

Web Relationships Between Physicians and Individuals Seeking Information on Hepatopancreatobiliary Diseases

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Hypothesis: The Internet has led to widespread Web consulting, the proportions of which are not yet known; there is not yet agreement on its management.

Design: We verified the typology and needs of people and patients of a single-language population inquiring about a homogeneous group of diseases treated in tertiary reference centers and their reason for writing. Data were extracted and coded from e-mail messages received over 27 months by a noninstitutional Web site devoted to surgically treatable hepatopancreatobiliary diseases. Consultation activity was verified by the number of answers and subsequent messages.

Main Outcome Measures: One thousand forty-seven users sent 1788 messages to one of the Web site addresses; 1179 (94.6%) of them inquired about clinical problems. Data were collected on the demographics of senders and patients, the nature of the clinical problem, and the reasons for the messages.

Results: A mean of 2.1 messages per day were received.

Queries were sent by patients in 260 instances (22.1%) and by others in 750 (63.6%). Two hundred thirty-seven (20.1%) e-mails had medical enclosures. The presence of a malignant disease was reported in 705 messages (59.8%). Description of previously undertaken therapy was present in 613 cases (52.0%). An answer was given to 1177 first messages (94.4%) and a follow-up message was received from 401 users (34.1%). Second messages were characterized by a shorter time to receive an answer (mean, 2.5 ± 3.6 days vs 3.5 ± 5.3 days). Each user sent a mean number of 1.4 ± 0.7 messages (range, 1-8).

Conclusions: Web consulting is a powerful tool for patients and health professionals that emerged owing to physician communication problems. Nevertheless, the Internet is still pushing physicians toward a reconsideration of the principles of medical ethics and a reevaluation of rules and regulations to deal with these new communication methods.

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THE INCREASINGLY EASY ACCESS to the World Wide Web has led to an increased diffusion of health news over the Internet. One third of Europeans and 43% of Americans already use the Internet to get health information.¹ Information can be shared by professional medical systems and physicians to advertise their activity, by groups of patients suffering from a common specific disease, and by individuals looking for treatment for themselves or for relatives.

See Invited Critique at end of article

During the late 1990s, there was real enthusiasm for the introduction of e-mail as a vehicle of communication between patients and physicians.² Internet use has been welcomed just as the use of regular mail and telephones was in the past.^{2,3} Besides the routine patient-provider communication,^{4,5} the

sending of e-mails to an interactive health Web site raises the problem of unsolicited messages and Web consulting.^{6,7}

We report on a large series of Internet-based consulting generated by a single surgical Web site that has been analyzed from a clinical point of view and found not to have a marketing-oriented purpose. The analysis takes into consideration the interaction of a single-language population for a homogeneous group of diseases routinely treated by the researchers (physicians working in a tertiary reference center).⁸⁻¹⁰ Data were collected on the demographics of senders and patients, the nature of the clinical problem, and the reasons for the messages, obtained without specific request and with full respect for the privacy of the people involved.

METHODS

In February 2002, a Web site devoted to surgically treatable hepatopancreatobiliary diseases

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was created with the second-level domain name <http://www.chirurgiadelfegato.it>. The Web site is noninstitutional because it does not directly refer to any public or private institution even though most of the researchers are surgeons working at the University of Bologna (Bologna, Italy), a tertiary referring center for hepatopancreatobiliary diseases.

At the time of writing, the Web site contained 26 pages, all written in Italian and revised by me. Since it was decided that a full report would be written on this activity, no other pages have been added; only the contents of those already published have been periodically reviewed.

CONTACT PAGE

A contact page was used to allow people to send generic or specific questions. This page includes a form in which first name, surname, address, ZIP code, city, age, e-mail address (required field), and questions (free-text field) can be inserted. It is specified on this page that:

... the question-submission service by e-mail is completely free. The service provides a physician's answer to questions sent by the users. The time interval between question and answer varies and depends on the number of questions received in the period, how many consumers ask similar questions and the importance of the question. The service is not a substitute for a medical consultation or for the opinion of a physician and it is not, in any way, a remote medical consultation. If a personalized opinion is expressed on the diagnosis, the therapy, or the interpretation of laboratory data, this answer has to be considered purely indicative, not binding, not substitutive or corrective of the opinion of the patient's own physician and given for informative purposes. It is always necessary for the patient to consult his/her own physician in the case of symptoms or illness.

ANSWERS PROVIDED

As a general rule, the e-mail response given further emphasizes the relationship between the patient or his or her relatives and the physician in charge of the patient. The answer never contained elements that could jeopardize the relationship between the patients or their relatives, or the physicians caring for the patients. When appropriate, patients were always advised to have a new medical consultation with their own family practitioner or a further interview with the physicians who were in charge of those mentioned in the message. If patients were asking for a second opinion, they were informed of the existence of consensus conferences, guidelines, or strong evidence on a specific topic. When there was not enough information to formulate an opinion, the author of the message was invited to give further information or to address the same question to his or her family practitioner (in particular when the problem was the interpretation of symptoms or of laboratory tests), or to the physician in charge of the patient.

WEB SITE VALIDATION

The contents of the Web site were submitted to the judgment of 2 different institutions. The first was the Health on the Net Foundation (HON), created in 1995, which is a nongovernmental organization under the aegis of the Direction Générale de la Santé Département de l'Action Sociale et de Santé (République et Canton de Genève, Switzerland). Health on the Net Foundation's mission is to guide laypersons or nonmedical users and medical practitioners to useful and reliable medical and health information on the Internet. Health on the Net Foundation reviewed the Web site and on April 2, 2002, released a certificate (HON code PIN number: HONConduct731628) confirming that it respects and pledges to honor the 8 principles of the HON Code of Conduct.¹¹

The second institution was the local College of Physicians. In a communication dated November 10, 1999, the Italian College of Physicians stated that Internet publicity has to respect the dictates of law No. 175, as well as article 53 of the Medical Code of Ethics. For these reasons the entire contents of the Web site were submitted to the College of Physicians of Bologna, which expressed a positive opinion on its publication.

WEB SITE DIFFUSION

There were no efforts to promote the existence of the Web site through media or other electronic systems. The address was submitted to the main Italian and international search engines and is easily reachable by keyword searches. A few other Web sites decided to place a hyperlink to this Web site in their own pages.

From March 2, 2002, to June 30, 2004, the home page was visited 40 648 times. At the end of the study period the entire Web site had an average of 451 visitors per day, with visitors reading an average of 1.54 pages per visit.

MAIL COLLECTION

Users were given the possibility to send questions to the site Webmaster or to individual surgeons. No fees or personal data were asked of the visitors to gain access to the Web site. Providing personal data was absolutely optional, left to the discretion of the visitor, and handled in compliance with the Italian law on privacy (Italian Law No. 675 of December 31, 1996, titled, Protection of People and Other Subjects in the Handling of Personal Data).

MESSAGE CODING

All queries were read on the same day they were received and an effort was made to give an answer in the shortest time possible. I then reviewed the messages for coding to reduce bias due to text misinterpretation. Duplicate or empty messages were discarded.

The following characteristics were analyzed and recorded for the first message sent: date of the message; type of inquiry (generic vs clinical); sex, age, and domain extension of the sender; address to which the mail was sent; whether or not an answer was given; date of the answer; and total number and date of possible subsequent messages sent by the same person on the same topic. For messages with questions related to clinical situations, the following data were also recorded: sex, age, and degree of relationship to the patient; diseased organ (liver, biliary tract, or pancreas); type and subtype of the disease; kind of disease (benign vs malignant); presence of e-mail enclosures; main subject of the message (onset of symptoms, uncertainty in the diagnosis, therapy, or prognosis of the disease); approach to therapy (first opinion, second opinion, failure of a previous treatment, or general advice); therapy already followed or already proposed; and therapy under inquiry. In messages regarding patients with malignant disease, care was taken to identify any signs of advanced disease, if possible (peritoneal dissemination, vessel infiltration or thrombosis, or distant metastases).

All the discharge or case history summaries, and laboratory, radiographs, or pathology reports that were added in any form to the e-mail message were treated as enclosures. All enclosures, together with the personal data included in the message, were treated in accordance with the Italian law on privacy.

STATISTICAL ANALYSIS

Messages and answers were stored in the Netscape Communicator 4.51 mail client (Netscape Communications Corp,

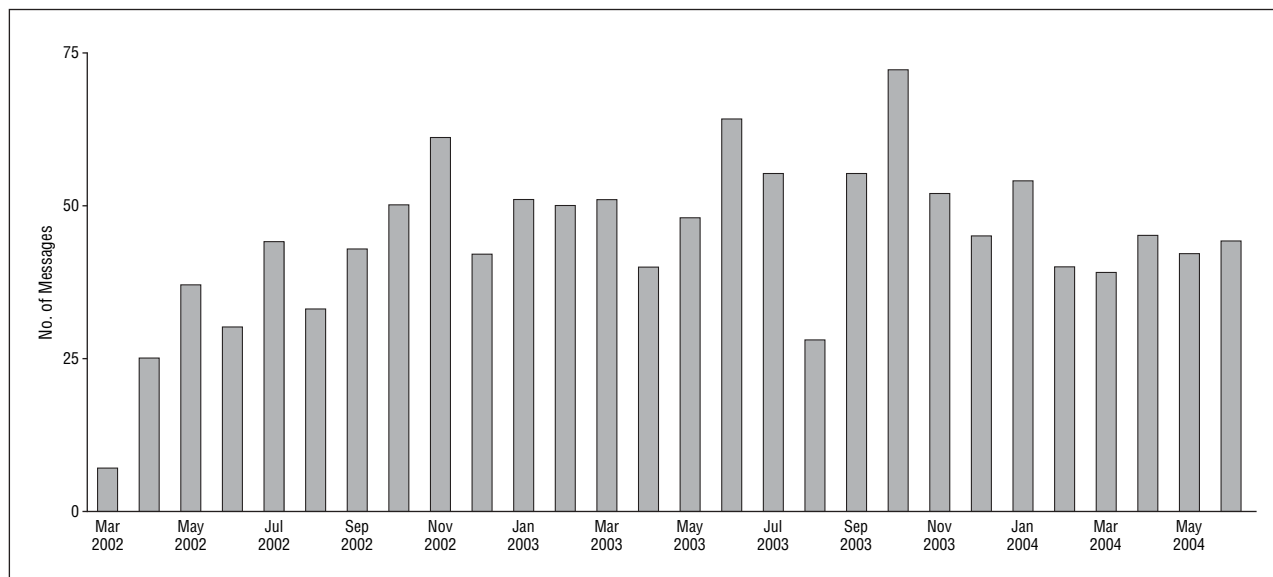


Figure. Number of electronic messages received during the study.

Mountain View, Calif) and processed with the SPSS statistical package (SPSS Base 11.0; SPSS Inc, Chicago, Ill) after coding. When some of the data could not be identified in the message they were treated as missing in the analysis.

Results were expressed as mean±SD and compared using the *t* test; χ^2 analysis was performed to evaluate categorical variables. A *P* value less than .05 was considered statistically significant.

RESULTS

Between March 11, 2002, and June 30, 2004 (842 days), a total of 1788 messages were received at one of the Web site addresses, giving a mean of 2.1 messages per day (**Figure**). Of these, 1247 were censored as first messages and they are the main subject of the study.

The majority of the senders' e-mail addresses had the Italian extension (.it) in the address domain (1072 [86.0%]); 141 (11.3%) had .com, 14 (1.1%) had .net, 1 (0.1%) had .org, and the remaining 19 senders (1.5%) had a variety of domain names. Messages were sent directly to the personal addresses of the authors in 96 cases (7.7%). **Table 1** reports the demographic information of the senders. The mean age of senders was significantly lower when the message came from the patient (38.6±12.3 years vs 55.6±17.5 years; *P*<.001). There was no difference in gender distribution whether or not the sender was the patient. Messages inquired about clinical problems in 1179 cases (94%) and about generic questions in 68 (5.4%). These 2 groups were considered separately when analyzing the main topic of the messages and together when evaluating global activity.

CLINICAL QUESTIONS

Table 1 reports the main demographic characteristics of the patient mentioned in the message. In total, 488 (41.4%) messages dealt with parents' health problems. The mean age of senders was significantly lower when the message came from the patient (38.6±12.3 years vs 55.6±17.5 years;

P<.001). There was no difference in gender distribution whether or not the sender was the patient.

Two hundred thirty-seven queries (20.1%) had medical enclosures. There was no difference in the presence of enclosures by gender. Enclosures were present in messages from senders with an older mean age (41.5±11.9 years vs 37.7±12.2 years; *P*<.05) and when dealing with older patients (58.1±15.0 years vs 55.0±18.1 years; *P*<.05).

Table 2 summarizes the organs and diseases that were the subject of inquiries. Patients wrote more frequently than others regarding symptoms (4.7% vs 2.7%; *P*<.05). Senders who were not the patients included enclosures more frequently than patients (14.8% vs 6.3%; *P*<.01), after the failure of a previous treatment (12.7% vs 1.2%; *P*<.001), and inquired more frequently about cancer (56.8% vs 3.3%; *P*<.001), diagnosis-related problems (8.5% vs 4.2%; *P*<.05), therapy-related problems (53.7% vs 11.1%; *P*<.001), and receiving a second opinion (27.9% vs 6.5%; *P*<.001).

NATURE OF THE DISEASE

Malignant disease was reported in 705 messages (59.8%), and a benign disease was reported in 466 cases (39.5%), while in 8 cases (0.7%) these data could not be determined. The mean age of senders who wrote for others did not differ according to the nature of the disease. On the contrary, the mean age of senders who wrote for themselves varied depending on the nature of the disease, with younger senders (aged 40.5±12.7 years) dealing with benign diseases and older senders (aged 55.3±12.9 years) with malignant diseases (*P*<.001). The mean age of the patients was higher in those inquiring about malignant diseases (63.4±11.9 years vs 44.0±18.1 years), without differences in who the sender was.

The main topic of messages dealing with cancer was therapy (44.8% vs 15.4%; *P*<.001), and usually included asking for therapy solutions (45.5% vs 14.7%; *P*<.001). According to our criteria, of the 705 messages dealing with malignancies, 327 (46.4%) met criteria con-

Table 1. Main Demographic Characteristics of the Senders and Patients Mentioned in Messages

Characteristic	
Senders	
Male, No. (%)	691 (55.4)
Female, No. (%)	497 (39.8)
Age, mean ± SD (range), y*	38.5 ± 12.2 (17-84)
Type of message, No. (%)	
Clinical	1179 (94.6)
Generic	68 (5.4)
Person carrying the disease†	
Male, No. (%)	634 (53.8)
Female, No. (%)	446 (41.3)
Age, mean ± SD (range), y	55.8 ± 17.4 (1-89)
Sender himself/herself, No. (%)‡	
Other	750 (63.6)
Father	277 (23.5)
Mother	211 (17.9)
Father/mother-in-law	80 (6.8)
Spouse	47 (4.0)
Uncle/aunt	33 (2.8)
Friend	27 (2.3)
Other	75 (6.3)
Not known	60 (5.0)
Main e-mail subject, No. (%)	
Justification for symptoms	80 (6.8)
Explanation of diagnosis	153 (13.0)
Therapeutic problems	766 (65.0)
Inquiring about prognosis	170 (14.4)
Nonclassifiable	10 (0.8)
Requested advice, No. (%)	
Generic	423 (35.9)
Second opinion on therapy	382 (32.4)
Need for first therapy	215 (18.2)
Failure of previous treatment	159 (13.5)

*n = 336.

†n = 1080.

‡n = 1010.

sistent with advanced disease and 108 (15.3%) were consistent with limited disease; the remaining 270 (38.3%) were not assessable. Messages reporting advanced malignancies more frequently included enclosures (12.1% vs 9.5%; $P < .05$).

TREATMENT ALREADY FOLLOWED

Descriptions of previously undertaken therapy were included in 613 cases (52.0%). The most common was medical treatment in 166 cases (27.1%), chemotherapy in 146 (23.8%), hepatic resection in 78 (12.7%), operative endoscopy in 46 (7.5%), explorative laparotomy in 45 (7.3%), percutaneous ablation in 37 (6.0%), other surgery in 34 (5.5%), cadaveric liver transplantation in 32 (5.2%), transarterial chemoembolization in 25 (4.1%), and living-related liver transplantation in 4 (0.7%).

REQUESTED ADVICE

Table 1 summarizes the categorization of the main questions contained in the messages. Senders other than patients more frequently requested information for second opinions (27.9% vs 6.5%; $P < .005$), malignancies

Table 2. Organs and Diseases That Were the Subject of the First Messages Received

Main Disease, No. of Cases	Secondary Disease, No. of Cases
Liver (n = 824 [69.6%])	
Metastases, 241	Colon-rectum, 115
	Others, 95
	Breast, 31
Hepatocellular carcinoma, 181	With cirrhosis, 138
	Without cirrhosis, 43
Benign tumors, 99	Hemangioma, 64
	Focal nodular hyperplasia, 13
	Adenoma, 7
	Others, 14
Medical diseases, 86	Steatosis, 20
	Hepatitis C, 9
	Sclerosing cholangitis, 9
	Biliary cirrhosis, 5
	Hepatitis B, 5
	Others, 38
Liver failure, 67	Hepatitis C, 35
	Other hepatitis, 16
	Hepatitis B, 5
	Other causes, 11
Cirrhosis, 26	Hepatitis C, 18
	Others, 8
Other, 33	
Biliary Tract (n = 255 [21.6%])	
Tumors, 148	Hilar, 63
	Gallbladder, 40
	Intrahepatic, 28
	Main duct, 17
Polyps, 11	
Stones, 5	
Liver failure, 2	
Other reasons, 9	
Pancreas (n = 100 [8.5%])	
Tumors, 45	Liver metastases, 27
	Vascular infiltration, 15
	Others, 3
Other, 3	

(23.1% vs 9.6%; $P < .001$), advanced diseases (20.7% vs 17.6%; $P < .05$), and therapy-related problems (28.2% vs 4.2%; $P < .001$).

TREATMENT INQUIRIES

A total of 597 messages (50.6%) requested advice on specific therapies. Liver resection was the most frequent, with 269 messages (45%), followed by cadaveric liver transplantation in 133 (22.3%), medical treatment in 52 (8.7%), living-related liver transplantation in 41 (6.9%), chemotherapy in 25 (4.2%), percutaneous ablation therapy in 19 (3.2%), and other therapies in 58 (9.7%).

Senders asked whether liver resection could be appropriate after the patient had undergone chemotherapy (10.3%), a previous resection (5.1%), medical therapy (4.2%), or after no prior treatment (17.5%). Inquiries were also made about cadaveric liver transplantation after medical therapy (8.8%), chemotherapy (2.9%), a previous transplant (2.5%), and after no prior treatment (4.4%).

Table 3. Reports of Web Consulting Present in the Scientific Literature

Source	Language	Specialty	Institutional	Study Period, mo	No. of Messages Received (Rate)	No. of Messages Analyzed	No. of Messages Answered (%)	Senders Analyzed	Patients Analyzed
Widman and Tong ²¹	English	Cardiology	Yes	12	70 (5.8/mo)	70	70 (100)	Yes	No
Eysenbach and Diepgen ¹²	English + German	Dermatology	Yes	6	201 (33.5/mo)	201	Few	Yes	No
Borowitz and Wyatt ¹⁶	English	Pediatric gastroenterology	Yes	33	1239 (37.6/mo)	1239		Yes	No
Labiris et al ¹³	English + German	Mixed	No	8	15 456 (5.3/mo)	1500	901 (60)	Yes	No
Shuyler and Knight ²²	English	Orthopedics	Yes	2	1587 (793.5/mo)	793		Yes	Yes
Present study	Italian	HPB surgery	No	27	1788 (66.2/mo)	1247	1177 (94.4)	Yes	Yes

Abbreviation: HPB, hepatopancreatobiliary.

CONSULTING ACTIVITY

An answer was given to 1177 first messages (94.4%) and not given in 70 cases (5.6%). The mean time for an answer was 3.29 ± 5.0 days, ranging from 0 to 58 days (median, 2 days).

Following an answer, a second message was received in 259 cases (22.0%). An acknowledgment message was received from 186 users (15.8%). As a total, 401 single users (34.1%) sent at least 1 further message. The second message was received 27.1 ± 64.6 days (range, 0-528 days) after the first and 22.7 ± 56.5 days (range, 0-412 days) after the answer was given. Second messages were characterized by a shorter response time (2.5 ± 3.6 days vs 3.5 ± 5.3 days; $P < .005$). This difference was not noted for acknowledgment messages. Second messages were sent more frequently by users who were not patients (27.9% vs 6.5%; $P < .005$), when dealing with malignant diseases (23.1% vs 9.6%; $P < .05$), and for therapy-related problems (28.2% vs 4.2%; $P < .001$).

A third message was sent by 63 users (5.4%). The third message was received 88.0 ± 136.2 days (range, 2-648 days) after the first one and 68.7 ± 133.3 days (range, 0-647 days) after the second. In total, 1247 users sent 1788 messages, with a mean number of 1.4 ± 0.7 messages (minimum, 1; maximum, 8; median, 1).

The design of the study and the absence of an institutional connection with the Web site prevented the evaluation of a possible increase in the volume of outpatient activity or in the number of surgical procedures.

COMMENT

There are several aspects of electronic communication that need to be considered by health professionals. The most common considerations are the rules for publication of Web sites, the use of e-mail as an instrument for the patient-physician relationship, and the management of unsolicited e-mail messages and Web consulting. Despite the widespread existence of these problems, very few reports are available in the scientific literature. Most of these have been published in highly specific journals, the vast majority of them coming from the United States. Only sporadic reports are from European countries.¹²⁻¹⁴ The only consistent forum appeared in 1998 in a single issue.^{2,3,12,15-18} For someone who is new to the Web it is difficult, if not im-

possible, to get an idea of how the medical community wants to present itself to the vast stage of Internet users. But while some guidelines have already been published for the first 2 topics,^{19,20} less information is currently available on the origin and the management of unsolicited mails. **Table 3** summarizes the few reports already present in the literature. Most of the remaining reports based their data on post-counseling surveys.^{14,23}

With 1788 messages received over 27 months, this is the most consistent series of consulting e-mails reported. It also offers the most accurate analysis of the users and the patients who asked for a Web opinion, because it investigates many aspects of those who ask for suggestions on their own health or the health of relatives.

The data we present here can give rise to several analyses of the people who are consulting the Internet on health matters and on what they want. We have to stress that specific topics of the Web site are diseases that are not the subject of primary care but are usually treated by specialists of tertiary referring institutions.⁹ For these diseases, more than others, a correct referring system is fundamental.

There is no doubt that one of the major causes at the root of this phenomenon is the presence or the persistence of difficult-to-treat diseases. More than half of the patients' mentioned in the received messages had already had at least 1 kind of treatment for their disease. Sixty percent of all the messages concerned neoplastic conditions and half of them reported features of already advanced diseases. The Internet is accessible and surfing on the Web and sending e-mail is a very easy way to try to find the most appropriate solution to a life-threatening situation; but what emerged from the repeated reading of our messages, when received and during coding, is that their true origin lies in a substantial lack of satisfactory communication between patients and their health providers. While this aspect could not be easily translated into categories, most of the patients who were the subject of our messages already had a diagnosis, an indication for therapy, or had already been treated for a disease (surgically in 24.1% of the cases and with chemotherapy in 23.8%). Senders were nevertheless still looking for greater clarification on the nature of their illness, for support or an alternative to the proposed therapy, or for further treatment in the case of failure. They do this very easily, without worries of any legal- or privacy-

related considerations: one fifth of our first messages had clinical enclosures and this proportion increased when considering messages dealing with advanced malignant diseases. A large percentage of them were looking for more than a simple answer, because in 34.1% of the cases, a second, unrequested message was received.

If perfect communication existed between patient and physician, there would not be any need for health searching over the Internet. Obviously, this is not the case. On one side, there is uncontrollable and fully justifiable search by the patients themselves or by their relatives for health problem solutions, even for irreversibly deteriorated clinical situations. This is not controllable or correctable by health professionals. On the other hand, our analysis revealed that the need for an answer from a physician very often remains unsatisfied, regardless of the kind of need.¹⁶ On several occasions the feeling was that the relationship between the patient or his or her relatives and the physician was unfinished and left hanging in the balance. Electronic messaging and Web consulting represent the obvious continuation of the relationship.

It could be argued that our Web site received messages from highly sensitized people, representing a strict minority of cases; but the number of similar Web sites (with or without advertising; whether or not commercial or interactive) and newsgroups easily reachable through the most common search engines give an idea of the magnitude of the problem. Even our major newspaper has recently opened separate forums for major diseases, including those treatable only in tertiary referring centers.²⁴

It is both inappropriate and beyond the scope of this article to put forward possible criticisms on the use of the Internet for health-related problems (**Table 4**). In fact, the use of e-mail was quickly welcomed when applied to medical communications,² but the appearance and the continuous growth of unsolicited e-mails and Web-based inquiries should create new concerns for the medical community on the effectiveness of its communication with patients and on its own ability and capacity to interact with colleagues as a full and unique referring network. There are 2 main points physicians should consider when thinking about Web-based consulting: (1) the possible structural modification of the relationship between patient and primary physician ("Will I still trust my family doctor if I am able to find more appropriate or updated therapies for my disease from a Web consultation? Should I go to the physician suggested by my family doctor if I can have an e-mail consultation with one who appeals to me more?")²⁵ and (2) the chance that the decision of choosing a treating physician would be influenced more by the attractive appearance of a Web site or by the promptness in answering e-mail, as emerges from this study, in comparison with the appropriateness, the experience, and the skill of a named physician.²⁶

What has changed in the 7 years since the first report on this phenomenon?²¹ The time that has passed is long for the Internet, but only a moment in terms of time for the medical communication system to change. Six years ago some hospitals and state agencies promoted the deletion of these messages.² Is this still applicable?

The further increase in patients consulting the Internet should encourage physicians to change their atti-

Table 4. Pros and Cons for the Use of E-mail Consulting

Pros	Cons
Easy	Delivery is unsure
Quick	Liability
Direct	Licensing
Anonymity (for the patient)	Anonymity (for the physician)
Free (for the patient)	Free (for the physician)
Physician can be difficult to reach	Privacy
Question written as the patient wishes	Not all issues can be satisfied
Question can be guided through the Web site	Not speaking with a real person
Time to answer chosen by the physicians	Patients can misuse e-mail
Answer can be carefully thought through	Not usable for emergencies
Increases the involvement of the patient	Interference with local physician
May be better for anxious patients	
E-mail is self-documenting	
Possibility given to developing countries	

tude.⁷ If this is not the case, patients will change providers; the Internet patient already makes this change on the basis of nonprofessional considerations.²⁵

The medical community does not seem able to properly deal with the problem,⁷ nor to have the tools to effectively deal with it. Perhaps it is no accident that many of the articles on this subject are found in the unspecialized press instead of in major scientific journals.¹⁹ Even the HON code does not seem to represent a fully satisfactory tool. In this way, today the Internet is pushing us towards a reconsideration of the principles of medical ethics and a re-evaluation of the rules and regulations.⁷

In conclusion, we have confirmed that Web consulting is a powerful tool for both patients and health professionals. Unfortunately the communication problems with the physicians themselves are the main reason why patients surf the Internet searching for the best consultations. In the last few years nothing has changed in medical practice to achieve a rational but also ethically correct management of the resources made available by the Internet.

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REFERENCES

- Eaton L. A third of Europeans and almost half of Americans use internet for health information. *BMJ*. 2002;325:989.
- Spielberg AR. On call and online: sociohistorical, legal, and ethical implications of e-mail for the patient-physician relationship. *JAMA*. 1998;280:1353-1359.

3. Lindberg DA, Humphreys BL. Medicine and health on the Internet: the good, the bad, and the ugly. *JAMA*. 1998;280:1303-1304.
4. White CB, Moyer CA, Stern DT, Katz SJ. A content analysis of e-mail communication between patients and their providers: patients get the message. *J Am Med Inform Assoc*. 2004;11:260-267.
5. Liederman EM, Morefield CS. Web messaging: a new tool for patient-physician communication. *J Am Med Inform Assoc*. 2003;10:260-270.
6. Huntley AC. The need to know: patients, e-mail and the internet. *Arch Dermatol*. 1999;135:198-199.
7. Collste G. The internet doctor and medical ethics: ethical implications of the introduction of the internet into medical encounters. *Med Health Care Philos*. 2002; 5:121-125.
8. Grazi GL, Mazziotti A, Jovine E, et al. Total vascular exclusion of the liver during hepatic surgery: selective use, extensive use, or abuse? *Arch Surg*. 1997;132: 1104-1109.
9. Grazi GL, Ercolani G, Pierangeli F, et al. Improved results of liver resection for hepatocellular carcinoma on cirrhosis give the procedure added value. *Ann Surg*. 2001;234:71-78.
10. Grazi GL, Cescon M, Ravaioli M, et al. Liver resection for hepatocellular carcinoma in cirrhotics and noncirrhotics: evaluation of clinicopathologic features and comparison of risk factors for long-term survival and tumour recurrence in a single centre. *Aliment Pharmacol Ther*. 2003;17(suppl 2):119-129.
11. HON Code of Conduct (HONcode) for medical and health web sites. <http://www.hon.ch/HONcode/Conduct.html>. Accessed September 6, 2004.
12. Eysenbach G, Diepgen TL. Responses to unsolicited patient e-mail requests for medical advice on the World Wide Web. *JAMA*. 1998;280:1333-1335.
13. Labiris G, Coertzen I, Katsikas A, et al. An eight-year study of internet-based remote medical counselling. *J Telemed Telecare*. 2002;8:222-225.
14. Umefjord G, Petersson G, Hamberg K. Reasons for consulting a doctor on the Internet: survey of users of an ask the doctor service. *J Med Internet Res*. 2003;5:e26.
15. Goggins M, Lietman A, Miller RE, et al. Use and benefits of a web site for pancreatic cancer. *JAMA*. 1998;280:1309-1310.
16. Borowitz SM, Wyatt JC. The origin, content, and workload of e-mail consultations. *JAMA*. 1998;280:1321-1324.
17. Ferguson T. Digital doctoring—opportunities and challenges in electronic patient-physician communication. *JAMA*. 1998;280:1361-1362.
18. Hubbs PR, Rindfleisch TC, Godin P, et al. Medical information on the Internet. *JAMA*. 1998;280:1363.
19. Bovi AM; Council on Ethical and Judicial Affairs of the American Medical Association. Use of health-related online sites. *Am J Bioeth*. 2003;3:W-IF3.
20. Kane B, Sands DZ; AMIA Internet Working Group. Task force on guidelines for the use of clinic-patient electronic mail. *J Am Med Inform Assoc*. 1998;5:104-111.
21. Widman LE, Tong DA. Requests for medical advice from patients and families to health care providers who publish on the World Wide Web. *Arch Intern Med*. 1997;157:209-212.
22. Shuyler KS, Knight KM. What are patients seeking when they turn to the Internet? Qualitative content analysis of questions asked by visitors to an orthopaedics Web site. *J Med Internet Res*. 2003;5:e24.
23. O'Connor JB, Johanson JF. Use of the Web for medical information by a gastroenterology clinic population. *JAMA*. 2000;284:1962-1964.
24. Abdominal Tumor Forum. <http://www.corriere.it/corrforum/corriere/Intro?forumid=436>. Accessed September 6, 2004.
25. Ziebland S, Chapple A, Dumelow C, et al. How the internet affects patients' experience of cancer: a qualitative study. *BMJ*. 2004;328:564-569.
26. Berland GK, Elliott MN, Morales LS, et al. Health information on the Internet: accessibility, quality, and readability in English and Spanish. *JAMA*. 2001;285: 2612-2621.

Invited Critique

Access to electronic health information and communication is no longer a future anticipation of patients but a current expectation. In this issue, Grazi breaks new ground by reporting his observations of electronic communications to surgeons via a European Web site written in a non-English language (Italian), related specifically to a non-primary care topic, surgical hepatopancreatobiliary disease, and in which the physician recipients had no prior clinical relationship with the patients. Almost all reports to date in the scientific and lay press about e-mail and Web messaging between patients and providers have focused on primary care in the United States and on communication written in English.

Remarkably, given the relative nonavailability of physician-patient electronic messaging in Europe, the Web site was visited 40 648 times over 27 months, and 1247 patients or proxies sent 1788 electronic messages. The senders' ages ranged, in years, from mid 30s (primarily for benign conditions) to the 60s (primarily for cancer).¹⁻³ Surgeons who believe that their patients do not wish to communicate with them online would be well advised to read Grazi's article.

While the author should be commended for offering and measuring electronic connectivity to Italian patients about surgical diseases—both firsts in the literature—their purely descriptive study raises more questions than it answers. No analysis is presented about what prompted patients to write, nor what happened after the e-mails. Were the patients and their proxies motivated, as the author concludes, by dissatisfaction with their physicians, or, perhaps, instead by a desire to increase their knowledge about the serious diseases affecting them? Did the patient return to the treating physician? Was therapy altered because of the Web-based communication? Would traffic volume or outcomes differ if a fee had been charged?

Additional far-reaching concerns for the practicing surgeon include the ease and rapidity with which patients and/or family members will provide private health-related information, the apparent need for second opinions and clarification of treatment or disease-related outcomes, and the frequency with which users access Web-based resources. Although many uncertainties remain about Web-based consulting, electronic communication, and Internet-based information, surgeons should consider offering this mode of communication to their patients, and respond when they use it.

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1. Houston TK, Sands DZ, Jenckes MW, Ford DE. Experiences of patients who were early adopters of electronic communication with their physician: satisfaction, benefits, and concerns. *Am J Manag Care*. 2004;10:601-608.
2. Hassol A, Walker JM, Kidder D, et al. Patient experiences and attitudes about access to a patient electronic health care record and linked web messaging. *J Am Med Inform Assoc*. 2004;11:505-513.
3. Liederman EM, Lee JC, Baquero VH, Seites PG. Patient-physician web messaging: the impact on message volume and satisfaction. *J Gen Intern Med*. 2005; 20:52-57.