

The e-Patient: A Survey of Israeli Primary Care Physicians' Responses to Patients' Use of Online Information during the Consultation

Shmuel Giveon MD, John Yaphe MD, Igal Hekselman MD, Sara Mahamid MD and Doron Hermoni MD

Department of Family Medicine, Sharon-Shomron District, Clalit Health Services, Kfar Saba and Department of Family Medicine, Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

ABSTRACT: **Background:** The internet has transformed the patient-physician relationship by empowering patients with information. Because physicians are no longer the primary gatekeepers of medical information, shared decision making is now emerging as the hallmark of the patient-physician relationship.

Objectives: To assess the reactions of primary care physicians to encounters in which patients present information obtained from the internet (e-patients) and to examine the influence of the physicians' personal and demographic characteristics on their degree of satisfaction with e-patients.

Methods: A questionnaire was developed to assess physicians' attitudes to e-patients, their knowledge and utilization of the internet, and their personal and professional characteristics. Family physicians in central Israel were interviewed by telephone and in person at a continuing medical education course.

Results: Of the 100 physicians contacted by phone, 93 responded to the telephone interviews and 50 physicians responded to the questionnaire in person. There was an 85% response rate. The mean age of respondents was 49 years. Most physicians were born in Israel, with a mean seniority of 22 years. Most had graduated in Eastern Europe, were not board certified and were employees of one of the four health management organizations in Israel. Most physicians responded positively when data from the internet were presented to them by patients (81%). A number of respondents expressed discomfort in such situations (23%). No association was found between physicians' satisfaction in relationships with patients and comfort with data from the internet presented by patients.

Conclusions: Physicians in this sample responded favorably to patients bringing information obtained online to the consultation. Though it may be difficult to generalize findings from a convenience sample, Israeli family physicians appear to have accepted internet use by patients.

IMAJ 2009;11:537–541

KEY WORDS: e-patient, internet, family physician

The internet has transformed the patient-physician relationship by empowering patients with information. Because physicians are no longer the primary gatekeepers of medical information, shared decision making is now emerging as the hallmark of the patient-physician relationship. Although patients now possess much more medical information, the physician's insight, experience and input is required to help patients in accurately interpreting and applying data gathered from the internet. This added dynamic of the patient-physician relationship fundamentally changes the traditional office visit [1,2].

For many people in most developed countries, the internet has become a powerful and familiar health care tool. About half the adults in the United States have looked for health information on the internet (so-called e-patients), making this the third most popular online activity. e-patients report two effects of their online health research – "better health information and services, and different (but not always better) relationships with their doctors" [1]. It is estimated that each day, more than 12.5 million health-related internet searches are conducted [2].

Primary care physicians may, however, feel overwhelmed or even threatened by this tendency of their patients to question their knowledge. They may fear that their advantage in knowledge is decreasing, resulting in an overprotective attitude towards the informed patient [2]. Many older physicians may be less acquainted with computers in general and the internet as a source of information in particular [3], and may find themselves in a position where their patients are more proficient in retrieving data from the internet than they are. In the limited time they spend with the patient at each encounter, physicians are generally unable to validate information their patients present. At times they may find themselves lacking state-of-the-art information about a particular issue.

Ferguson coined the term e-patient to refer to those who seek online guidance for their own ailments and the friends and family members who go online on their behalf [4]. When clinicians respond negatively to e-patients' requests to discuss materials they have found online and act as if they feel that their authority is being challenged by such requests, it may damage or disrupt the doctor-patient relationship [4].

Primary care physicians' views and feelings regarding patients who present with data they retrieved from the internet (or any other resource, for that matter) have been investigated in a number of studies [5-7]. According to these studies, physicians expressed concerns regarding the accuracy of the information obtained but also noted benefits to patients from the acquisition of relevant information. Ahmad et al. [8] found that although most of the physicians felt obliged to accept this new responsibility, the additional role was often unwelcome. Despite identifying various reactions of patients to internet-based health information, physicians in their study were unprepared to handle these patients. These studies, however, did not evaluate the effect of different personal characteristics of the physicians on their attitude towards e-patients.

The objectives of the present study were to assess primary care physicians' attitudes to the encounter with e-patients and to examine the effect of age, gender, years in practice and board certification on their reactions and the potential influence on the interaction between them.

PATIENTS AND METHODS

This study used a cross-sectional design to assess Israeli family physicians' attitudes to information obtained by patients on the internet. We developed a questionnaire that contained, in addition to questions on demographic information, 17 items regarding respondents' satisfaction with situations when patients produce information they found through the internet (or other media sources), their own knowledge and proficiency of internet usage, the quality of their relationship with their patients, and their satisfaction with the medical information they obtained from patients or their family members [Appendix 1]. The questionnaire was designed to assess attitudes to e-patients and not to quantify the actual number or frequency of their visits.

The questionnaire was tested in a pilot study for reliability and validity. Ten physicians were contacted by telephone and asked to answer the questions and to comment on their clarity and relevance. The questionnaire was corrected accordingly (Cronbach's alpha = 0.523).

We randomly selected a representative sample of primary care physicians from the rosters of Clalit Health Services, the largest health management organization in Israel. Our sample comprised physicians from different parts of the country, including Jewish and Arab physicians, as well as board-certified specialists in family medicine, general practitioners without board certification, and final-year family medicine residents already working in their own practice. The sample size was originally calculated to comprise representative samples of those three types of primary care physicians.

We chose the first physician from the list of clinics in different parts of the country. If the first physician was not available we contacted the second on the list. Of 100 physi-

cians who were contacted by telephone, 93 responded. We then distributed 50 more questionnaires to a convenience sample of physicians who participated in continuing medical education courses at Tel Aviv University, and 35 additional physicians responded.

The respondents were asked to indicate their agreement with 17 statements regarding patients' responsibility for their health, the impact of the internet on patients' decisions, reliability of the information, physicians' comfort with e-patients, the need to verify information, using the internet during patient visits, comfort with the usage of the internet, and the need for further instruction in internet use. Demographic data on age, gender, specialization and seniority were also collected.

Frequencies of all variables were tabulated. Associations between responses and demographic variables were calculated with SPSS-PC software, using the chi-square statistic to compare proportions, with significance set at $P < 0.05$.

RESULTS

Altogether, 118 physicians responded. Their demographic characteristics are presented in Table 1. The response rate was 85%. Table 2 lists the frequency distribution of responses to items on the attitude questionnaire.

Most respondents (59.1%) were satisfied with the situation when patients present at the consultation with data they

Table 1. Characteristics of physicians in study of attitudes to e-patients (n=118)

Characteristic	Number	%
Gender		
Female	39	33.1
Male	79	66.9
Mean age (yrs)	49 (SD 6.7)	
Birthplace		
Israel	71	60.2
Eastern Europe	33	28.0
Other	14	11.9
Mean number of years in practice	22.2 (SD 7.3)	
Place of medical education		
Israel	26	22.0
Eastern Europe	51	43.2
Italy	21	17.8
Other	20	16.9
Board certification as a medical specialist		
Yes	35	29.7
No	83	70.3
Employment status		
Salaried	67	60.9
Independent contractor	7	6.4
Mixed	36	32.7
Practice profile		
Mean number of professional work hours/ week	44.5 (SD 14.3)	
Mean number of patient contact hours/ week	37.4 (SD 13.5)	
Mean number of patients /week	216.5 (SD 85.4)	
Mean number of hours of computer use/week	6 (SD 5.4)	

Table 2. Physicians' satisfaction with their own and their patients' internet use and their relationship with patients (n=115)

	% "satisfied" or "very satisfied"
I am satisfied when patients bring data from the internet to the consultation	59%
I am satisfied with my use of the internet	66%
I am satisfied with my relationship with patients	88%

Table 3. Physicians' attitudes to patient internet use (n=116)

	% agree or strongly agree
I am satisfied with the information I receive from the patient or his family from the internet	81%
Patient internet use proves that the patient or his/her family are involved and take responsibility	82%
This preoccupation with the internet seems irrelevant and unreliable to me	13%
When I am presented with data from the internet, I feel uneasy	23%
I usually promise to verify the data from the internet and get back to the patient with an answer	93%
I access the internet and verify the reliability of the data presented by the patient	94%
I also use the internet during patient visits to look for data to deal with patient problems	34%
I think that the patient or the family needs to rely only on the physician and not look for other sources of information	34%
I am annoyed when patients bring data they found on the internet	4%
I need training regarding usage of the internet to improve my medical practice	58%
If internet training were available, it should be provided by the employer (HMO) during working hours	83%

HMO = health management organization

retrieved on the internet. Most (66.7%) were also satisfied with the quality of the information their patients brought from the internet. Most respondents (88.7%) were also satisfied with their relationship with their patients and with the knowledge they acquired from their patients or family members and with their own knowledge and use of the internet.

No association was found between respondents' satisfaction with e-patients and their satisfaction with their relationship with their patients or between the uneasiness some respondents felt when presented with internet data and their satisfaction with e-patients.

Cross-tabulation of respondents' demographic characteristics with satisfaction with e-patients did not reveal any significant correlations. Age, gender, country of origin or country of graduation did not significantly impact respondents' feelings regarding data presented by patients during visits. There was

no significant correlation between physicians' discomfort with e-patients' visits and demographic variables.

DISCUSSION

This study examined the attitudes of a convenience sample of Israeli primary care physicians towards patients who present with data they found on the internet (e-patients). The use of a convenience sample has allowed us an initial look at attitudes toward e-patients by physicians but requires further validation in a larger representative sample. We found that most respondents expressed favorable attitudes to e-patients; however, many expressed concerns.

We hypothesized that older physicians, those who are not board certified in family medicine, or those who graduated in Eastern Europe may feel dissatisfied or even threatened by e-patients, assuming they may be less proficient with the use of the internet themselves. We also expected that workload or type of practice – salaried physicians or independent contractors – would affect physicians' satisfaction with e-patients.

We found, however, that demographic variables did not affect physicians' satisfaction with e-patients. Most respondents expressed satisfaction with data they obtained from their e-patients, and their satisfaction was significantly related to their good relationship with the patients. A number of respondents expressed their uneasiness with a situation in which patients or their relatives present with data they retrieve from the internet, or any other media source. However, when we examined the effect of different demographic variables such as gender, board certification, country of origin and place of graduation, we found no significant correlations.

Most respondents do not search the internet during patients' visits. Salaried physicians in Israel have a very heavy workload and may see patients at 5 minute intervals, which may explain this finding. It is possible, however, that those physicians who are not able to authenticate the data they are presented with during patients' visit postpone the verification and search the internet on their own free time.

Similar to Hart et al. [9], we found that health care practitioners need to improve their own skills in internet use. The use of the internet is contributing to subtle changes in the relationship between health care practitioners and their patients, rather than effecting the dramatic transformation some people envisage for it.

Our results are also similar to those of Malone and collaborators [10], who found that health professionals have stereotypical views of internet users and fear for their own professional status in relation to the internet-informed patient or client. They concluded that although presentation of information from the internet remains relatively infrequent to date, health professionals appear to feel threatened by it and adopt strategies that minimize its impact on the

subsequent consultation. It is likely that this situation has changed since publication of their findings.

Our results are also comparable to those of Murray et al. [11], who studied physicians' experience of patients who look for health information on the internet and their perceptions of the impact of this information on the physician-patient relationship, health care and workload. They found that 85% of respondents had experienced a patient bringing internet information to a visit. According to these authors, the quality of information was important: accurate and relevant information benefited care, while inaccurate or irrelevant information harmed health care, health outcomes, and the physician-patient relationship. However, the physician's feeling that the patient was challenging his or her authority was the most consistent predictor of a perceived deterioration in the physician-patient relationship or health outcomes.

Our findings correspond to those of Potts and Wyatt [12], who studied internet-literate doctors' experiences of their patients' use of the internet and resulting benefits and problems. They concluded that these doctors reported patient benefits from internet use much more often than reporting harm, but there were more problems than benefits for the doctors themselves. Reported estimates of patient internet usage rates were low.

Some patients who are proficient with the internet may become more knowledgeable than their physician regarding their specific illness. This situation can result in more empowered patients and in a more partnership-based physician-patient relationship [6]. This may, however, jeopardize the relationship if the physician feels threatened or overwhelmed by it.

Melamud et al. [14] surveyed 1432 pediatricians and the parents of 501 of their patients with regard to the use of the internet for health information. They found that 82.7% of parents used the internet, and 46% searched for health information, but only 15% shared their findings with their pediatrician and only 5% received help from the doctor with their search. They concluded that many pediatricians use the internet in their work and accept that their patients search for health information on the web [14].

Hay and co-researchers [15] studied internet use among new rheumatology patients prior to their first appointments and asked if they discuss information obtained from the internet with their physicians. They found that the majority of patients research their conditions online prior to initial appointments but are unlikely to discuss that research with physicians even though discussion is related to higher satisfaction. They concluded that physicians may want to consider strategies for enabling communication about online research.

We suggest that primary care physicians be trained to become professionals in data retrieval on the internet and have free access and time to use it. This may help them to

cope with fears of losing their expert role. Not only should primary care providers recognize that patients use the internet as a source of medical and health information, they should also be prepared to offer suggestions for web-based health resources and assist patients in evaluating the quality of medical information available on the internet [13].

With regard to possible limitations of this study, our sample of physicians was not large enough to detect possible differences among subsets of physicians in terms of their demographic variables. We hypothesized that older physicians and those who are not board certified would be more apprehensive regarding the internet in general and a situation where their patients provide data they found on it. Our results do not support this hypothesis. There is also a potential bias in that most participants responded by phone and may not have revealed their true beliefs since they were acquainted with their interviewer. Another potential bias derives from the fact that our sample of respondents does not represent the typical primary care physician in Israel, regarding the place of birth and place of graduation.

We did not address the actual number of e-patients the respondents dealt with. Some may have never encountered such patients, thus their responses were hypothetical only. A larger scale study, which may reveal a wider range of attitudes to internet usage, is warranted.

Acknowledgment:

The authors are grateful to Prof. Ernesto Kahn for his help.

Correspondence:

Dr. S. Giveon

Dept. of Family Medicine, Meir Hospital, Kfar Saba 44281, Israel

Phone: 050-626 4969

Fax: (972-9) 742-1105

email: giveon@clalit.org.il

References

1. Rajendran PR. The Internet: ushering in a new era of medicine. *JAMA* 2001; 285: 804-5.
2. Eysenbach G. The impact of the internet on cancer outcomes. *CA Cancer J Clin* 2003; 53: 356-71.
3. Nylenna M, Aasland OG. Doctors' learning habits: CME activities among Norwegian physicians over the last decade. *BMC Med Educ* 2007 8; 7: 10.
4. Fox S, Fallows D. Internet health resources: health searches and email have become more commonplace, but there is room for improvement in searches and overall internet access: Washington DC, Pew Internet & American Life Project, July 16, 2003. www.pewinternet.org/reports/pdfs/PIP_Health_Report_July_2003.pdf (accessed 29 Apr 2004).
5. Spadaro R. European Union citizens and sources of information about health. urobarometer 58.0. The European Opinion Research Group, European Union, Brussels, Belgium, March 2003. http://europa.eu.int/comm/health/ph_information/indicators/pub_indic_data_en.htm (accessed 12 Mar 2004).
6. Leiberich P, Nedoschill J, Nickel M, Loew T. Self-help and consultation via Internet. Self-responsible users redefine the physician-patient relationship. *Med Klin (Munich)* 2004; 99(5): 263-8.
7. Ferguson T, Frydman G. The first generation of e-patients. *BMJ* 2004; 328(7449): 1148-9.

8. Ahmad F, Hudak PL, Bercovitz K, Hollenberg E, Levinson W. Are physicians ready for patients with Internet-based health information? *J Med Internet Res* 2006; 8: e22.
9. Hart A, Henwood F, Wyatt S. The role of the Internet in patient-practitioner relationships: findings from a qualitative research study. *J Med Internet Res* 2004; 6: e36.
10. Malone M, Harris R, Hooker R, Tucker T, Tanna N, Honnor S. Health and the Internet – changing boundaries in primary care. *Fam Pract* 2004; 21: 189-91.
11. Murray E, Lo B, Pollack L, et al. The impact of health information on the Internet on health care and the physician-patient relationship: national U.S. survey among 1.050 U.S. physicians. *J Med Internet Res* 2003; 5: e17.
12. Potts HW, Wyatt JC. Survey of doctors' experience of patients using the Internet. *J Med Internet Res* 2002; 4: e5.
13. Diaz JA, Griffith RA, Ng JJ, Reinert SE, Friedmann PD, Moulton AW. Patients' use of the Internet for medical information. *J Gen Intern Med* 2002; 17: 180-5.
14. Melamud A, Puiggari J, Goldfarb G, Cairoli H, Otero P. Pediatricians and patients parents' use of the Internet to obtain health information. *Arch Argentinos Pediatr* 2007; 105: 513-16.
15. Hay MC, Cadigan RJ, Khanna D, et al. Prepared patients: Internet information seeking by new rheumatology patients. *Arthritis Rheum-Arthritis Care Res* 2008; 59: 575-82.

Appendix 1. Study questionnaire on attitudes to e-patients

1. What year were you born?
2. What gender are you?
3. How many persons live in your household?
4. What is your country of origin?
5. What year did you graduate from medical school?
6. In what country did you graduate from medical school?
7. Are you board certified?
8. How many hours a week do you work (including paperwork, research, and studies)?
9. From those hours, how much time do you spend seeing patients?
10. Are you self-employed, employed by an HMO or both?
11. How many patients do you see in a regular working week?
12. How many hours in a regular working week do you spend studying, searching the internet and doing research?
13. Please categorize your satisfaction for the following situations (on a 5-point scale with 1 as the least satisfied and 5 as very satisfied):
 - With the situation in which a patient or a family member presents with data they found on the internet regarding their health
 - With your knowledge and adequacy of usage of the internet
 - With your relationship with your patients
14. In a situation in which a patient or a family member presents with data they found on the internet, please categorize your degree of agreement with the following statements: (on a 4-point scale with 1

= totally disagree and 4 = totally agree)

- I am satisfied with the extra data I receive this way from the patient or his/her family
- It proves that the patient or his/her family are involved and take responsibility
- If the source of information is reliable and the data are relevant, I act accordingly
- This preoccupation with the internet seems irrelevant and unreliable to me
- When I am presented with data from the internet, I feel uneasy
- I usually promise to verify the data and get back to the patient with an answer
- I check the medical literature or access the internet to verify the data
- I also use the internet during patient visits to look for data to deal with patient problems
- I think that the patient and the family need to rely only on the physician and not look for other sources of information
- I am annoyed when patients bring data they found on the internet
- I need training regarding usage of the internet to improve my medical practice
- If such training were available, it should be provided by the employer (or HMO) during working hours.