The Patient-Surgeon Relationship in the Cyber Era: Communication and Information

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Synopsis

From Laennec's invention of the stethoscope in 1816 to the recently introduced Sapien transcatheter aortic valve replacement, the increasing complexity of health care technology has altered the relationship between patients and physicians, usually for the better. Telemedicine, the provision of medical services through electronic media, has dramatically changed how the patient and physician interact and how medical care is delivered. A consistent pattern of increased use of the Internet by patients and their families has been well documented. Patients clearly want more Internet interactions with clinicians in their quest for general information, prescription renewals, and such administrative matters as scheduling appointments. Despite privacy concerns, patients are generally satisfied that their communications and medical records are confidential and accurate. Physicians' utilization of information technology has increased as the range of electronic devices and modes of communication has expanded. Many studies of physicians' perceptions of electronic communication with patients have documented recognition of benefits as well as a consistent chorus of concerns about confidentiality, increased workload, inappropriate use, and medicolegal issues.

Keywords

Patient-physician relationship; information technology; medical ethics; bioethics; telemedicine; telehealth; malpractice

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has significantly affected the relationship between patients and physicians. Changing technology has increased accuracy and safety in health care, while also improving access to physicians through technologies that permit distance communications.

This article will highlight some of the most important effects of telemedicine on communication and information transfer in the patient-surgeon relationship.

What is telemedicine?

When telemedicine was originally developed it was based on the assumption that the one-on-one physician and patient relationship was the central focus. In its initial articulation telemedicine meant a patient receiving services through an electronic medium other than the telephone.[1] Telemedicine has been defined as "the use of medical information exchanged from one site to another via electronic communications to improve patients' health status," while "telehealth" encompasses a broader range of health care at a distance that includes more than clinical services.[2] The telemedicine era was heralded in the 1950s when the National Institute of Mental Health connected seven state hospitals in four states through a closed-circuit telephone system.[3] This was soon followed by videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, nursing call centers, and continuing medical education—all considered part of telemedicine and telehealth.[2]

The Internet

By the early 1980s, the Internet was launched and soon was recognized as a powerful tool for interaction.[4] Yet even the most perceptive and knowledgeable students of telemedicine did not predict the rapidity with which computing power, new technology, and modes of usage would develop, and the rapid adoption of electronic communications by the general public was unforeseen. A process that started modestly with electronic mail has expanded to a constantly evolving variety of electronic devices.[5] The Internet has facilitated connection with people and instant access to troves of information. By October 2010 more than two-thirds of households had high speed Internet access. In 2012, North American users totaled 273 million, or 78.6% of the population.[6]

In the United States, 150 million people (66% of all adults, 81% of those online) search for health information online. Patients would like to ask questions of their physicians when a visit is not necessary (77%) and to fix appointments (71%), refill prescriptions (71%), and receive the results of medical tests (70%).[7]

Internet connection was achieved originally only by computer, but has been substantially broadened over the last decade by the availability of smaller mobile devices, such as the iPod, the iPhone, and the iPad, which facilitate communication with people and access to information.

Perspectives and Perceptions

Patients

The Internet is used not only to search for health information, but to share experiences of health and illness in social networks. In addition, Internet users, especially caregivers, women, parents with children living at home, and college graduates seek information about physicians or other health professionals.[8] The most common health-related use of the Internet is to ask a physician new questions or seek a second opinion, and a substantial minority (38%) make decisions about whether to see a doctor.[9]

A study from outpatient clinics in large academic primary care centers found that patients using e-mail were younger, better educated, more affluent and healthier than those who did not use e-mail; women were much more likely to use e-mail than men. Although e-mail users accessed their accounts at home (82%) or at work (57%) and checked their accounts several times each day, 90% of users had never used e-mail to communicate with their physicians, yet the majority of users (88%) indicated they would be willing to use e-mail in this way, feeling that such communication could improve relationships with their physicians (57%). Nearly half of those who were willing to e-mail their physicians expressed concerns about the effectiveness and efficiency of such communication.[10]

Patients being informed of routine blood test results prefer notification by telephone call (55%), a return visit (20%), a letter (19%), or e-mail (5%).[11] Nearly 30% of the patients in the study were over 65 years of age, probably contributing to the low preference for e-mail notification, as younger patients and those with higher levels of education were more likely to find notification by e-mail acceptable.

In a study of a large outpatient population, patients preferred e-mail or online communication to obtain prescription renewals, answers to general medical questions, instructions for self-monitoring (e.g., blood pressure monitoring), and routine follow-up for minor medical problems. For discussion of healthy lifestyle choices and for reporting of test results, equal numbers favored e-mail/online versus in-person communication. For discussion of treatment options, however, nearly twice as many preferred in-person dialogue to e-mail-online communication. Most patients were not concerned about the confidentiality or privacy of their medical information.[12]

Consumers appraise electronic access to personal health records (PHRs) positively—younger Internet users (18–24 years of age) more so than older (65). Ethnicity is an important variable: Hispanics are more likely than non-Hispanic white users to value electronic access to PHRs. People most likely to track their personal information are men, Hispanics, those with a regular health care provider, and those educated beyond high school.[13]

Another large-scale study of attitudes about the potential of health information technology to improve health care found that a large majority (77%) of patients are aware of electronic medical records (EMRs) and favor their use in doctor's offices as part of the office visit. A similar number believe EMRs are likely to improve medical care, and 59% elieve EMRs will reduce the cost of health care. Over half (55%) value health information technology highly enough to be willing to pay more to broaden its use. About half (48%) of those surveyed indicated they are very concerned about the privacy of medical records, 68% believe that EMRs are secure, and 64% think that the benefits of EMRs outweigh potential risks to privacy. The idea of electronic prescribing is favored by a large majority (80%), and those most likely to believe that e-prescribing will improve medical care are patients age 65 years and blacks.[14]

Physicians

Physicians have a broader and more careful approach to Internet communication than most patients. The majority of primary care physicians (61%) believe that e-mail is a suitable way to reach them and is good for handling the administrative concerns of patients (60%). A smaller majority (52%) do not object to e-mail from patients. Nevertheless, many physicians have important concerns about security and privacy.[10] Even though much guidance on these issues is available, opinions about it still vary widely.[15, 16]

A study of physician attitudes found that they believe electronic communication has distinct potential benefits, such as reducing the number of non-urgent telephone calls while increasing patient participation in medical decision-making, but also has potential for increasing the physician's workload, for inappropriate use in cases of acute serious illnesses, and for legal liability.[17]

Surgical residents' and fellows' attitudes toward e-mail communication have been studied: messages with a colored background, a difficult-to-read font, no salutation, a header with no recipient name, or no subject line are likely to be perceived negatively and the sender to be perceived as inefficient, unprofessional and irritating. Recipients of such e-mails are unlikely to respond. [18]

Online social networks

Interaction between patients and physicians has increased in online social networks (OSNs), such as Facebook, Twitter, MySpace, Friendster, and LinkedIn. Most physicians, including house officers, participate in OSNs for personal use, very few for professional purposes.[19] Practicing physicians are more likely than residents and medical students to interact with patients within OSNs, particularly by visiting the profile of a patient or a patient's family and to receive friend requests from patients or their family members. Responding to such requests, 58% of practicing physicians always denied the request while 42% accepted them on a case-by-case basis.

Most physicians and trainees do not find OSNs an ethically appropriate manner to interact or communicate with patients, nor do they believe OSNs have the potential for improving patient-physician interaction because communication cannot be safely accomplished without compromising patient confidentiality.[19]

The structure and function of OSNs raise questions about the nature of patient-physician boundaries, leading to recommendations that clinicians who utilize OSNs for interaction with patients should clearly delineate their professional from their social "digital footprint," should constantly be alert to potential patient interactions and lapses in professional integrity. If physicians feel compelled to share access with patients, then they must closely monitor their privacy status and profile content. [19]

Optimizing clinicians' time

Asynchronous electronic communications with patients, such as e-mail and online discussions, can enhance the quality and amount of time a physician can devote to patients. Technology promotes handling a larger volume of information in the same amount of time, thus enhancing patient-physician communication. However, three claims on a physician's time must be balanced: time with patients, time on documentation, and time on continuing education.[20] The growing medical sophistication of patients through their use of the Internet is reflected in their desire to communicate with clinicians by way of e-mail and other digital technologies. For the clinician, however, electronic communication usually is not reimbursed by third-party payers. Consumption of a valuable limited resource— time—that is not reimbursable can be detrimental to physicians' optimal professional functioning.[21]

Summary of perspectives and perceptions

Research utilizing surveys, interviews, and ethnographic methods shows a consistent pattern of increased use of the Internet by patients and their families, as well as a consistent range of questions and concerns. Patients clearly want more Internet interactions with providers in their quest for general information, prescription renewals, and such administrative matters as scheduling appointments. On the other hand, patients prefer in-person communication for

treatment instructions. Despite privacy and accuracy concerns, patients are generally satisfied that their communications and medical records are confidential and accurate. Many studies of physicians' perceptions of electronic communication with patients have documented recognition of benefits as well as a consistent chorus of concerns about confidentiality, increased workload, inappropriate use, unreimbursed use of time, and medicolegal issues. [22,23,24]

Ethical and Legal Issues in Telemedicine

Important legal questions emerged as telemedicine developed. Among these are physician licensure, credentialing and privileging, liability (including medical malpractice), reimbursement, and privacy and confidentiality issues.[25,26] Communication between physicians and patients has changed dramatically in the last 5 decades, but, unfortunately, some legal issues have restrained rather than advanced access to telemedicine. The shortage of clinicians in rural areas makes that underserved population especially affected by barriers to telemedicine, as are elderly and disabled individuals because of their lack of mobility and other health-related conditions. Telemedicine services in private homes as well as long term care facilities could provide such patients with high quality, cost-effective primary and specialty care.[27]

The American Medical Association (AMA) Code of Medical Ethics provides e-mail guidelines for physicians, which include the necessity to establish a patient-physician relationship in person, using e-mail only for supplemental encounters, and informing patients clearly about the inherent limitations of e-mail communication.[28] Additional guidelines also require that physicians responsible for health-related websites ensure content accuracy, timeliness, reliability, and scientific soundness, establish safeguards for minimizing conflicts of interest and commercial biases, and provide high-level security protections and privacy-confidentiality safeguards.[29] Inappropriate uses of e-mail include conveying bad news or abnormal or confusing test results, a new problem that requires a complex and dynamic dialogue, or information about sensitive diagnoses such as HIV infection, mental illness, disability or sexually transmitted diseases.[10]

The Federation of State Medical Boards (FSMB) also has promulgated guidelines for physicians who use the Internet in their practices, which are similar to the AMA guidelines but somewhat more detailed. In addition, they include the need for informed consent to "collect, share or use personal data" and a requirement for the physician to "provide meaningful opportunities for patients to give feedback about their concerns."[30]

While electronic technology has improved health care and has the potential for even greater improvements, it has also brought new complexities.

Patient-physician relationship

As technology has progressed, it has become more difficult to determine when and if a patient-physician relationship has been established. In the most traditional sense, a patient-physician relationship is established when a physician examines a patient, makes a diagnosis or treats a patient, and then bills for those services. Courts have held, though, that there can still be a patient-physician relationship even though there has been no direct contact with the patient,[31] and this mirrors the position taken by the AMA: "A patient-physician relationship exists when a physician serves a patient's medical needs, generally by mutual consent between physician and patient (or surrogate). In some instances the agreement is implied, such as in emergency care or when physicians provide services at the request of the treating physician."[32] In ethical terms, it is clear that a patient-physician relationship can exist, even over long distances, without direct contact.

Legally, however, the traditional one-to-one patient-physician relationship comes into question when health care can be provided at remote locations, with involvement of multiple professionals, often asynchronously. Whether or not a patient-physician relationship exists when using digital technology for online consultations and for prescribing medications has been confusing. Several courts have grappled with this problem and at least one jurisdiction has held that a patient-physician relationship has not been established when the physician has never seen or examined a new patient in another state, has merely had the patient complete a medical questionnaire, yet prescribes medications over the Internet.[33] In at least one jurisdiction, however—Hawaii—a patient-physician relationship can be established through the use of telecommunication devices when the physician holds a valid medical license in Hawaii.[31]

The question of where the practice of medicine actually takes place when the patient is in one place and health care providers in other locations, including different states, presented an early legal challenge. This was not an ethical issue, however—laws differ by jurisdiction, but physicians' ethical obligations are, for the most part, independent of location. A general consensus has emerged among state licensing boards that the practice of medicine occurs wherever the patient is located, even if the physician's location were in another state.[34]

Medical licensure

Licensing issues have become a major obstacle to telemedicine.[35] Although much discussion has focused on how to overcome these obstacles, no consensus as to how physicians can proceed with interstate practice has emerged. When a physician practices in a state electronically without a license issued by the licensing board of that state, she could potentially be committing a felony.[36] State law varies in requirements to practice telemedicine, but it is not unreasonable to infer that a physician would have to be licensed in all 50 states to practice telemedicine.[37] Ten state boards issue a special practice license, telemedicine license or certificate or license to practice medicine across state lines to allow for the practice of telemedicine. The majority of state boards and that of the District of Columbia require that a physician be licensed in order to practice telemedicine in their jurisdictions, respectively. At least one state allows out of state physicians to practice telemedicine in the state, but the physician must register with the Board.[38]

Practicing medicine across national boundaries is even more cumbersome. The FSMB continues to work on this issue, recognizing the need for a consensus regarding policy aimed at achieving uniformity in providing health care in the age of telemedicine. The FSMB has encouraged states to develop an easier process to facilitate practicing in multiple states.[35]

Physicians involved with telemedicine have faced dire consequences from both civil and criminal perspectives. A court found a physician to have practiced without a license and had not established a patient-physician relationship when she prescribed medications by Internet to various patients across state lines—the physician lost her license.[39] In a criminal case, the court refused to dismiss a criminal complaint against a group of physicians who prescribed medications through the Internet in multiple jurisdictions where they did not possess valid licenses and no patient-physician relationship had existed.[40] A judgment was subsequently entered against the physicians.[41]

Caring for patients in health care facilities with which the physician has no relationship has been problematic in the past because of stringent credentialing and privileging requirements by the Centers for Medicare and Medicaid Services (CMS). CMS has recently eased the requirements for uncredentialed clinicians to practice telemedicine. Among other changes, any Medicare-participating institution that will provide telemedicine services, referred to as the "distant-site hospital," and the hospital receiving the services, the "originating site

hospital," must have a written agreement indicating that the distant-site hospital is responsible for meeting the credentialing requirements pursuant to the statute.[42] Still, the rule requires the distant-site physician to be licensed in the state where the originating site services will be provided.[43]

Legal liability

As with most changes in the way health care is delivered, one can expect that the law will eventually "catch up," and when it does, it may affect malpractice claims related to telemedicine. To date, most of the legal cases involving physicians who are practicing telemedicine relate to prescribing medications by way of the Internet.[44] One may expect to see traditional malpractice claims become more complex as issues such as jurisdiction, procedure, choice of law, and duty of care are injected into the mix.[45] For example, physicians may face lawsuits for failure to diagnose or treat a specific condition because of flawed telemedicine data or faulty telecommunication.[46]

A serious concern for practitioners is the question of the standard of care to which they will be held when practicing telemedicine: will it be the same standard that applies to in-person consultation or will a different standard be specific to telemedicine?[45] Some scholars have suggested that the telemedicine practitioner should be held to a different standard of care in situations where the traditional medical procedures would be distinct from the telemedicine procedures.[47] Through the legislative process, however, Hawaii has already determined that a physician who practices online is held to a lower standard of care than the physician who provides in-person care.[31]

Some professional organizations have provided guidelines for the telemedicine practitioner. The American Telemedicine Association recommends that the practitioner "shall be guided by professional discipline and national existing clinical practice guidelines when practicing via telehealth, and any modifications to specialty-specific clinical practice standards for the telehealth setting shall ensure that clinical requirements specific to the discipline are maintained."[48] Several surgical organizations have also developed guidelines for the telemedicine practitioner. At least one surgical professional organization has developed guidelines that set out specific definitions and appropriate uses for the telecommunication, including remote performance of patient evaluation and consultation, surgery, clinical management, and education for students and other health care professionals.[49]

If telemedicine becomes the standard of care for providing services to rural and underserved areas in the future, a physician may be found liable for failing to recommend telemedicine if her peers would have done so under similar circumstances.[25]

Reimbursement

Reimbursement issues have plagued medical practice increasingly in recent decades. Many physicians have expressed concerns related to time management in communicating with their patients by way of e-mail, viewing it as yet another unreimbursed cost. Reimbursement problems also occur when a physician is asked to evaluate or manage a patient's condition remotely. Although Medicare and some Medicaid and private insurance programs will pay for some telemedicine services,[50] payment is not consistent and clearly does not consider telemedicine's improvements in access, cost efficiency, and quality of care.

The Patient Protection and Affordable Care Act (PPACA) is designed to take into account innovative ways to deliver quality health care in a cost-effective manner. In fact, the federal government is exploring telemedicine as one of the innovative ways to accomplish this goal.[35]

Informed Consent

The amount of information required to ensure that a patient's consent is adequately informed increases dramatically in telemedicine. Patients may have a great deal of knowledge about their medical conditions and upcoming surgical procedures searching the Internet, but this does not mean that the physician need therefore provide less information, rather, more information may be required to correct misinformation the patient has found on the Internet and to explain risks related specifically to telemedicine.

Two questions concerning informed consent are: Who is responsible for obtaining the informed consent? What should the patient be told? [25] State law may define who is responsible for obtaining informed consent, but typically it will be the "distant site" physician if she is talking to the patient directly or is performing a procedure from a remote area. [25] What patients should be told about telemedicine procedures, e.g., the possibility that a cardiac monitor may transmit the wrong data, is still evolving. [25] However, informing the patient about all of the known risks and benefits of the technology would be the safer course.[46]

Privacy and Confidentiality Issues

Confidentiality is fundamental to the patient-physician relationship. Unlike the traditional practice of medicine, in which others beside the physician necessarily have access to the patient's information, telemedicine requires even more individuals to have such access, such as the staff responsible for managing the tele-technology. In addition, storage and transmission of the electronic information may be of concern to both physicians and patients. Moreover, patients may not fully appreciate who may be in the room at the distant site facility during the consult with the specialist. [46] Not obtaining consent that is informed by privacy and confidentiality issues may have dire consequences on many levels, including the patient's dignity and autonomy, and the overall well-being of the patient and of the patient-physician relationship.[27]

Conclusion

The role of telemedicine in the care of patients has been growing steadily for several decades, at an accelerating rate over the last 20 years. Its role will continue to expand into the foreseeable future as current benefits are more fully appreciated, potential benefits realized, and existing barriers to its use lowered or eliminated. The greatest value of telemedicine is likely to accrue to underserved populations—patients in rural areas and elderly and disabled persons—but all can benefit from telemedicine technologies in simple ways, such as advice from personal physicians by e-mail or through websites, and to satisfy more demanding needs, such as long-distance consultation with expert specialists.

The scope of this discussion has been limited to the use of digital technologies in communication and information, but telemedicine is broader, including provision of physical services, such as surgery-at-a-distance by robotic technology, which, for example, could allow a surgeon in the U.S. to repair a dysfunctional mitral valve in a patient lying on an operating table in Europe. Many future uses of electronic technologies in medical practice are unimaginable, just as live television broadcast from a space vehicle to living rooms on Earth, from Apollo 11 in 1969, was literally inconceivable to one of literature's most imaginative and far-seeing novelists, Jules Verne, when he wrote *From the Earth to the Moon* in 1865. The only certainty is that telemedicine is here to stay and has enormous but mostly unrealized potential for enriching the patient-physician relationship.

Acknowledgments

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Key Points

- A consistent pattern of increased use of the Internet by patients and their families has been well documented.

- Patients can benefit from telemedicine technologies in simple ways, such as advice from personal physicians by e-mail or through websites, and can also satisfy more demanding needs, such as long-distance consultation with specialists.

- Many studies of physicians' perceptions of electronic communication with patients have documented recognition of benefits as well as concerns about confidentiality, increased workload, inappropriate use, and medicolegal issues.