One hundred fifty-three family practice patients, 54 family physicians, and 21 family practice residents.

Main outcome measures Patients' self-reported confidence in their family physicians and their perceptions of the quality of care after seeing physicians look up medical information, both without specifying the physician's source of information and with reference to several specific information media. Family physicians' predictions for how patients would respond to their using resources to answer medical questions.

Results When the information source used by physicians was not specified, 9% and 7% of patients reported decreased confidence and perceived lower quality of care, respectively. When the information source used by physicians was specified, the proportions of negative responses for patients' confidence and their perceptions of quality of care were 39% and 31%, respectively, for Internet search engines (ISEs); 8% and 7% for online resources designed for physicians (ORDP); 27% and 27% for personal digital assistants (PDAs); and 10% and 9% for hard-copy medical textbooks (HMTs). When the information source was not specified, 32% and 12% of physicians expected patients to report negative responses for confidence and perceptions of quality of care, respectively. When the information source was specified, 51% and 33% of physicians expected patients to report negative responses for confidence and perceptions of quality of care, respectively, for their use of ISEs; 16% and 8% for ORDP; 20% and 12% for PDAs; and 36% and 21% for HMTs. Younger patients were more likely to respond negatively to physicians' use of resources, especially if the source was an ISE (*P*<.001). Physicians earlier in their careers were more likely to expect negative patient responses (*P*<.05).

Conclusion Family physicians overestimated the decrease in patients' confidence caused by seeing them look up medical questions. While most patients responded positively, a substantial proportion of younger patients reported decreased confidence. Patients believed the best sources of information were ORDP and HMTs.

This article has been peer reviewed.

Can Fam Physician 2011;57:e228-36

EDITOR'S KEY POINTS

• This study provides family physicians with information on patients' attitudes toward physicians looking up answers to medical questions. Understanding patients' opinions will help family physicians when considering whether to look up questions in front of patients and when choosing information resources.

• Most patients, especially those older than 40 years of age, responded positively to their family physicians looking up medical questions. Younger patients were not as likely to respond positively.

• Family physicians consulting Internet search engines might cause patients to lose confidence in them.

• Hard-copy medical textbooks were viewed more positively by patients than physicians expected.

Faut-il donner l'impression de tout savoir?

Opinion des patients et des médecins de famille sur le fait de chercher de l'information pendant les consultations

Steven Kahane MD CCFP FCFP   Eric Stutz MD CCFP   Babak Aliarzadeh MD MPH

Résumé

Objectif Comparer ce que les patients pensent d'un médecin de famille qui cherche de l'information médicale pendant une consultation avec ce que les médecins pensent de la façon dont les patients réagiraient s'ils utilisaient des sources d'information pour répondre à des questions médicales.

Type d'étude Enquête.

Contexte North York, Ontario.

Participants Cent cinquante-trois clients de cliniques familiales, 54 médecins de famille et 21 résidents en médecine familiale.

Principaux paramètres à l'étude Déclaration des patients sur la confiance qu'ils accordent à leur médecin de famille et leur opinion sur la qualité des soins après avoir vu le médecin chercher des renseignements médicaux, à la fois sans préciser la source de l'information utilisée, et en se référant à différents médias d'information spécifiques. Ce que les médecins de famille pensent des réactions qu'auraient leurs patients s'ils recouraient à des sources d'information pour répondre à des questions médicales.

Résultats Quand la source d'information utilisée par le médecin n'était pas précisée, les patients ont rapporté une baisse de confiance et ont perçu une moins bonne qualité des soins dans 9% et 7% des cas, respectivement. Quand la source d'information utilisée était spécifiée, les taux de réponses négatives concernant la confiance des patients et leur perception de la qualité des soins étaient de 39% et 31%, respectivement pour les moteurs de recherche sur Internet (MRI); 8% et 7% pour les sites Internet destinés aux médecins (SIM); 27% et 27% pour les assistants digitaux personnels (ADP) et 10% et 9% pour les traités médicaux papier (TM). Quand la source de l'information n'était pas spécifiée, les médecins s'attendaient à ce que les patients rapportent des réponses négatives pour la confiance et pour la perception de la qualité des soins, respectivement dans 32% et 12% des cas. Quand la source d'information était précisée, les médecins s'attendaient à ce que les patients rapportent des réponses négatives pour la confiance et la perception de la qualité des soins, respectivement dans 51% et 33% des cas s'ils utilisaient les MRI; 16% et 8% pour les SIM; 20% et 12% pour les ADP; et 36% et 21% pour les TM. Les jeunes patients étaient plus susceptibles d'avoir des réponses négatives concernant l'utilisation de ressources par le médecin, particulièrement si la source utilisée était les MRI (*P*<,001). Les médecins avec moins d'années de pratique étaient plus susceptibles de s'attendre à des réponses négatives de la part des patients (*P*<,05).

Conclusion Les médecins surestimaient la perte de confiance des patients qui les voyaient chercher des réponses à des questions médicales. Même si la plupart des patients avaient une opinion favorable, une proportion importante de patients plus jeunes rapportait une baisse de confiance. Pour les patients, les meilleures sources d'information étaient les SIM et le VM.

POINTS DE REPÈRE DU RÉDACTEUR

• Cette étude renseigne le médecin de famille sur ce que les patients pensent de lui quand il cherche des réponses à des questions médicales. Cette information aidera le médecin dans sa décision d'effectuer ce genre de recherche en présence du patient et dans son choix quant à la source d'information.

• La plupart des patients, et particulièrement les plus de 40 ans, se sont montrés favorables à ce que leur médecin de famille cherchent des réponses à des questions médicales. Les patients plus jeunes étaient moins susceptibles d'avoir une opinion favorable.

• Les patients pourraient avoir moins confiance en un médecin de famille qui consulte des moteurs de recherche sur Internet.

• Les traités médicaux papier étaient mieux acceptés par les patients.

Family physicians encounter between 0.07 and 1.85 questions that they need to look up per patient visit.[1] Managing these gaps in knowledge is a crucial skill. Use of online clinical evidence resources improves accuracy of physicians' answers to clinical questions, confidence in decision making, and possibly patient outcomes.[2-4] In practice, only 30% to 56% of knowledge gaps lead to information-seeking behaviour.[1] Family physicians consistently report lack of time as the greatest barrier to information seeking.[1,5,6]

The information-seeking process can be more efficient when carried out during the clinical encounter. As more family physicians switch to electronic medical records (EMRs), more of them will have Internet access in their examination rooms. In addition, many family physicians carry personal digital assistants (PDAs). These technologies enable information seeking in front of patients with a variety of evidence-based resources.

Physicians might be reluctant to look up information in front of patients because they worry patients will lose confidence in them.[6-9] It would be worthwhile to know whether this fear is reflected in patients' actual attitudes. Studies have found that patients generally react positively to seeing their physicians consult PDAs,[10-13] but only 1 of these studies involved family practice patients.[10] The studies that have looked at physician computer usage have generally shown that patient satisfaction is not adversely affected. However, the focus has been on the effect of computer usage on patient-physician communication, with little attention to whether the computer was used for information seeking.[14-19]

We have little information on patients' perceptions of family physicians' information seeking, especially with Internet search engines (ISEs), online resources designed for physicians (ORDP), or hard-copy medical textbooks (HMTs). Our objective was to investigate patients' attitudes toward their family physicians looking up medical information from a variety of sources. These attitudes were compared with family physicians' expectations of how patients would respond when asked about physicians using resources to look up medical questions.

METHODS

The study was approved by the research ethics board of the North York General Hospital in Toronto, Ont. Patient surveys were informally pilot-tested on 5 members of the general public. Then surveys were distributed to patients at 5 family practices affiliated with the hospital. A receptionist in each practice offered the survey to consecutive patients who were older than 18 years of age and to parents of patients younger than 18 years of age. The survey collected information on age, sex, and level of education.

On a 7-point Likert scale (from -3 [greatly decreased] to +3 [greatly increased]), patients were asked to rate how confidence in family physicians and perceptions of the quality of care were affected when seeing physicians look up answers to medical questions. After these 2 questions were asked without information sources being specified, patients were then asked the same questions with specific information-seeking sources identified: ISEs (eg, Google), ORDP (eg, UpToDate or eMedicine), software on PDAs (eg, Palm or BlackBerry), and HMTs.

After being reviewed by 3 family physicians, the physician survey was distributed by e-mail (SurveyMonkey.com) to 150 family physicians and 25 family practice residents affiliated with the hospital. Two weeks after the initial e-mail, a reminder e-mail was sent out to increase the response rate. The survey asked physicians about their sex, number of years in practice, and use of EMRs. On the same 7-point Likert scale used in the patient survey, physicians were asked to rate how they expected their patients' confidence and perceptions of quality of care to be affected when seeing them look up answers to medical questions. These 2 questions were first asked without specifying information sources, and then the same questions were asked with information-seeking sources identified (ie, ISEs, ORDP, PDAs, and HMTs).

Mean Likert-scale responses were calculated, along with 95% confidence intervals. The proportions of negative, neutral, and positive responses from patients and physicians were compared using Mann-Whitney U tests. Relationships between responses and the various demographic variables were analyzed using Kruskal-Wallis tests.

RESULTS

One hundred fifty-three patients completed the survey between June 1 and July 15, 2009. We did not collect data on patients who declined to complete the survey. **Table 1** shows characteristics of patient respondents. Fifty-four of 150 family physicians responded to the survey, representing a 36% response rate. Twenty-one of 25 family practice residents responded to the survey, for a response rate of 84%. **Table 2** shows characteristics of physician respondents. The mean patient and physician responses, as well as 95% confidence intervals, are displayed in **Figure 1**. **Table 3** shows patient versus physician responses to the survey questions about physicians using resources to look up medical questions.

Patient sex and education level did not have a significant effect on any of the responses. **Figure 2** shows how physicians looking up medical questions, with no information source specified, affects confidence and perceptions of quality of care among patients of various ages. Patients younger than 40 years of age were 8

Table 1. Characteristics of the patient survey respondents: *N = 153; not all respondents answered all questions.*

CHARACTERISTICS	N (%)
Sex	
• Male	34 (24)
• Female	106 (76)
Age, y	
• < 18	2 (1)
• 18–39	50 (33)
• 40–64	61 (40)
• 65–79	32 (21)
• ≥ 80	6 (4)
Completed education	
• Did not complete high school	2 (1)
• High school	37 (25)
• College	46 (30)
• University undergraduate	43 (28)
• Postgraduate	23 (15)

Table 2. Characteristics of the physician survey respondents: *N = 75.*

CHARACTERISTICS	N (%)
Sex	
• Male	30 (40)
• Female	45 (60)
In residency or no. of years in practice	
• In residency	21 (28)
• < 5 y	4 (5)
• 5–15 y	12 (16)
• 15–25 y	13 (17)
• 25–35 y	19 (25)
• > 35 y	6 (9)
Use electronic medical records	
• Yes	51 (68)
• No	24 (32)

Figure 1. Mean responses on the Likert scale from –3 (greatly decreased) to +3 (greatly increased), with error bars representing 95% confidence intervals: *Patient participants were asked how their confidence in their doctors and their perceptions of the quality of care were affected if doctors used resources to look up answers to questions. Physician participants were asked how looking up medical questions in front of patients affected patients' confidence in them and patients' perceptions of the quality of care.*
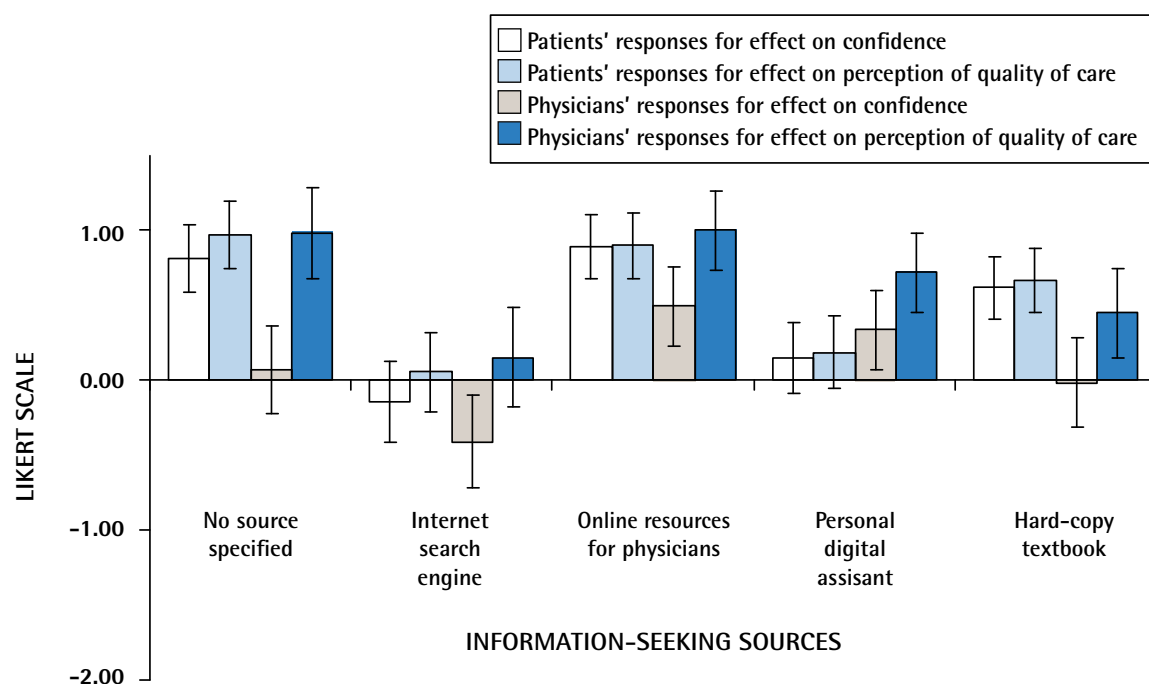
Table 3. Patient versus physician responses to the survey questions about physicians using resources to look up medical questions: *Patient participants were asked how their confidence in their doctors and their perceptions of the quality of care were affected if doctors used resources to look up answers to questions. Physician participants were asked how looking up medical questions in front of patients affected patients' confidence in them and patients' perceptions of the quality of care.*

INFORMATION RESOURCE	PATIENT RESPONSES (N = 153),* N (%)[†]			PHYSICIAN RESPONSES (N = 75),* N (%)[†]		
	DECREASED	NO CHANGE	INCREASED	DECREASED	NO CHANGE	INCREASED
No information source specified						
• Confidence[†]	14 (9)	68 (44)	71 (46)	24 (32)	29 (39)	20 (27)
• Perception of quality of care	10 (7)	63 (41)	77 (50)	9 (12)	16 (21)	48 (64)
Internet search engines						
• Confidence[†]	59 (39)	47 (31)	44 (29)	38 (51)	19 (25)	14 (19)
• Perception of quality of care	47 (31)	53 (35)	47 (31)	25 (33)	19 (25)	27 (36)
Online resources designed for physicians						
• Confidence	13 (8)	61 (40)	77 (50)	12 (16)	27 (36)	32 (43)
• Perception of quality of care[§]	10 (7)	64 (42)	75 (49)	6 (8)	15 (20)	50 (67)
Personal digital assistants						
• Confidence	42 (27)	64 (42)	43 (28)	15 (20)	26 (35)	30 (40)
• Perception of quality of care[§]	41 (27)	61 (40)	43 (28)	9 (12)	19 (25)	43 (57)
Hard-copy medical textbooks						
• Confidence[†]	16 (10)	64 (45)	69 (42)	27 (36)	21 (28)	23 (31)
• Perception of quality of care	14 (9)	65 (42)	68 (44)	16 (21)	18 (24)	37 (49)

*Not all participants answered all questions. Percentages are calculated based on the total number of responses.
[†]Percentages might not add to 100 owing to rounding.
[‡]Physicians responded more negatively than patients (*P*<.05).
[§]Physicians responded more positively than patients (*P*<.05).

times more likely to report decreased confidence than patients older than 65 years of age were (*P*<.05). The same trend was seen in patients' answers to questions about perceptions of the quality of care, but it did not reach statistical significance.

Age was the most striking factor with respect to patients' opinions about physicians using ISEs to look up questions, as shown in **Figure 3**. Most patients younger than 40 years of age answered that their confidence in physicians decreased, while only 14% of those older than 60 years stated that their confidence decreased (*P*<.001). Furthermore, most patients older than 65 years answered positively about their confidence in physicians. Age was also a significant predictor for how physicians' use of ISEs affected patients' perceptions of the quality of care (*P*<.05). When patients were asked about physicians' use of other information sources, younger patients were also more likely to answer negatively; however, the effects of patients' age for those questions did not reach statistical significance.

Physicians' sex did not have an effect on any of their responses. **Figure 4** shows the effects of physicians'

number of years in practice on their expectations of patients' confidence when looking up answers (the information source was not specified). Physicians earlier in their careers were more likely to expect a decrease in patient confidence than physicians later in their careers (*P*<.05). This trend was more striking when physicians were asked about patients' confidence when using ISEs to look up questions, as shown in **Figure 5** (*P*<.001). The number of years in practice had a similar effect with the other information sources, but only for ISEs did it reach statistical significance.

DISCUSSION

This study looks directly at patients' attitudes toward their family physicians looking up medical information in front of them from a variety of potential sources. The most common answer from patients to all questions was "no change." Positive responses were much more common than negative ones, eg, 46% versus 9% when the information source was not specified. Physicians overestimated the negative effect on patient confidence

Figure 2. Percentage of patient responses to the survey questions regarding the effect of physicians' information seeking, with no information source specified, by age: *A) Effect on confidence; B) effect on perception of quality of care.*
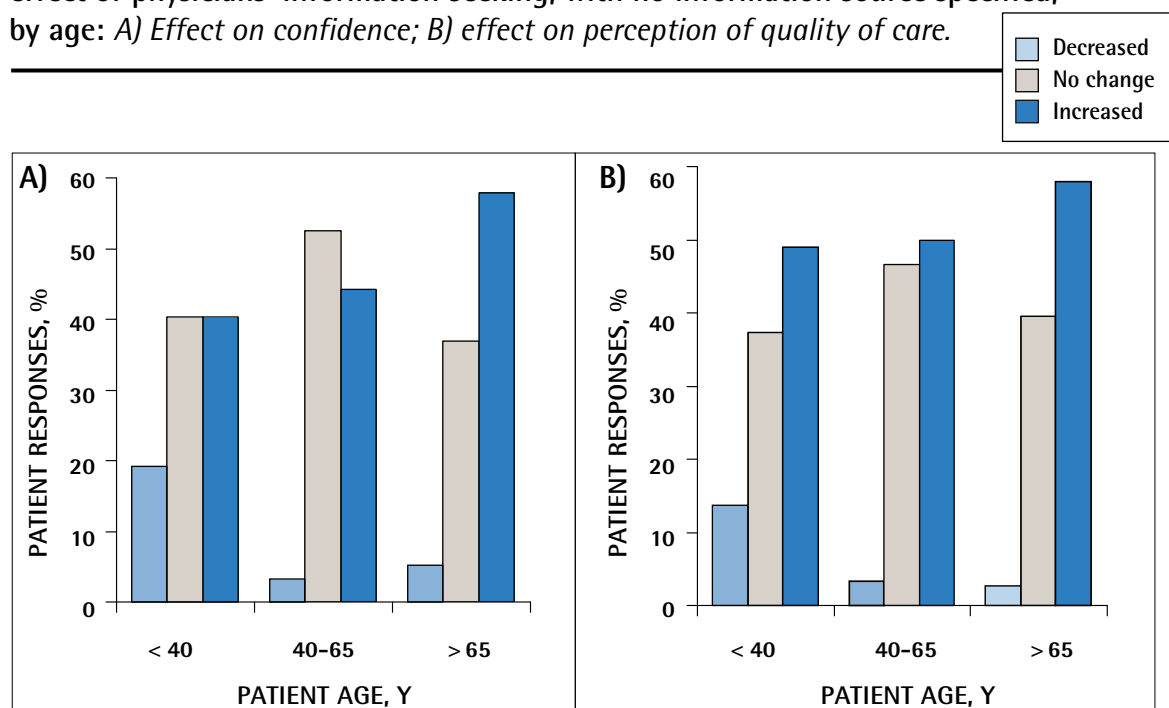

Figure 3. Percentage of patient responses to the survey questions regarding the effect of physicians' information seeking with Internet search engines, by age: *A) Effect on confidence; B) effect on perception of quality of care.*
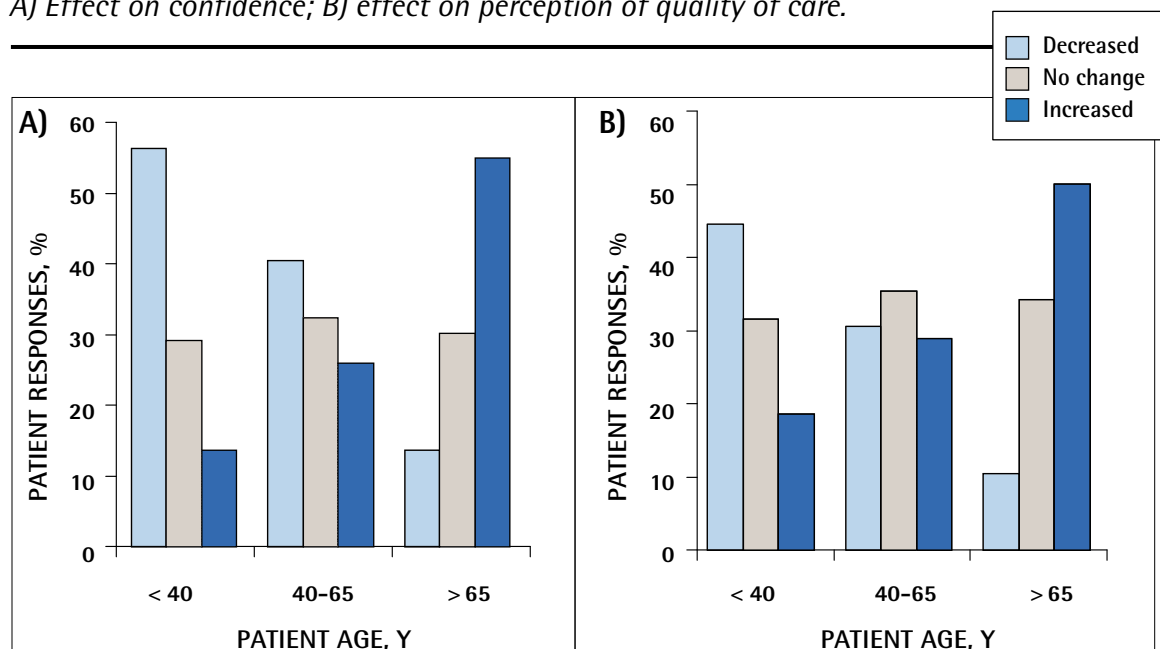
Figure 4. Percentage of physician responses to how they expect looking up answers to medical questions would affect patients' confidence in them (information source was not specified), by number of years in practice
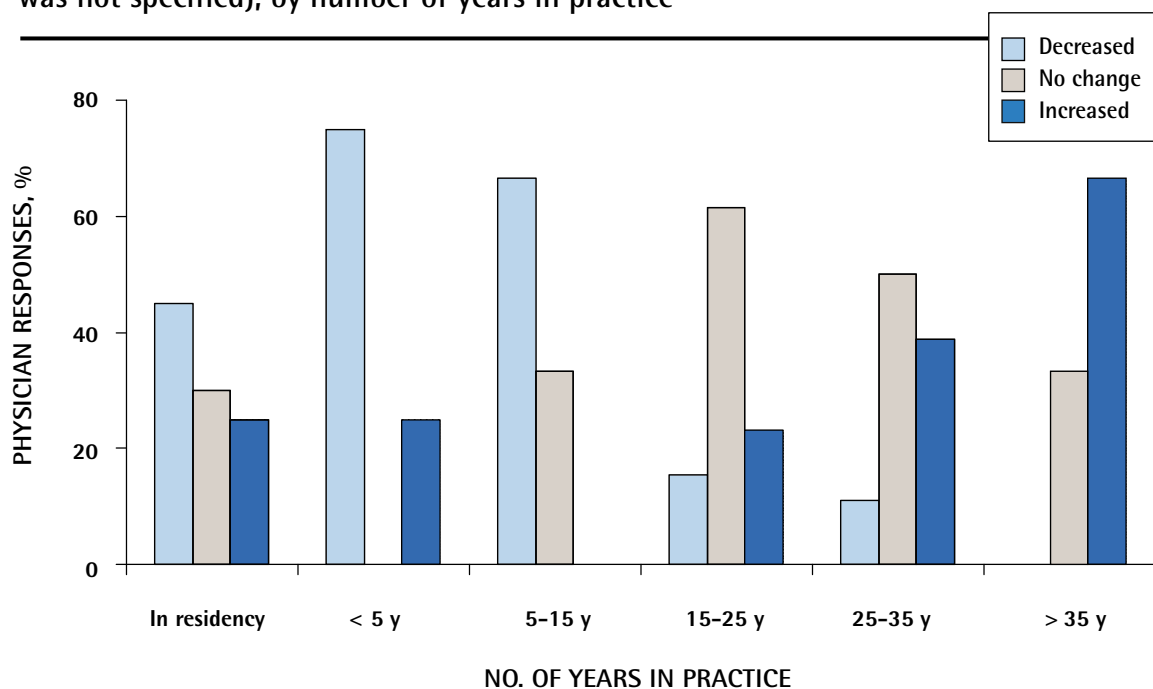
when the source was not specified, as well as for ISEs and HMTs. Physicians overestimated the positive effect on perceptions of the quality of care for ORDP and PDAs.

A substantial number of patients (39% and 31%) indicated that looking up information using ISEs decreased their confidence and perceptions of the quality of care. This poses a problem in light of a recent Australian study, which found that Google was the website by far most frequently visited in the office by family physicians.[20] The study did not clarify whether Google was consulted in front of patients.

Twenty-eight percent of patients responded negatively to the use of PDAs, a substantially higher proportion than the 4% to 5% found in previous studies.[10,11] One of these studies specifically surveyed patients who had seen their physicians use PDAs.[10] In the other study, approximately 50% of patients would have seen their physicians use PDAs.[11] We did not ask patients in our study what information sources they had seen their physicians use, but we presume that far less than 50% of them would have seen their physicians consult PDAs. Perhaps the previous studies had more positive results because the experience of seeing physicians consult PDAs clarified the benefits for patients. This would explain why another study found that patients who had seen their physicians consult PDAs responded more

positively.[12] Another possible explanation for negative attitudes toward use of PDAs relates to a written comment from one respondent: "You do not know what is being looked up. This can be seen as doing other activities." Consulting a PDA might be seen as inappropriate because PDAs are commonly used for e-mail and other personal uses.

With regard to use of HMTs, patients responded more positively than physicians expected. Hard-copy medical textbooks would not impress patients from a technological standpoint the way that PDAs or ORDP might. The fact that patients viewed use of HMTs more positively than PDAs might indicate that patients' views are affected more by the overall quality of the source than by the technological aspects of the information search.

We could have expected older patients to be influenced by the outdated paradigm of the all-knowing paternalistic physician and therefore we could have expected them to have a negative view of physician information seeking. However, in this study patients younger than 40 years of age were more likely to lose confidence in their physicians. Perhaps the long-standing relationships that older patients have with their family physicians allow them to see the benefits of information seeking rather than to question

Figure 5. Percentage of physician responses to how they expect looking up answers to medical questions with Internet search engines would affect patients' confidence in them, by number of years in practice
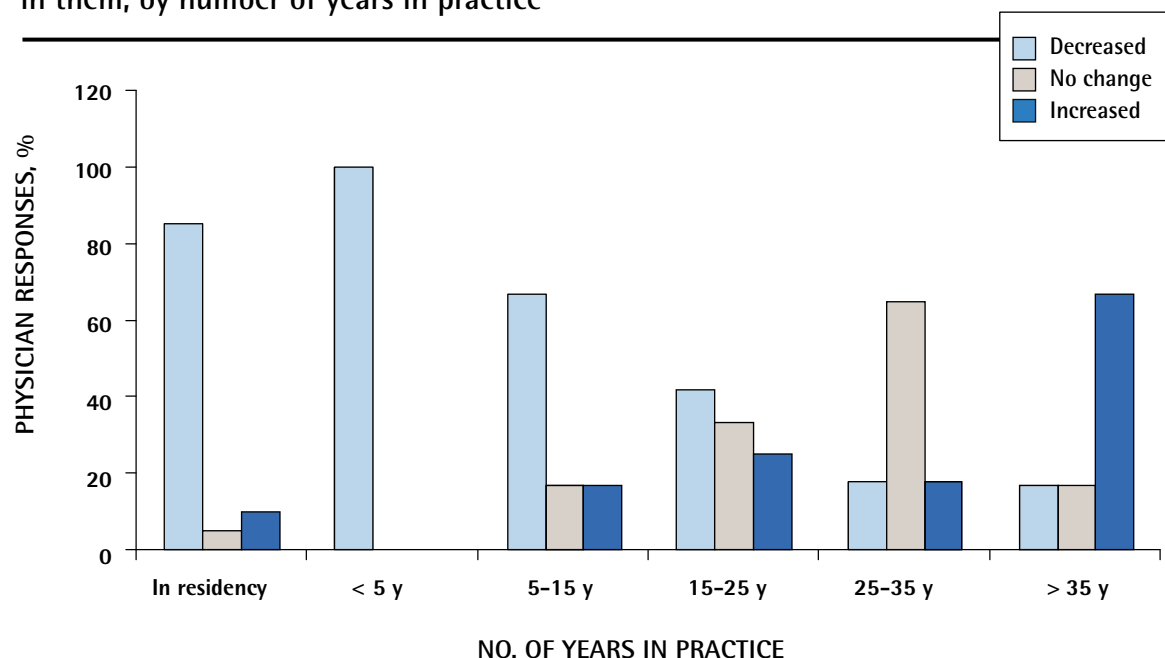
their physicians' competence. As younger patients are likely more computer literate than older ones, perhaps they are not as impressed by the physicians' use of technology. A similar phenomenon was seen in a study in which patients who were more computer literate responded less positively to physician computer use.[11]

Physicians earlier in their careers expected patients to react negatively to seeing them look up information, especially if the source was an ISE. We believe that age played a role in physicians' responses, just as it did in patients' responses. Physicians early in their careers might be more concerned about how competent they seem to patients because they do not have years of experience to draw on as an affirmation of their competence.

Limitations

This study has a number of limitations. The respondents came from North York General Hospital family practices, a population living in a relatively affluent part of Toronto's inner suburbs. This study is limited in its generalizability to other populations.

Although we did not record the number of patients who declined to participate, a substantial number did decline. The physician response rate was low at 36%, although not out of keeping with response rates for physician e-mail surveys. Those patients and physicians who chose to respond might have been biased toward a particular attitude on the study topic. Distribution of the physician survey by e-mail likely biased it to include physicians who use computers more, especially considering that the approximately 50% of North York General Hospital family physicians who are not on the department e-mail list were automatically excluded. This bias might explain why 68% of physician respondents use EMRs, a much higher proportion than the 31.7% of family physicians who reported using EMRs in the 2007 National Physician Survey.[21] This difference might also reflect a more widespread adoption of EMRs in the North York General Hospital community as compared with the rest of country.

One might expect the nature of the information being sought by the physician to have a great effect on the patient's reaction. If the patient thinks that the physician is looking up a basic question, one might expect him or her to lose confidence. A number of patients wrote comments that their responses would depend on the nature of what was being looked up. The survey did not attempt to address this issue, as the nature of the question being looked up by the physician was deliberately not specified.

Finally, the study was limited in that only quantitative data were collected—with the exception of the written comments on some patient surveys. Qualitative

data from interviews or focus groups would be needed to explore the attitudes and beliefs that give rise to the study results.

Conclusion

Most patients will not lose confidence in their physicians if they see them look up medical questions. Physicians, especially those early in their career, overestimate the potential for loss of confidence. Younger patients look less favourably on physicians' information seeking than older ones do. Patients believe the best sources of information are ORDP and HMTs. Further research using qualitative methods will be required to explore the attitudes and beliefs that give rise to these results. ✤

Dr Kahane is Lecturer in the Department of Family and Community Medicine at the University of Toronto in Ontario and Chair of the Professional Development Committee for North York General Hospital's Family and Community Medicine Program. At the time of writing, **Dr Stutz** was a resident in the Department of Family and Community Medicine at North York General Hospital. **Dr Aliarzadeh** is Data Manager for the North Toronto Primary Care Research Network.

Correspondence
Dr Eric Stutz, 240 Duncan Mill Rd, Suite 702, Toronto, ON M3B 3S6; e-mail ericmstutz@yahoo.ca

References
1. Coumou HC, Meijman FJ. How do primary care physicians seek answers to clinical questions? A literature review. *J Med Libr Assoc* 2006;94(1):55-60.
2. Hunt DL, Haynes RB, Hanna SE, Smith K. Effects of computer-based clinical decision support systems on physician performance and patient outcomes: a systematic review. *JAMA* 1998;280(15):1339-46.
3. Kawamoto K, Houlihan CA, Balas EA, Lobach DF. Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. *BMJ* 2005;330(7494):765. Epub 2005 Mar 14.
4. Westbrook JI, Gosling AS, Coiera EW. The impact of an online evidence system on confidence in decision making in a controlled setting. *Med Decis Making* 2005;25(2):178-85.
5. McColl A, Smith H, White P, Field J. General practitioners' perceptions of the route to evidence based medicine: a questionnaire survey. *BMJ* 1998;316(7128):361-5.
6. Ely JW, Osheroff JA, Ebell MH, Chambliss ML, Vinson DC, Stevermer JJ, et al. Obstacles to answering doctors' questions about patient care with evidence: qualitative study. *BMJ* 2002;324(7339):710.
7. Blumenthal D. Doctors in a wired world: can professionalism survive connectivity? *Milbank Q* 2002;80(3):525-46, iv.
8. McAlearney AS, Schweikhart SB, Medow MA. Doctors' experience with handheld computers in clinical practice: qualitative study. *BMJ* 2004;328(7449):1162.
9. Lottridge D, Chignell M, Straus S. *Social impacts of handheld computer information retrieval during physician-patient communication.* Paper presented at: Proceedings of the 20th International Symposium on Human Factors in Telecommunication; 2006 Mar 22; Sophia-Antipolis, France. Available from: **www.hft.org/HFT06/paper06/27_Lottridge.pdf**. Accessed 2011 Apr 14.
10. McCord G, Pendleton BF, Schrop SL, Weiss L, Stockton L, Hamrich LM. Assessing the impact on patient-physician interaction when physicians use personal digital assistants: a Northeastern Ohio Network (NEON) study. *J Am Board Fam Med* 2009;22(4):353-9.
11. Rudkin SE, Langdorf MI, Macias D, Oman JA, Kazzi AA. Personal digital assistants change management more often than paper texts and foster patient confidence. *Eur J Emerg Med* 2006;13(2):92-6.
12. Houston TK, Ray MN, Crawford MA, Giddens T, Berner ES. Patient perceptions of physician use of handheld computers. *AMIA Annu Symp Proc* 2003:299-303.
13. Berner ES, Savage GT, Houston TK, Williams ES, Crawford MA, Ray MN. Impact of patient feedback on residents' handheld computer use: a multi-site study. *Stud Health Technol Inform* 2004;107(Pt 1):582-6.
14. Garrison GM, Bernard ME, Rasmussen NH. 21st-century health care: the effect of computer use by physicians on patient satisfaction at a family medicine clinic. *Fam Med* 2002;34(5):362-8.
15. Rouf E, Whittle J, Lu N, Schwartz MD. Computers in the exam room: differences in physician-patient interaction may be due to physician experience. *J Gen Intern Med* 2007;22(1):43-8.
16. Hsu J, Huang J, Fung V, Robertson N, Jimison H, Frankel R. Health information technology and physician-patient interactions: impact of computers on communication during outpatient primary care visits. *J Am Med Inform Assoc* 2005;12(4):474-80. Epub 2005 Mar 31.
17. 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(1):17-23.
18. Solomon GL, Dechter M. Are patients pleased with computer use in the examination room? *J Fam Pract* 1995;41(3):241-4.
19. Ridsdale L, Hudd S. Computers in the consultation: the patient's view. *Br J Gen Pract* 1994;44(385):367-9.
20. Sim MG, Khong E, Jiwa M. Does general practice Google? *Aust Fam Physician* 2008;37(6):471-4.
21. College of Family Physicians of Canada, Canadian Medical Association, Royal College of Physicians and Surgeons of Canada. *National Physician Survey 2007*. Mississauga, ON: College of Family Physicians of Canada; 2007. Available from: **www.nationalphysiciansurvey.ca**. Accessed 2011 Apr 15.

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