

The Impact of CyberHealthcare on the Physician–Patient Relationship

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It is estimated that 70 million Americans have used the Internet to acquire health-related information. Multiple factors provide the driving force behind this demand for online health information. Information technology is beginning to change the exclusive focus of medicine from curing disease to prevention of disease and enhancing health status. A critical feature of this change is the development of information and services that assist consumers to assume more responsibility for their own health and to actively participate in health care decisions. At the same time, physicians remain skeptical about the advantages of using the Internet for patient education. Some of the issues that this paper addresses include the following: What are the major factors that are leading to the increased use of the Internet by consumers to obtain health-related information? How do physicians view the use of the Internet by patients to obtain health-related information and services? How is the use of the Internet by consumers affecting physician–patient communications? What are the implications of the Internet for the future of physician–patient relationships?

KEY WORDS: information technology; physician-patient relationship; use of the Internet; physician-patient e-mail.

A technological revolution is underway reshaping the way that health care is organized and delivered; this revolution impacts the relationship between physicians and patients. Modern health care is unimaginable without the integration of information technology. In particular, the Internet is critically important because it is a medium uniquely capable of integrating modes of communication and forms of content. The realization of the full potential of this technology is perhaps the most important challenge of health care today. Information technology is beginning to change the exclusive focus of medicine from curing disease to prevention of disease and enhancing health status. A critical feature of this change is the development of information and services that assist consumers to assume more responsibility for their own health and to actively participate in health care decisions.

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One way that allows active patient participation in decisions affecting their health status is the Internet. The Internet is increasingly becoming a source of current health information for consumers. Internet refers to the electronic network that links people and information through computers and other digital devices to allow for person-to-person communication, and allows for information retrieval.⁽¹⁾ As more and more people use the Internet to gather information, many are addressing their own health-related needs. It is estimated that 70 million Americans have used the Internet to acquire knowledge about diseases and treatments, to learn about and enroll in clinical trials, to join support groups, and to obtain other health-related information.⁽²⁾

At the same time, physicians remain skeptical about the advantages of using the Internet more actively in their practices. They also worry that patients who turn to Web sites for information may not consult a doctor when serious health problems occur. Some of the issues that this paper addresses include the following: What are the major factors that are leading to the increased use of the Internet by consumers to obtain health-related information? How do physicians view the use of the Internet by patients to obtain health-related information and services? How is the use of the Internet by consumers affecting physician–patient communication? What are the implications of the Internet for the future of physician–patient relationships?

THE TRANSFORMATION OF THE PHYSICIAN–PATIENT RELATIONSHIP

Information technology is beginning to change the exclusive focus of health care from curing disease to preventing disease and enhancing health status. The trend toward preventive medicine also contributes to the consumer’s desire to gain knowledge. For example, health promotion mass media campaigns increase health awareness and, for many diseases, the value of patient education programs is widely accepted.

A critical feature of this change of focus is the development of information and services that encourage consumers to become more responsible for their own health, and to actively participate in health-related decisions that affect them. The general educational level has increased, thus people have gained confidence in newly developing technologies such as the Internet. Why is the Internet such an important place to study the “new” patient–physician relationship? One reason is that the Internet far surpasses other media in its ability to be “consumer centric,” thus the needs and desires of consumers are accurately and timely documented online. This can be attributed to the following three features of the Internet:

- (1) *Consumers can be publishers*: The Internet is a democratic, “bottom-up” medium: publishing is inexpensive, simple, and everybody can be a publisher—including consumers.
- (2) *Feedback channels*: There are direct, immediate, and efficient feedback channels (e-mail, user statistics, online forms) which tell publishers of information what readers think, what they like and dislike, and giving them the possibility to adapt and refine their contents.

- (3) *Flexibility and speed:* Online publishers can respond to the needs and demands of consumers quickly, as changes are possible with little costs and virtually no delay.

All these factors make the Internet a mirror of current consumer needs, desires, and trends. We only have to look at it, and what we see on the Internet is the same as we observe in the real world: a general trend toward self-reliance and patient power. For example, a woman who was prescribed two antibiotic drugs used the Internet to look up the drugs’ profiles in the Consumer Reports Drug Database. She discovered that one of the drugs could interact with the blood thinner that she was already taking. After she informed her physician of the potential problem she discovered, he then changed her prescription.⁽³⁾

THE PATIENT AND THE INTERNET

In the past, patients found it difficult to obtain relevant information about health problems and treatment options. It has been argued that a driving force behind demand for online health information is the shortage of information easily obtained from traditional channels such as lack of time on the part of physicians.⁽⁴⁾ However, in our conceptual framework (Fig. 1), this is only one among many factors.

The factors in our model have been compiled from our experience as an active health information provider on the Internet.^(5,6) Our model is supported and

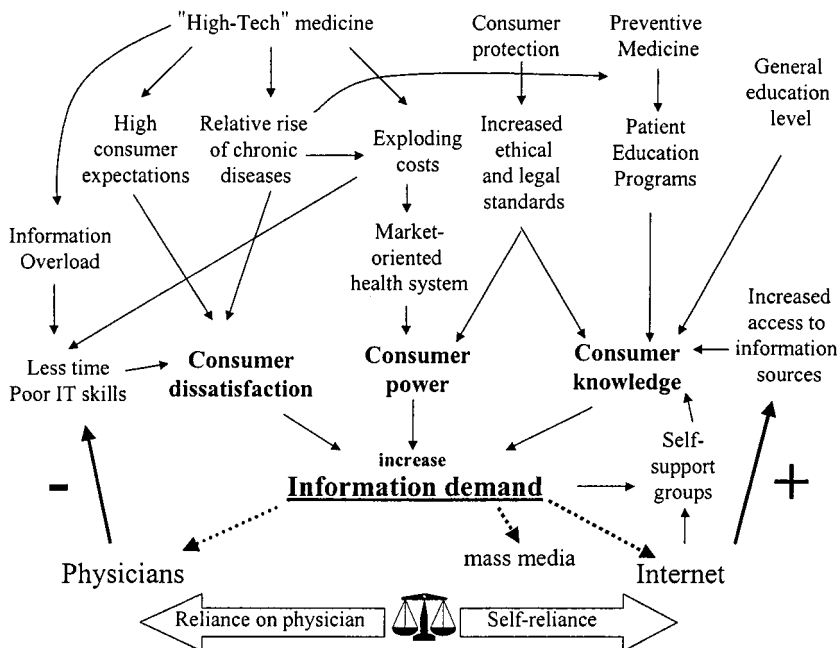


Fig. 1. Factors increasing the demand for information and pushing the balance towards self-reliance.

illustrated by evidence in the form of quotes from patient e-mails (Table I), taken out of a systematic analysis of hundreds of patient e-mails we received over a period of several years at a university dermatological hospital. In these unsolicited e-mails, consumers and patients commented on our web site and asked additional questions, giving us clues for the reasons for consulting the Internet and on their relationship with physicians (a quantitative analysis of a subset of these e-mails has been published elsewhere).⁽⁷⁾

According to our experience, a number of factors contribute to the shift in the role and self-perception of patients from passive recipients of medical care to active consumers of health services and increase a demand for health information (Fig. 1).

First, the rapid technological advances in medicine sometimes lead to unrealistic expectations of medical technology's great promises on the part of consumers. Progress in clinical medicine primarily took place in acute care and infection control, whereas many chronic diseases are still difficult to treat and continue to have a significant impact on quality of life. Often, patients find it difficult to accept their physicians' statement that there is really no therapy available (Quote 1). Moreover, highly specialized care is often perceived as "impersonal" or dominated by economic interests of physicians (Quote 2). All this generates disappointment and frustration on the part of patients, leading to the desire to take responsibility for their own health.

Second, lack of time on the part of physicians contributes to consumer dissatisfaction and frustration. A total of 77% of U. S. adults agree with the statement that "doctors spend less time with patients now than 10–15 years ago"; 65% feel that "Most doctors are hurried"; and 47% are "not satisfied with duration of doctor's visit" (Yankelovich MONITOR, reproduced in.⁽⁴⁾ Insufficient time spent on physician–patient communication also creates important misunderstandings leading to further dissatisfaction and noncompliance (Quote 3). Lack of time also is a major barrier for physicians to acquire and to adopt information retrieval skills, which are generally extremely poor.⁽⁸⁾ Intel CEO Andy Groves recently commented "auto mechanics use information technology more effectively than physicians." These skills are essential not only as a means of remaining up-to-date in the profession but also to be able to appraise the material patients have retrieved, e.g., on the Internet. If physicians fail to respond appropriately to these encounters, patients leave the doctors office with the impression that they are better off in taking their fate into their own hands.

Third, the health systems of industrialized countries are coming under increased cost-saving pressure; many are transferred into market systems where quality control and customer satisfaction is critical to success for providers. Consumers are increasingly empowered to make their own choices among providers, health care plans and insurance companies. Patients may also increasingly become concerned that they receive cost-effective but suboptimal medical care and try to explore alternate sources of expert medical opinion (Quotes 1 and 4). In addition, consumers increasingly have to pay out of their own pockets for medication and other health products and services, forcing them to think more about the cost and quality trade-offs of their choices.

Fourth, also contributing is a general trend toward consumer protection, with increased legal and ethical standards (Quote 5). In particular, we witness a cultural

Table I. E-mail Quotes From Patients, Received at a Dermatology University Hospital

Quote 1	(From a U.S. patient with granuloma annulare)	... the doctors here say there is no cure or treatment for this disease and I do not believe this.
Quote 2	(From a patients' husband from Florida who just returned to the United States after living a while in the United Kingdom)	(...) My wife is at her wit's end, has had this worsening condition for two years and despite the endless succession of doctors and clinics is no better off than when we started. Further, she is extremely frustrated with the poor and quite impersonal care and limited medical advice that seems to be available in this region. (...) We keep being referred to Dermatologists in a circle here who appear to be primarily interested in only delaying the ageing process for older women, specialising in the removal of skin blemishes, injecting collagens, selling potions and creams and directly interested in cosmetic issues, rather than working with real medical issues. If we have some better understanding of what we can and cannot do with this condition, that would be a great help in securing better care at a major medical center either here in the USA or abroad.
Quote 3	(From a 35-year-old women from the United States with Polymorphic Light Eruption)	I have been to 4 doctors in the past 4 years (...) My last doctor gave me the worst advice. He wanted to give me a prescription that would eventually make me blind. I don't want to loose my eyesight so I will not use this.
Quote 4	(From a 41-year-old male from the United States complaining of "pimples" and a "rash")	... this has going on for over a week and nobody seems to know what the etiology of the problem is, so I thought I would write a few doctors to see if they might have an idea.
Quote 5	(From a Dutch father)	I am looking for information and expert advice to sue the insurance company for not paying the depilation of my sons Becker Naevus by means of lasertreatment.
Quote 6	(From a 24-year-old female who has been under treatment for onycholysis, with a disease history of 18 years)	(...) I took Sporonox for about 4 months. I was told that this had to cure my nails, but it did not work. At this time I have resigned from taking any medication and I have turned to the Internet for some further investigation of my problem.
Quote 7	(From a patient from Portugal who obviously discovered a picture of psoriasis in our atlas, diagnosed himself as having psoriasis and wanted to start with a treatment right away. His e-mail consisted of only one lapidar question)	I would like what kind of things can I do to fight against "psoriasis on fingers"—because I saw the photo in your [Internet Dermatology online] atlas and it seems to be the same. Thank you very much.
Quote 8	(From a patient from Germany)	Since 7 years I suffer from oral candidosis. Unfortunately I had to find out the name of the disease on my own, thanks to various encyclopedias and Internet resources, because the doctors here apparently know very little about the disease. But in the meantime I am 100% sure. Now I have some questions to treat the fungus...

(Continued)

Table I. (Continued)

Quote 9	<p>(From a female patient from Texas)</p> <p style="padding-left: 40px;">Doctor, my family has the flu! Can you prescribe medicine on line? We are desperate for some antibiotics since I personally have just recently recovered from pneumonia and I fear a relapse. I am also in need of a refill for my prescription of Buspar. Can you help us or recommend someone who can?</p> <p>(When asked, why she doesn't see a "real" doctor, the following explanation was given)</p> <p style="padding-left: 40px;">(...) we have not selected a family physician as of yet. While watching the news a week or so ago, I learned of this "cybermedicine" and "cyberdoctors" as being the newest way to get medicines without all the fuss of trying to get an appointment for something as simple as a cold or flu.</p>
Quote 10	<p>(A female consumer saw a picture of pityriasis rosea on the Internet and realized that she had this for 3 years, but didn't consider it as a skin disorder. She made an appointment with a dermatologist right away, and the diagnosis was confirmed. After this, she wrote)</p> <p style="padding-left: 40px;">I am fascinated that you and perhaps your colleagues are not angered by folks like us who attempt to learn or at least investigate possibilities regarding our physical ailments. It has been my experience that physicians absolutely abhor such queries. I have often wondered why it angers them so, is it ego, or the fact that one could make incorrect assumptions and further harm themselves? Or perhaps both?</p>

shift in the relationship between patients and physicians, which makes consumers more critical and aware that doctors are not "gods," but human beings who may make errors. Further, legal standards require the patient to have a certain level of knowledge to make informed choices, which further empowers the role of consumers.

Fifth, the trend toward preventive medicine also contributes to consumer knowledge. For example, health promotion mass media campaigns increase health awareness, and for many diseases the value of patient education programmes for primary, secondary, and tertiary prevention are widely accepted.

Sixth, the general educational level has increased. People in Western societies have become increasingly more educated.

Seventh, the growth of accessible and inexpensive sources of information (particularly via the Internet) about health and medicine, health insurance, physicians, hospitals, and other parts of the health care system does also raise further information demand. Information resources are so easy to use that consumers use them as an "experimental" alternative to physicians (Quote 6). In other cases they simply stumble over diseases they may or may not have while surfing the Internet (Quote 7) or use the Internet to make or to support a self-diagnosis (Quote 8).

All these factors have important ramifications on consumer attitudes and prerequisites, which we can summarize as consumer dissatisfaction, consumer power, and consumer knowledge. Together these lead to an unprecedented increased demand for medical information on the part of consumers. (When speaking about consumers, from this model it should become clear that we mainly refer to educated patients with chronic diseases from developed countries.)

The Internet is becoming a source of current health information for many of these consumers. To satisfy this information hunger, consumers could turn either to their physicians, to other media (TV, radio, newspapers, books), or to the Internet.

Unlike physicians (who, because of lack of time and knowledge, often are unable to give exhaustive information) or mass media (which do not offer any interactivity), the Internet gives positive feedback and assists in the networking of patients in self-support groups, empowering consumers to make their own informed health decisions. Some agree that electronic communication should be viewed as a supplement to regular meetings, and that electronic communication between physician and patient is altering relationships much as the advent of the telephone did in an earlier era.

One system developed in the United Kingdom called NHS Direct provides advice on health and medical problems both on the web and over the telephone.⁽⁹⁾ In the United States Internet-based medical services are utilized by an increasing number of patients. America's doctor (www.americasdoctor.com) has contracts with over 142 physicians who provide basic health-related advice. Webmd (www.webmd.com) provides online group discussions with medical experts on various topics. CyberDocs (www.cyberdocs.com), which was started in 1996, offers consultation or "virtual house calls" with board certified physicians for \$50–\$100 a session. By 1999 this online service reported an average of 3000 online visits per day, or about 100,000 per month.⁽¹⁰⁾

However, the Internet has even more to offer for consumers. First, patients enjoy the possibility to communicate with health experts under near anonymous conditions.⁽⁷⁾ Many patients are too embarrassed to ask questions which they think may be foolish or too personal. Second, it simply appears to be more convenient to stay at home and research condition online or to order medication on the Internet rather than to "get thru the fuzz to get an appointment" (Quote 9). Indeed, 43% of U. S. adults are "not satisfied with doctor's accessibility" (Yankelovich MONITOR, reproduced in),⁽⁴⁾ while the Internet is available 24 h a day, 7 days a week. Third, the Internet offers the apparent possibility to get in touch with national and international experts. Our research has shown that most patients simply want to have addresses and contact information of specialists for a given disease.⁽⁷⁾ To just "write to a few doctors on the Internet" (Quote 4) to solicit second, third, and more opinions is ridiculously easy using e-mail and has become so popular, that some doctor-webmasters receive up to 50 e-mails or more per week.⁽¹¹⁾

THE VIRTUES OF THE INTERNET

The Internet has much to offer to consumers. An increasing body of literature suggests that the Internet enhances social ties in many ways.⁽¹⁾ First, patients enjoy the opportunity to communicate with health experts under near anonymous conditions. Many patients are too embarrassed to ask questions they think foolish or highly personal. Second, it appears to be more convenient to stay at home and conduct research online or to order medication on the Internet because such services are available 24 h a day. Third, the Internet offers ability to consult national or international experts in particular fields of discipline.

By offering opportunities for the consumer, the Internet acts as a catalyst and promoter in facilitating a change of the patients' role. When turning to a physician, some patients often experience negative feedback; physicians lack time to spend with

their patients. Also, because patients possess more knowledge about information technology, they may have the impression that they know more than their doctor. This contributes to a strained physician–patient relationship. On the contrary, there is a positive feedback loop on the Internet because more patients are choosing to become “e-patients” who gather more information by using the Internet, and thus become more self-reliant.

As more and more people use the Internet to gather information, many are addressing their own health needs. Various factors contribute to the shift in the role of patients from passive recipients of medical care to active consumers. Take the case of Mrs H, a widowed, 60-year-old woman, who was diagnosed with cancer. While on chemotherapy after undergoing a radical mastectomy, she found herself feeling frightened and confused. She joined the Comprehensive Health Enhancement Support System, an Internet-based support system designed to provide people facing major illnesses with information and social support.⁽³⁾

The Internet opens up enormous possibilities for obtaining information about even the most rare health conditions and experimental or alternative treatments. Evidence-based decision-making aids can be obtained by patients through use of the Internet. Furthermore, these evidence-based decision aids have been shown to be effective. A review of 17 randomized controlled trials of patient decision aids found that they substantially increased patient knowledge of options and outcomes, and increased patient participation in overall decision-making.⁽¹²⁾

In addition to patient decision aids, future web sites will be designed to provide more individualized health services. In one instance, one family established a web site to recruit bone marrow donors for a family member who had chronic myelogenous leukemia—a disease that kills 60–70% of those who have contracted it within 5 years. Because of the Internet web site, this family was successful in recruiting two potential candidates with the right genetic match willing to donate.⁽³⁾

Currently, most web sites provide general information to consumers. However, the Internet also can be used to collect information related to health such as smoking, use of alcohol and drugs, diet, exercise, and stress; to assess health risks based on this information; to develop a plan to change unhealthy lifestyle tailored to the individual; and to provide the monitoring of health behaviors and follow-up.⁽¹³⁾ Internet services are already being offered to help patients manage chronic diseases such as diabetes and congestive heart failure. Patients who use the Internet for such purposes can enter their weight, temperature, and blood pressure into their personal chart via computer. Peripheral devices connected to the computer allow the patient to enter the results of tests like blood sugar level. In some cases, a video camera even allows a health care provider to examine wounds or injuries and to review medications. In addition to services such as these, the Internet can also be used to answer questions or schedule appointments with health care providers if necessary.

Decision support systems, once used exclusively to assist physicians in medical decision making are being adapted for consumer use. For example, medical HouseCall is a decision support system for consumers derived from Iliad, originally designed to assist physicians in decision making.⁽¹⁴⁾ The system consists of four programs: symptom analysis, medical encyclopedia, drug interaction, and medical record. These modules were made available to consumers on a web site. Consumers

used HouseCall to keep their own medical record to determine questions to ask their doctor, to look up medical terms in the encyclopedia, and to check on drugs and drug interactions.

Other systems under development incorporate patient preferences for different outcomes into the decision-making process regarding screening and testing.⁽¹⁵⁾ One such program was designed to assist men with enlarged prostates to make a choice among watchful waiting, medications, and surgery. The program is available online to assist men in considering the options and choosing a treatment option based on their own individual preferences.⁽¹⁶⁾ Another application utilizes automated computer interviews with patients combined with multimedia presentation at the bedside to elicit preferences regarding the treatment of deep venous thrombosis.⁽¹⁷⁾

ADDRESSING CHALLENGES ASSOCIATED WITH INTERNET USE

Despite noteworthy virtues of Internet use, some worry that those who consult web sites for information may not be as likely to consult actual doctors when serious health problems arise. A number of consumer health services (e.g., MedCetera and Health Responsibility Systems, Inc.) will perform medical literature searches for consumers. These services come with a price, however. For a fee ranging anywhere from \$80 to \$250, customers can order bound notebooks containing abstracts from Medline, the National Library of Medicine's database, as well as other relevant databases. HealthGate Data Corporation has also created a web site for consumers to search for and view articles related to their medical problem, but there are fees associated with this service as well.⁽³⁾

With offering such new opportunities for the consumer, the Internet is more than a medium that transports and reflects an already-existing trend. Rather, the Internet acts as a further catalyst and promoter in facilitating a change of the patients' role as being self-active. When turning to physicians' (left side in Fig. 1), consumers seeking information often experience a negative feedback, as physicians have not enough time for their patients and because most consumers are far ahead of the majority of physicians in using information technology, giving patients the impression that they know more than their doctor. In some instances physicians feel threatened when patients present them with information about alternative or experimental therapies that they have discovered while using the Internet. In one case, a woman with ovarian cancer used the Internet to investigate over 200 experimental treatments. She concluded that intensive therapy along with a combination of drugs would be a more appropriate therapy than the one she was currently undergoing. Unfortunately, her doctors disagreed; they felt the current treatment was suitable and the woman was too weak to withstand an intensive treatment regimen.⁽³⁾

On the contrary, there is a positive feedback loop on the Internet (on the right side of Fig. 1). The more patients become "e-patients," the more peers and the more information they will find on the Internet. Together this leads to a further preponderance on self-reliance—the balance is turning to the right side in Fig. 1.

From the health providers' point of view, this turn in balance involves a further change in the role of physicians. Historically, physicians have taken an authoritarian

role, in which the patient is left uninformed in a dark hole of ignorance (Fig. 2(a)). In a more modern approach, patients are seen as partners whose knowledge gaps should be filled by educating them—but still, physicians play the active role and medical information is provided to patients at the physician’s discretion (“ex ducere” literally means “to lead out,” and implies a “leader”) (Fig. 2(b)). Today however, physicians are increasingly confronted with patients who empower and “e-ducate” themselves using other sources, particularly the Internet (Fig. 2(c)), while most physicians do not even have an understanding or access to these modern information technologies. This new “reversed” information gap creates new conflicts, and causes, e.g., “most physicians (to) cringe when patients bring in lengthy printouts of Internet information concerning illnesses they may have.”⁽⁴⁾ The fact that patients are taking the initiative to look out for the latest research results “stands on its head the tradition in which a doctor gives orders and the patient obeys,” as the *New York Times* put it. “And that makes some doctors nervous.”⁽¹⁸⁾

This situation illustrates the strain the physician–patient relationship may face when involved parties disagree on a course of medical action. Unquestionably, a challenge for the future is to encourage patient responsibility for care by facilitating their ability to, not only locate, but to interpret authoritative medical and health information. At the same time, tools must be provided to inform and protect patients against the risks associated with inappropriate information and self-diagnosis.^(19,20)

Another challenge lies in the fact that physicians are more skeptical about the overall usefulness of the Internet than are patients. Health professionals who do use the Internet sometimes worry about the quality of information posted via Internet

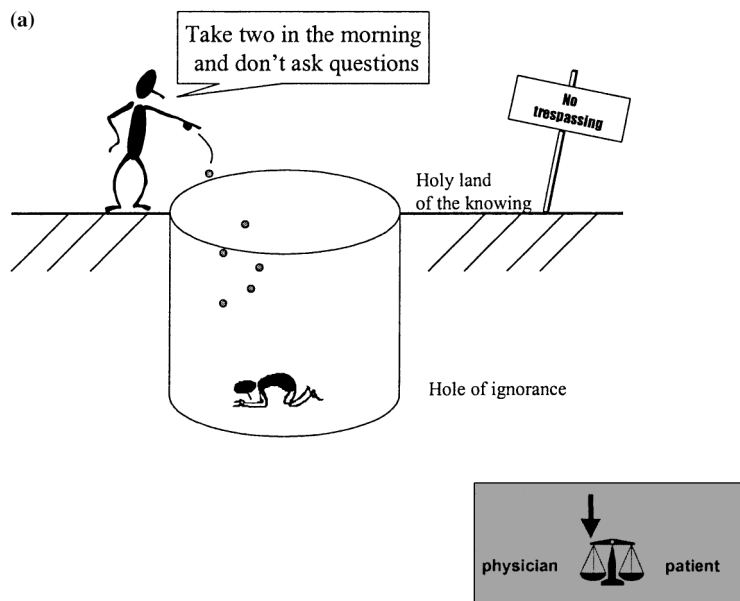


Fig. 2. (a–d). Evolution of the patient–physician relationship in terms of the “information gap.”

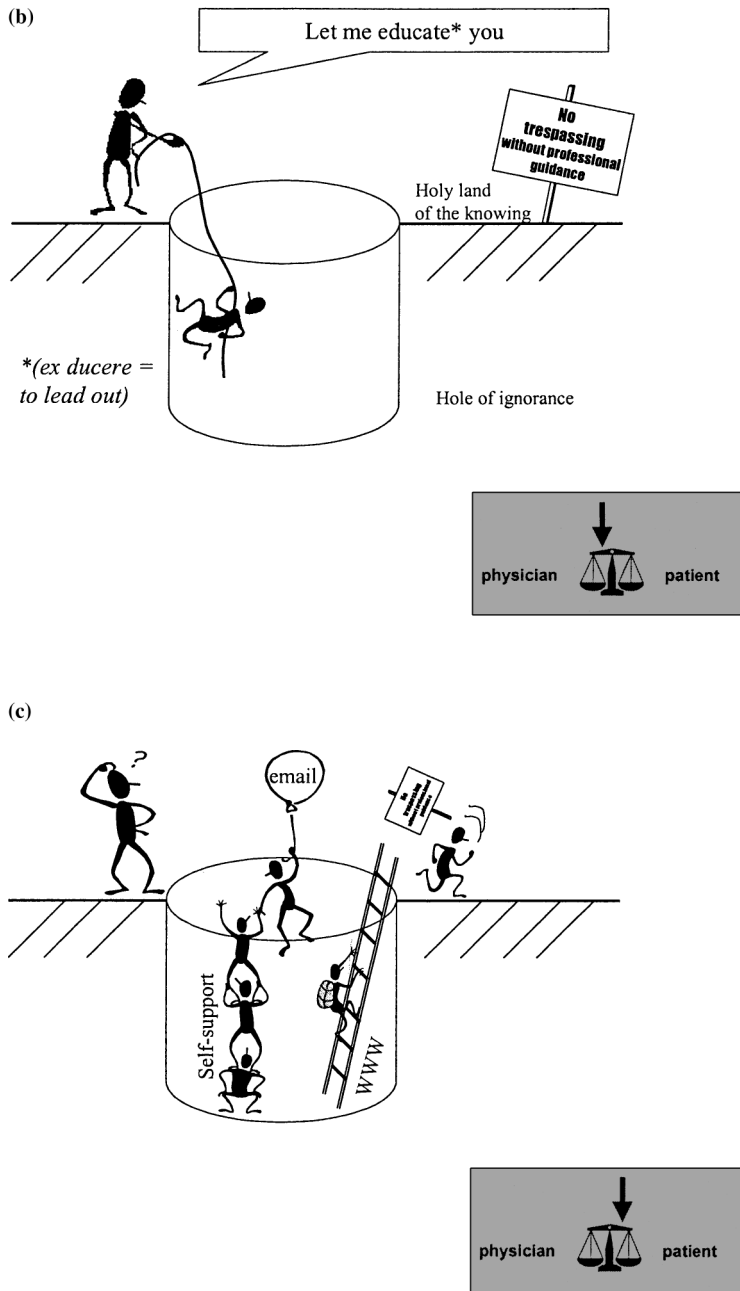


Fig. 2. (Continued)

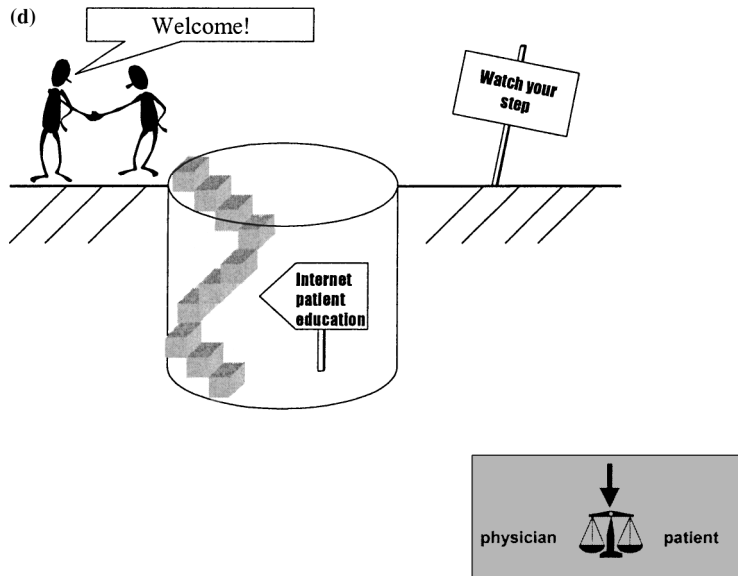


Fig. 2. (Continued)

and also complain that the interactive forums amount to little more than gossip sessions.^(21,22)

Also there is evidence that, in contrast to the public, physicians are more skeptical about the virtues of the Internet. Only 39% of all physicians see the Internet as a valuable health information source for consumers.⁽⁴⁾ The results of two other surveys confirm this finding. A recent survey by Forrester Research found that only 25% of respondents thought the Internet was useful in providing patient education.⁽²³⁾ Data from a random sample of 1084 physicians conducted by the American Medical Association (AMA) indicated even more dissatisfaction with the Internet among physicians. Only 11% of respondents of the AMA survey felt the Internet was useful in providing patient education. This sharply contrasts with the value consumers give to web education. A total of 70% of consumers retrieving health information on the Internet agree that “the Internet empowers me to make better choices in my life” (*Source: cyberdialogue/findsvp survey, reproduced in*⁽¹⁾). Responsible for the low esteem in which physicians hold the Internet as an educational tool are likely not only the (partly justified) concerns on the quality of Internet information, but also discomfort on having to deal with a patient who is perhaps better informed than oneself or who even comes into the office already with a concrete diagnosis and/or therapy in mind.

THE PHYSICIAN AND ELECTRONIC MAIL

Despite growing public demand, one study found that only 20% of American physicians connect with patients on the Internet. In fact, physicians that do e-mail patients believe it strengthens their relationship with the patient and is more efficient than other modes of communication.⁽²⁴⁾

In a recent survey, only 9% of physicians indicated they were willing to personally reply to e-mail from their patients. Most physicians indicated they would delegate this responsibility to their subordinates. When asked why more physicians were not using the Internet, 80% of physicians indicated that compensation structures do not reward being online, and they disagreed that the use of the Internet would save time or improve their productivity. One physician said, “Basically, e-mail is not a big winner for us. We don’t want to do it, really. It’s time consuming and we don’t get paid to do it.”⁽²³⁾

Most physicians indicated that they would delegate the responsibility of replying to patient e-mails to their staff. When asked why more physicians were not actively using the Internet, 80% indicated that compensation structures do not reward being online; these physicians did not believe that using the Internet would save time or improve productivity.⁽²³⁾ Evidently, physicians who are not already connected claim no intention of doing so. Research has shown American physicians that do not e-mail patients believe that this method of communication dilutes and minimizes the physician–patient relationship and prefer interacting in person.⁽²⁴⁾ One physician said, “Basically, e-mail is not a big winner for us. We don’t want to do it, really. It’s time consuming and we don’t get paid to do it.”⁽²³⁾

CONFLICTS OVER ACCESSIBILITY TO DATA

Information concerning the performance of health care professionals and organizations in the form of consumer reports and profiles is being made available to the public increasingly on web sites. Consumer advocates argue that disclosure of performance data will help consumers to choose high-quality providers. Opponents argue that performance ratings unfairly penalize health care providers and organizations that treat high-risk patients. They argue that surgeons may be discouraged from operating on high-risk patients. They also argue that the public pays little attention to such ratings in choosing a health care provider.

A review of the evidence of the effects of public disclosure of performance data is mixed.⁽²⁵⁾ The only study that found an effect of public disclosure on consumer decision making was the New York State CABG mortality report. *Newsday* filed a suit under the Freedom of Information Act to obtain information about physicians in New York State who performed coronary artery bypass graft operations. In New York State, mortality rates vary greatly among physicians performing surgery even in the same hospital. Consumer advocates argued that the public should have access to this critical information to make an informed choice in selecting a surgeon. On the contrary, the medical association argued that this information should be kept confidential because the medical profession already has policies and procedures in effect to protect all patients. A study of the effects of disclosure of these data indicated that hospitals and physicians with better outcomes experienced higher rates of growth in market share after the disclosure of the performance data.

Consumer access to data on the costs of medical procedures is also in dispute. The AMA is fighting for control over cost-related data for medical procedures performed by physicians.⁽²⁶⁾ In 1983, the federal government and many private insurance

companies adopted the list of codes and descriptions of medical procedures called the Common Procedural Terminology (CPT). The AMA has gone to court, claiming a proprietary right to these data to challenge consumer-oriented web sites that have posted estimated costs for medical procedures. These web site estimations are based on the dollar amount the U.S. government reimburses a doctor for treatment. Recently the AMA has joined with realtors and providers of legal information in backing a bill in the U.S. Congress that would grant legal protection for databases including the CPT codes, and prohibit public access to this type of information.

Consumers are denied access to the National Practitioner Databank.⁽²⁷⁾ This database was created by the U.S. congress in 1986 and contains information about malpractice awards, civil and criminal actions against physicians, and licensing board decisions. Insurance companies, managed care organizations, and state licensing boards use the data bank. So far the public has been denied access to this database.

Consumer advocate groups and committee chairs of the Commerce Committee of the U.S. House of Representatives argue that patients have a right to these data. The AMA and other professional medical groups argue that the data bank contains mostly information about malpractice awards and payments that in many instances had little to do with a practitioner's performance. In response to calls for public disclosure, the Federation of State Medical Boards plans to issue a report on the release of performance information. The report will include a model for states that release performance information on health care providers. This action may help to assuage the growing consumer demand for additional performance and cost data that can be used in decisions regarding the choice of health care providers.

IMPLICATIONS FOR PRACTICE: LOOKING TOWARD THE FUTURE

Health care is one of the most popular reasons for accessing the Internet. People are seeking health-related services and information, and traditional resources such as consultations with physicians are being supplemented and replaced in increasing numbers.⁽²⁸⁾ There are potential dangers associated with misusing the Internet to be sure, however, the Internet is here to stay.⁽²⁹⁾ As has been shown, one significant factor for why patients are turning away from physicians toward self-reliance is insufficient consumer responsiveness on the side of health professionals, especially when it comes to satisfying the information demand. While self-reliance is desirable up to a certain point, the balance may not shift too far beyond the point where it becomes detrimental for public health—we must ensure a balanced relationship (Fig. 2(d)).

First and foremost, one crucial action to be taken toward this aim must be to train physicians in the use of information technology. The fact that physicians lag behind consumers in adopting information technologies is likely a major factor for consumers losing trust in their individual physicians.

Second, the vast potentials of the Internet itself to foster consumer-physician communication must be recognized and fully developed. In that respect, three areas should be given particular attention to.

Health Education and Teleprevention

The Internet has both the clientele (consumers who really want to learn something about their health) and the technical capabilities (interactivity and the reach) to be a medium for highly successful patient education and to enter a new era in teleprevention.⁽³⁰⁾ However, according to a survey among physicians asking for “preferred patient education methods,” the Internet was mentioned by only a minority of physicians—it therefore ranks far behind other methods such as face-to-face, print-materials, videocassettes, and audiocassettes.⁽⁴⁾ Although it is true that quality concerns are a major threat to the value of Internet education,⁽³¹⁾ technical methods for quality control exist⁽³²⁾ and should be adopted. Health professionals should take the lead in building reliable stairways on the Internet for patient education (Fig. 2(d)).

Use for Data Collection

The potential of using the curiosity and motivation of Internet-consumers for research, e.g., to gather epidemiological data^(33,34) or data on the effectiveness of interventions via Internet directly from patients is a largely untapped resource. The true potential of the Internet is two-way communication, allowing feedback from patients. Collecting data from patients is one possibility to use this.

Use for Consumer Involvement in Research

The use of the Internet to involve consumers in research issues is another underdeveloped area. Not only should patients be seen as partners in the treatment process, but also as partners in research. Consumer involvement is essential for research, e.g., to set research priorities or to ensure the validity of clinical studies (e.g., to identify outcome measures deemed relevant by patient). The Cochrane Collaboration is one example of an organization which has identified consumer involvement as one of their crucial pillars. We recently set up an experimental consumer feedback form (<http://dermis.net/cgi-bin/cochrane/question.htm>) for the Cochrane Skin Group with the aim of compiling a database of “frequently asked consumer questions” which should be addressed by future systematic reviews. After only 2 months, more than 500 consumers made contributions.

“It is time to embrace the concept of the informed patient and use their web-surfing skills,” wrote Pemberton⁽³⁵⁾ in a recent paper, giving a set of useful “dos” and “don’ts” for physicians confronted with the “overinformed” e-patient. Indeed, it is time for health professionals to “welcome” the empowered consumer (Fig. 2(d)) rather than to see him as an intruder trespassing into a forbidden zone. The information age demands a new dimension of “consumer responsiveness.” For the individual physician this requires training her/himself in the use of the Internet, to take the patient and his concerns serious and to canalize his motivation to learn about himself and his disease into positive, productive ways.

If we do so, we may be rewarded by success stories like the following: A female consumer saw a picture of pityriasis rosea in our Dermatology Online Internet Atlas and realized that she had this condition for 3 years, but did not consider it as a skin disorder. She made an appointment with a dermatologist right away, and the

diagnosis was confirmed. Her comments on initial reactions of other physicians to their concerns included the statement that it has been her “experience that physicians absolutely abhor such queries” (Quote 10)—illustrating that many physicians still have to learn their lesson on responsiveness to e-patients.

CONCLUSION

There is little doubt that the Internet has the potential to transform the organizational structure and delivery of a variety of health services.^(36,37) Virtually everyone agrees that the Internet brings about change to many aspects of the health care industry and the medical profession.⁽³⁸⁾ The impact of the Internet unquestionably has an important qualitative dimension that is transforming the way health and issues related to health care are understood. Potential benefits of this transformation include delivery of more cost-effective health care, reduction of medical errors, better management of chronic disease, and greater patient participation in decisions that affect their health just to name a few.

At the same time, the Internet is changing the ways in which physicians and their patients interact with one another. One of the most important effects of the Internet will be to amplify the patient’s role in managing his/her own health. This development reflects a cultural change in health care. While the use of the Internet does hold considerable promise for health care, it raises a host of social and ethical issues that need to be addressed. In particular, professional resistance to the use of this new technology in health care remains one of the greatest barriers to realization of the Internet’s ample potential. Particular challenges for the future are (1) to encourage appropriate patient responsibility for their own care, (2) to facilitate patient ability to locate medical information, (3) to make it possible for patients to interpret authoritative medical and health information discovered on the Internet and, (4) to provide tools that protect patients from risks associated with hasty or inappropriate self-diagnosis.

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