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"You've Got Mail" . . . from your doctor?

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KEYWORDS:
Physician-patient relationship;
Physician-patient communication;
Medical electronic mail;
E-mail

OBJECTIVE: To determine interest in and details of electronic mail (e-mail) use by patients and residents in a residency primary care facility, and to uncover barriers, as well as areas of interests for its use.

METHODS: A prospective survey of patients was initially used to establish patient interest in the project. Next, a four-month trial of e-mail exchange between physician and patient was attempted. After the trial, a second survey was distributed to evaluate specifics of e-mail use by patients, as well as family practice resident physicians' opinions on the topic. Finally, a statistical analysis of the results of the two surveys was performed.

RESULTS: Of the 146 patients surveyed, 36% were interested in using the Internet to communicate with a physician. Patients appeared to be more optimistic than residents that e-mail is beneficial to the doctor-patient relationship. Of the interested patients, 43% felt a consent form was needed, whereas 79% of family practice residents felt it was needed. Seventy-one percent of patients and 53% of residents felt e-mail was a secure form of communication. One-hundred percent of patients felt physicians in training should have experience exchanging e-mail with their patients, but only 58% of the family practice residents felt this way. One-hundred percent of patients and residents felt that physician-recommended links to medical Internet sites would be beneficial. Sixty-four percent of patients said they would pay for the ability to e-mail their physician.

CONCLUSIONS: This study demonstrates that there is significant patient interest in exchanging e-mail with their physician, even in a medical residency program. Resident physicians are still trying to decide whether they are comfortable enough with the Internet to consider patient-physician e-mail a beneficial endeavor. Trials, errors, and time will eventually reveal whether e-mail will be a future staple communication tool for physicians and patients.

Introduction

Efficiency, thoroughness, flexibility, and enhanced communication are only a few ways to describe the potential benefits of using electronic mail (e-mail) in the medical setting. Unfortunately, many physicians fear being inundated with e-mail from a large number of patients and have therefore avoided offering this service to their patients.[1] However, by carefully creating an e-mail system tailored to a physician's needs, following established guidelines, and training young physicians in its use, e-mail could become a patient service while saving time for physicians. In this age of technology and communication, use of e-mail can strengthen the relationship between physicians and their patients.

Are patients open to the idea of e-mail and its use in the family practice setting?

Why do patients want to e-mail their physician?

Are medical residents comfortable enough with e-mail to use it with their patients?

These are some of the questions explored and answered in this study.

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Communication between physician and patient is the foundation for quality care in medicine, so why not explore new forms of patient communication? Currently, most physician and patient communication is via telephone, letters, or face-to-face conversations. Many patients are dissatisfied with their brief office encounters with physicians, and physicians feel they do not have adequate time to educate their patients.[2] By adding another communication medium, this frustration may be alleviated and the doctor-patient relationship enhanced.[3,4] E-mail has the potential to provide an asynchronous but relatively quick medium for communication between physician and patient that is more detailed and composed than a telephone call.[5,6]

In the past, many physicians had concerns about using the telephone as a means of communicating with their patients.[3] There were concerns about privacy and security, as well as fears of being inundated with calls from patients on what the physician might consider trivial matters.[3,7] Many feared that by using the telephone, care and confidentiality would be compromised.[3] Yet today not one physician can work effectively or efficiently without a telephone.[8] Presently, these same fears and concerns are resurfacing with e-mail. For many physicians, e-mail is just another thing to do at the end of the day and a new medium for a new breed of patients, the "cyberchondriacs."[6,9] Approximately half of all adults in the United States use e-mail, and of those, about 40% say they would use e-mail to communicate with their physician.[10] Patient interest exists, but in 1999 only 5% to 10% of physicians used e-mail with their patients.[1] Reasons for this may be that some physicians feel they do not have time for a nonreimbursable service, whereas others may feel the Internet is not a secure enough vehicle for confidential medical information.[2,3] Then of course there is the liability fear that patients will use e-mail inappropriately for emergency situations.

Does e-mail offer a novel approach to effective communication with patients in this age of rampant litigation? One aspect that e-mail offers physicians is a way to easily document communications with patients as an electronic medical record or printed as a hard copy to add to a patient's chart.[3,4] E-mail messages are unique in that they offer documented forms of communication that require succinct, composed, and thoughtful replies.[1,11] For physicians, e-mail is also an effective tool that can be used to link patients with educational material on the Internet. For patients, e-mail messages are a vehicle to communicate more freely with their physician, apart from the intimidating and emotional component of speaking with the person in the white coat.[12,13] In a survey study performed by the Department of Family Practice at the University of Kentucky, patients perceived physician-patient e-mail as a way to increase speed, convenience, and access to medical care.[14] Patients may also see e-mail as an extension of their quick 10-minute office visit and as a result feel more satisfied with their care. Some even feel this may encourage patients to become even more involved with their own health care.[15]

Patients appear to be interested in all topics of electronic medical communication with their physician, from billing and appointments to refills and medical advice. One study revealed that 90% of patients who corresponded with their physician used e-mail to discuss a medical problem.[14] Physicians have the choice to tailor the types of e-mail communications they wish to maintain with their patients. At the University of Michigan and Stanford University, there are current studies evaluating the use of e-mail in the clinical setting. The systems at these facilities are set up so that the e-mails are evaluated by a nurse before the physician sees the message.[6] This system keeps the physician focused on e-mails requiring medical expertise and prevents them from drowning in e-mail pertaining to the financial and administrative aspects of a medical office.

To help physicians feel more comfortable with the exchange of e-mail with their patients, the *Journal of the American Medical Informatics Association* (JAMIA) developed the "Guidelines for the Clinical Use of Electronic Mail with Patients" in 1998. These guidelines were established to assist physicians in developing a valuable, adjunct form of patient communication. They addressed two basic issues: (1) effective interaction between the clinician and the patient and (2) the observance of medico-legal prudence.[16] Basically, these guidelines created a foundation for physicians interested in establishing patient-provider electronic mail in their practice and educated them on the important issues to consider when using e-mail as a patient service. Specific issues that were addressed by these guidelines included message encryption messages, using a consent form, keeping communication documentation, preventing computer-human interaction error, and avoiding forbidden topics (i.e., infectious diseases and psychiatric conditions).[3,11,16] The consent form in our study was modeled using these guidelines.

In our study, we wanted to see whether there was patient interest in e-mail with a physician at the family practice residency center. We also wanted to see whether there was family practice resident interest in using this form of patient communication. A residency center usually has a slightly skewed patient population, one that may be more socioeconomically challenged and may not always have a computer with Internet access available to them in their homes. Because of this, we wanted to establish whether there was a serious interest in this form of communication with a physician and to what extent patients would go to use this service. We also wanted to establish family practice resident interest in e-mail with their patients and whether there was an interest in including this form of communication with patients in their training. Other issues were addressed to provoke further studies in this area, such as the issue of using a consent form, the desired uses for e-mail between physician and patient, and whether patients would pay for this service.

Table 1 Demographics of patients interested in exchanging e-mail with physicians

Survey #1						
Age (y)	18-24	25-34	35-44	45-54	>54	Average age
% Patients	24	32	24	16	4	34
Gender	Male			Female		
% Patients	30.8			69.2		
Insurance	Private	Medicaid/Medicare		Self-pay	Financial Aid	
% Patients	48.1	40.4		5.8	1.9	
Survey #2						
Age (y)	18-24	25-34	35-44	45-54	>54	Average age
% Patients	7.1	21.4	35.7	21.4	14.3	42
Gender	Male			Female		
% Patients	28.6			71.4		
Education	High school or less		Some college		College or postgraduate	
% Patients	21.4		50.0		28.6	

Methods

The patients in this study were acquired from an osteopathic, ambulatory, family practice residency-training center located in a suburb outside of Columbus, Ohio. The hospital Institutional Review Board approved the study. Patients were selected for the study based on responses to an initial survey that was handed out to all patients during one month at the family practice center when they checked in at the front desk. Selection criteria included being age 18 years or older, having Internet access, and displaying an interest in participating in the study.

The initial survey included six questions:

1. Do you have access to the Internet?
2. Do you use e-mail on a regular basis?
3. Where do you normally use e-mail?
4. Are you interested in being able to contact your doctor through e-mail?
5. What types of e-mail communication would you desire?
   a. Information about your specific medical condition
   b. Preventive medicine information
   c. Prescription refills
   d. Medical advice
   e. Other _____
6. Have you ever telephoned the office for any of these reasons?

The survey also included a line requesting name, birth date, and telephone number if interested in participating.

Interested patients were contacted, initially by letter, to notify them of the next step in the process of initiating e-mail with the resident physician. In this letter, patients were instructed to come into the office at their convenience to read and sign the consent form and receive instructions on how to begin. The consent form was created using the JAMIA Guidelines.(A copy of the consent form can be found in Appendix A.) If after two weeks there was no response to the letter, the interested patients were contacted by telephone to establish whether there was interest. The patients that still showed interest after speaking on the phone were given written instructions on how to use the online e-mail system on the American Osteopathic Association (AOA) website (http://www.do-online.org).

During the period of four months, a 24-hour e-mail service was available to the patients who signed the participation consent form. The AOA's DO-Online website was the encrypted online e-mail system chosen to use in this study. The e-mail system was equipped with several disclaimers and warnings for patients not to use e-mail in an emergency.

At the end of the four months, a second survey was sent to all of the interested patients, including those who did not participate in the actual e-mail process. The second survey was initially to be used to evaluate patient response to the e-mail service with a physician trial. Because of the low number of participants, the final survey population was changed to include all interested patients. The second survey was sent to 30 patients who initially showed interest, was placed in the waiting room for anyone to fill out regarding an opinion on exchanging e-mail with a physician, and was given to residents in the primary care facility.

Statistical analysis of the survey results was done using the chi-square test on dichotomous variables. All analysis was performed by SAS/STAT software (SAS Institute, Inc., Cary, NC).

Results

One-hundred forty-six patients filled out the initial survey in February 2003. Of those patients, 52 (36%) stated they would be interested in participating in the project. Of those interested patients, 69% were female and 31% male. The average age was 34, with a minimum age of 18 and a maximum age of 60. Demographics on these interested patients can be found in Table 1. Ninety-four percent of the interested patients had Internet access, 88% used e-mail

regularly, and the majority used e-mail from home. The initial survey showed that 80% of patients were interested in receiving refill prescriptions via e-mail, 83% were interested in medical advice from their physician via e-mail, and 52% were interested in preventive information from their physician via e-mail. Some other suggested areas of patient interest included e-mails regarding billing and test results.

Letters were sent to these interested patients, informing them to come into the office to fill out their consent form and receive instructions on how to begin. After three weeks without a response to the letter, each of the 52 patients were contacted via telephone to establish continued interest. Of the initial 52 interested patients, 17 stated they were still interested, 22 were unable to be reached by telephone, 12 stated they were no longer interested, and one had died. Of the remaining 17 interested patients, two came into the office, signed the consent form, and used the e-mail service over the next four months. A total of five nonemergent e-mails from the two patients were responded to over the four months. The content of the majority of these messages was requests for medical information and advice, with one request for a prescription refill.

The second survey was intended to evaluate patient response to the service. Because only two people participated, the patient population that the second survey was administered to was broadened. This survey was also given to family practice residents so that a comparison could be made between patient responses and new physician responses. Fourteen patients responded to the second survey and 19 residents responded. The demographics for these patients can be found in Table 1. All of these patients felt that using e-mail with their physician would be beneficial, whereas only 58% of the residents felt this way. Patients showed less concern for confidentiality and legal issues than residents. Forty-three percent of patients felt a consent form was needed for e-mail to be used versus 79% of residents. The survey revealed that 64% of patients would be willing to pay for the ability to e-mail their physician. The results from other questions on the second survey can be found in Table 2, along with their associated *p* values when comparing patient responses to resident responses. Using a *p* value of .05 as significant, five questions were significant, including the question asking whether physicians in training should have experience using e-mail with their patients.

Another area of interest in the survey was a question regarding the expected reply time for e-mails from patients to their physicians (Fig. 1). Seventy-one percent of patients felt 24 hours was a sufficient reply time, whereas 52% of residents felt this way. Thirty-two percent of residents felt 48 hours was sufficient for a reply time, compared with only 14% of patients.

Included in both surveys were questions asking for specific reasons patients would use e-mail with their physician. Five choices were given: (1) Prescription refills, (2) medical advice, (3) information about the patient's specific medical condition, (4) preventive information, and (5) other (with a line asking for an explanation). The data for this question can be found in Table 3. The results showed that most patients were interested in using e-mail to get prescription refills, medical advice, and medical information. There was less patient interest in using the exchange of e-mail for preventive medical information. Residents felt e-mail would be most useful for prescription refills, and surprisingly, least useful for educating patients with medical information.

Table 2 A comparison of e-mail responses to Survey #2 between patients and resident physicians

	Patients (%)	Residents (%)	*p* value
Opportunity to e-mail physician would be beneficial	100.0	57.9	.0053
Consent form needed for this service	42.9	79.0	.0332
E-mail secure enough to communicate with physician	71.4	52.6	.2747
Feel uncomfortable e-mailing physician	21.4	57.9	.0362
Would pay for e-mail service	64.3	42.1	.2077
Would feel bothered by physician sending e-mails	0.0	26.3	.0372
Feel physicians in training should have experience exchanging e-mail with patients	100.0	57.9	.0053
Would use Internet links provided by physician	100.0	100.0	—

Conclusion

In this age of technological advances in the area of communication, we have found that there are a significant number of patients who are interested in using e-mail to communicate with their physician. Many patients want to learn about medical issues that affect their life but need guidance to find relevant and useful information that they can understand. All of the interested patients in this study agreed that they would use links to medical Internet sites provided by their physician. Another survey found that 77% of people using the Internet for medical information were interested in receiving information on the Internet from their own physician, and only 9% of physicians had their own websites.[18] There appears to be a great public desire from patients for use of the Internet and e-mail by physicians. E-mail is a vehicle that can be used to educate patients and extend the 10-minute office visit beyond the walls of the office.

Our survey demonstrated several surprising results. Patients do not seem to be as concerned as physicians with the legal and security issues. Consent forms are needed so that the parameters of physician-patient e-mail are easily visualized and reproduced. A surprising result showed that patients are willing to pay for e-mail as an added form of

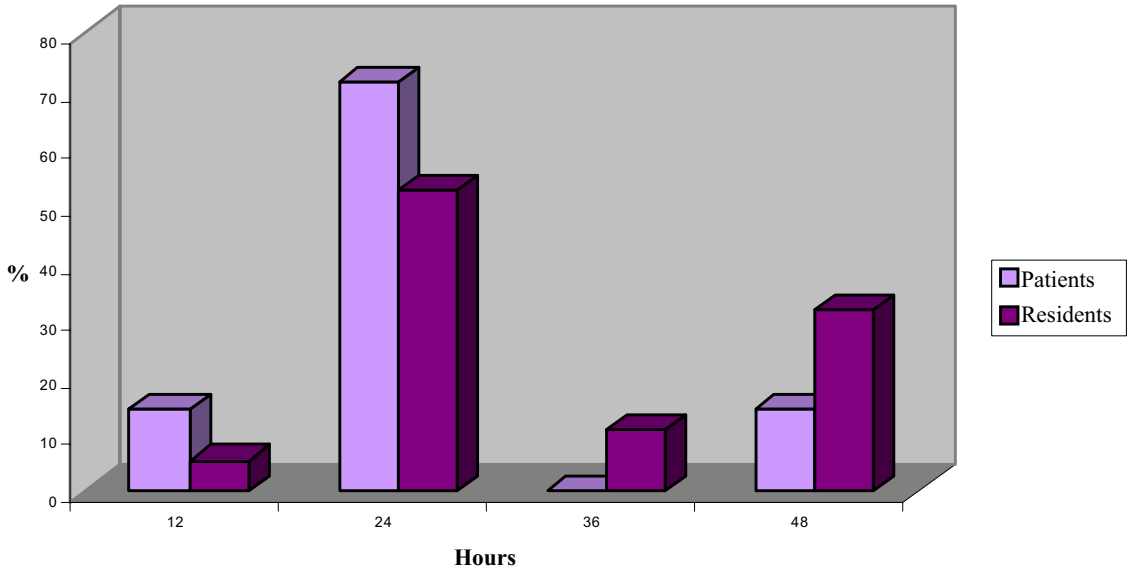

Figure 1 A comparison of desired e-mail reply times between patients and residents.

communication. A study done in 1998 in Oklahoma suggested that by requesting that patients pay for this service, it might discourage their overuse of e-mail.[17] This may ease a physician's concern about becoming overburdened by patient e-mails, on top of potentially supplementing a physician's income or office overhead expenses.

Our survey also showed that all of the interested patients believe physicians-in-training should have some experience exchanging e-mail with their patients. Despite this, many medical groups are choosing not to delve into this area of communication. Should new family practice physicians be trained to use this precarious yet potentially helpful tool? Is there a barrier that needs to be explored within family practice learning environments? Will liability fear limit the medical community's growth in this potentially satisfying area of enhanced communication?

Despite the large number of limitations with this study, the hope is to provoke others to investigate similar avenues in the future. The small number of participants in this project hindered the outcomes. The cause of this sparse participation may be lack of a simple, fluid method of participation registration. Another possible reason for the low number of participants may have been the residency center patient population that has a high incidence of noncompliance and a high rate of address and phone number changes, which hinders the ability to contact interested patients. The study demonstrated, however, that there is patient interest in this form of communication with their physicians, so making the initiation process more user-friendly for patients would be the next hurdle.

E-mail is another tool physicians now have to augment their relationships with their patients and their peers. Finding a safe, reliable application for the use of patient-provider electronic mail and the knowledge to begin using it is the current challenge. A respondent to a survey about physician-patient e-mail distributed by Neinstein in 2000 says:

"It is there and happening, regardless of how we may feel about it one way or another. Our responsibility is to make it occur in the safest and most positive manner possible."[19]

In this time of dissatisfied patients and overworked physicians, e-mail exchange might be a tool to untangle the lines of communication and open up the physician-patient relationship to new levels of satisfaction from both sides.

Table 3 Most important expressed reasons for using physician-patient e-mail

	Refills	Advice	Prevention	Information	All
Survey #1*					
% Patients	35.4	38.5	7.7	38.5	44.6
Survey #2†					
% Patients	35.7	35.7	7.1	42.9	28.6
% Residents	47.4	36.8	10.5	5.3	0.0

*Most patients gave more than one answer to this question.
†Only patients gave more than one answer to this question.

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Appendix: Consent Form for E-mail Communication

Hospital/Physicians Office
Principal Investigator: Jocelyn Bollins, DO
ALL E-MAILS MUST INCLUDE THESE THINGS:

Name:
Date of birth:
Phone number:
Name and phone number of pharmacy (if applicable):
Name, dose, and frequency of medication to be refilled:
Date of next appointment (only if prescription refill is requested):

Type of e-mail desired during the 4-month study:

☐ Information about your specific medical condition
☐ Preventive medicine information
☐ Prescription refills
☐ Medical advice

E-mail should NEVER be used in an emergency.

If you have an emergency, please **dial 911** or the office at XXX-XXX-XXXX.

E-mail responses will be within 24 hours; however, please allow 2 to 3 days for a response over the weekend or on a holiday. If you do not receive a reply in this period, please re-send your e-mail or call the office.

All e-mail will be printed and included as confidential information in your medical chart.

E-mail communication should never be used in place of an office visit.

Prescriptions will not be called in unless a follow-up appointment is already made.

The date of your next appointment must be included in your e-mail.
Narcotics and/or antibiotics will never be prescribed or refilled via e-mail.

Please recognize that if you use your e-mail at work or you have a joint account with someone, your e-mail may be read by a third party.

E-mail communication may not always be private or confidential.

Please do not e-mail any information you would not want another person outside of the medical office to read.

Do NOT use e-mail to discuss any of the following: **psychiatric illness, substance abuse, sexually transmitted diseases, HIV, and other infectious diseases.**

For questions regarding the participant's rights in relation to this research, please contact Dr. _____ at XXX-XXX-XXXX. For other questions, please contact Dr. Jocelyn Bollins at XXX-XXX-XXXX.

_____ _____
Patient's Signature and Printed Name Date

_____ _____
Witness's Signature Date

_____ _____
Principal Investigator's Signature Date