

Patients' Attitudes about Electronic System Messaging with Physicians

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Abstract

Objectives: To conduct a survey of patients who have and have not signed on to an electronic messaging system about their attitudes toward electronic messaging with physicians.

Methods: A convenience sample of 500 patients in a university general internal medicine faculty practice completed a survey which used 12 hypothetical scenarios involving clinical problems using electronic messaging or telephone/in office visit to communicate with physicians. The number of correct responses to scenarios was used to compare electronic messaging users and non-users using student's T test.

Results: About 2/3 of respondents had signed up for the electronic messaging system. A large portion of respondents (27% to 59%) incorrectly used electronic messaging in the hypothetical scenarios. Patients who had signed up for electronic messaging were significantly more likely to appropriately use electronic messaging than those who had not signed up for it ($p < 0.001$).

Conclusions: Patients may have different attitudes from those of physicians about the use of electronic messaging for symptoms of an urgent nature and receiving sensitive test results. Those patients who have not signed up for electronic messaging are particularly at risk for misperceptions.

Practice Implications: All patients using electronic messaging should be educated and given guidelines about its appropriate use.

Keywords: Electronic messaging; Physicians; MyChart

Introduction

With the advent of the electronic medical record (EMR) have come systems which allow patients to access their charts regarding laboratory results, problem lists, and the medications they are to be taking. In addition, these systems have allowed patients to send secure electronic messages to their physicians' offices. Several studies have shown that this electronic messaging is of benefit to the patient. One study [1] demonstrated that patients with hypertension had significantly better control of blood pressure through the addition of a pharmacist using Web communication with patients when compared with usual care and when added to home blood pressure monitoring and training about hypertension through the Web. Another study on type 2 diabetes mellitus [2] demonstrated an improvement in hemoglobin A1c of 0.7% compared with controls with a Web based intervention of patient access to their medical records, secure e-mail with providers, feedback on their blood glucose readings, and an educational Web site. Even control of depression has been improved through the use of online messaging [3].

Although electronic messaging has been used to improve the medical care of patients in various studies, there are concerns by physicians about the appropriate use of the messaging. Physicians have been troubled by the amount of time devoted to electronic messaging [4]. They note that the EMR inbox increases the number of work items and increases the amount of time devoted to this aspect of practice

compared with the use of paper charts and telephone messages. The major complaint of physicians is that there are unimportant messages ("noise") from patients which still require a response on the part of the physician. Although one report [5] indicates that patients generally tend to use messaging systems appropriately, Murphy et al. [6], demonstrate that nearly one-half of certain inbox messages from patients are unimportant and 80% of the texts in those messages are unnecessary. Other concerns by physicians include the possibility of urgent problems not being addressed in a timely manner since e-mails are not always attended to as rapidly as a telephone call would, and the possible inappropriate use of e-mail for sensitive issues or those requiring face-to-face communication [7]. Although it has been stated that most studies demonstrate patients use e-mail systems appropriately for only non-urgent matters, in one study [8], 22% of messages sent by patients were about specific symptoms or diseases, and one study [9] found that 5.7% of messages were regarding urgent issues. Many of these messages could at least require an office visit rather than solving the problem via an electronic messaging system. Concern also exists on the part of patients using electronic messaging about the response time to their messages [10].

Although some studies exist on the actual use of electronic messaging systems as noted above, there are no prior studies assessing patients' perceptions of the appropriate use of such systems, and of their perceptions about what response times can be expected from physicians. In addition, all studies to date have, by design, involved patients already familiar and utilizing regularly an electronic

messaging system. No studies to date have compared e-mail messaging patients with those who do not use e-mail messaging in terms of their perceptions of appropriate use and expected response times. We therefore conducted a survey of patients in an academic internal medicine primary care practice on their attitudes about the appropriateness of messages to and from their physicians.

Methods

A convenience sample of 500 general internal medicine patients at the Internal Medicine Group site in La Jolla approached by the office staff on a sequential basis who agreed to participate were given a survey instrument (Appendix 1) which asked how likely they would be to send an e-mail message via MyChart to their physician in 12 different scenarios. The survey was validated among 20 UCSD General Internal Medicine faculties (including delineating how the scenarios would best be handled) for face and construct validity, and then pretested in 30 patients in the faculty practice of the University of California, San Diego. The survey contained hypothetical scenarios in which the respondent was instructed to indicate how likely they would be to e-mail their physician as opposed to calling the office or going to the ER based on a 4 point Likert-type scale. The hypothetical scenarios varied according to the urgency and seriousness of the symptoms and possible underlying diagnoses, with 2 of the scenarios deemed acceptable for patients to e-mail their physicians, and 10 deemed by the 20 UCSD General Internal Medicine faculty as unacceptable for MyChart (the web based electronic portal which patients can access as

part of the Epic electronic health record) to be used to communicate the problem. Other questions included the expected response time by the physician and whether the patient had signed up for and used MyChart. The study was approved by the University of California, San Diego Institutional Review Board.

The MyChart electronic messaging system, which is part of the WEPIC electronic health record system at UCSD, was in existence for approximately 3 years at the time of this study. All patients who sign on to the system receive instructions on its usage, including a warning to not use the system for symptoms (problems regarding new medical symptoms that the patient might experience, such as abdominal pain, fever, etc.) or urgent messages, and that responses from the IMG La Jolla office may take up to 48 hours from the time the message is sent.

Thirty-three patients did not have access to any e-mail and were therefore deleted from the analysis. The total number of correct responses to scenarios was calculated and used to compare MyChart and non-MyChart users via student T tests. The total number of scenarios that are deemed as a correct response was used as an independent variable in analyses of the impact of demographic variables via multiple regression analyses.

Results

The four hundred and sixty-seven respondents of this study were of middle age, largely female, and very well educated (Table 1).

Characteristic	Value
Age-years	
Mean ± SD	56 ± 15.2
Gender-number (%)	
Male	182 (39)
Female	274 (59)
Education-number (%)	
Postgraduate/Professional	193 (41)
College Graduate	148 (32)
Some College or Less	111 (24)
Native American	6 (1)
Asian	41 (9)
African-American	13 (3)
Caucasian	255 (55)
Hispanic	25 (5)
Other	127 (27)
Health Professional—number (%)	
Yes	124 (27%)
No	328 (70%)
Income- number (%)	

>\$100,001	176 (38)
<\$100,000	201 (43)
Signed Up for MyChart –number (%)	
Yes	318 (68)
No	137 (29)
Number Messages/Month—number (%)	
0	239 (51)
1	152 (33)
2	28 (6)
3 or More	35 (7)
Expectation of Response to Complaints of Non-Urgent Symptoms—number (%)	
Same Day	97 (21)
Next Day	223 (50)
Three days	110 (24)
One Week	2 (<1%)
Expectation of Response to Complaints of Routine Lab Tests—number (%)	
Same Day	59 (13)
Next Day	142 (30)
Three Days	172 (37)
One Week	59 (13)
Expectation of Response to Complaints of Radiologic Reports—number (%)	
Same Day	92 (21)
Next Day	179 (38)
Three days	129 (28)
One Week	30 (6)
*Not all respondents answered every question. Percent does not add up to 100 for all questions due to rounding and non-responses.	

Table 1: Demographic and attitudinal characteristics of 467 patients' respondents*.

About 2/3 of respondents had signed on to the MyChart system, but most used the system to e-mail their physician once or less per month. A majority of patients who used the MyChart system expected their message about symptoms to be answered by the nurse or physician by the next day, despite being informed that messages may take up to 48 hours to be answered. Most also indicated that radiologic results should be communicated by the next day, but were evenly split between the next day or 3 days or more regarding the communication of routine laboratory tests. A majority of respondents indicated appropriately that they would very likely or likely e-mail their physicians about common non-urgent questions, such as chronic allergic symptoms or received results of normal annual laboratory tests (Figure 1).

However, from almost 30% to 60% of patients would e-mail their physician about common urgent medical problems such as crushing chest pain with nausea, acute abdominal pain, large volumes of bright red blood per rectum, symptoms of pneumonia or pyelonephritis, severe sciatica requiring the initiation of narcotics, or a hypertensive emergency. They also commonly indicated that they requested e-mail rather than an office visit on sensitive issues such as receiving news of a brain tumor, colon carcinoma, or acute renal failure.

Patients who had signed up for MyChart were significantly more appropriate in their use of e-mail messaging than their counterparts who had not signed up for the MyChart system ($p < 0.001$) (Table 2).

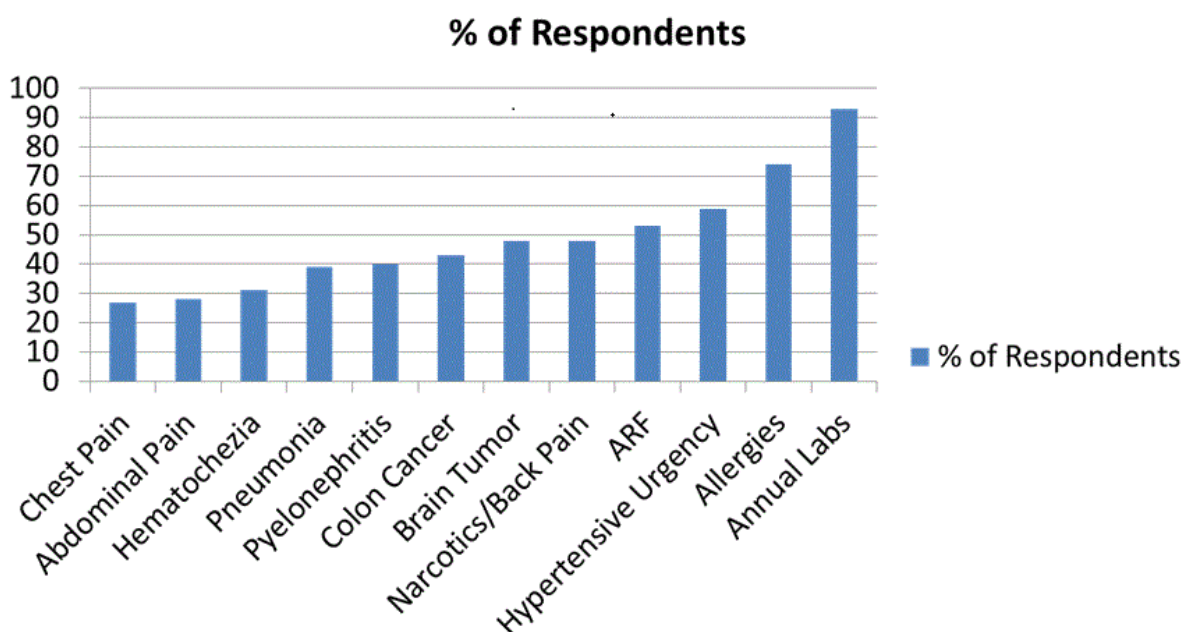


Figure 1: 467 respondents' likelihood of messaging their physicians in response to scenarios included in the questionnaire. All responses are % of respondents likely/very likely to send a message in response to the scenario.

Variable		p value
Signed Up for MyChart		<0.001
Yes	7.9 ± 3.2	
No	6.4 ± 3.5	
Gender		<0.0001
Male	6.6 ± 3.5	
Female	8.0 ± 3.2	

*Association of demographic factors associated with the number of scenarios correctly indicated as appropriate to message physicians vs. call or report to the emergency room, analyzed via multiple regression analysis. Numbers are the mean number of correctly assigned scenarios ± standard deviation.

Table 2: Association of demographic factors with the likelihood of messaging physicians appropriately*.

However, even those who had signed up for MyChart and had been instructed on its use still erred on average in 4 of the 12 scenarios. The only other demographic data which was associated with the number of scenarios correctly assigned to be communicated via e-mail messaging was gender, with females outscoring their male counterparts ($p < 0.001$).

Discussion

A major concern of physicians regarding electronic messaging is the potential for urgent medical problems to be relayed by patients in a system that is not designed to handle rapid communication [7]. This concern has actually been echoed by patients, who recognize the potential for slow responses by physicians [10]. In this current survey of patients in an academic internal medicine primary care practice, most patients indicated that they expected their non-urgent medical

problems to be responded to within 24 hours, despite being informed that the guidelines on the electronic messaging system indicate a possible lag time of 48 hours.

Despite the concerns of many physicians, previous studies of patient messages found that most electronic messaging was used appropriately by patients [5,11]. However, these studies looked only at a small sample of electronic messages by patients, and did not look at transmission of laboratory or radiologic results by physicians. Our study of patient attitudes toward electronic messages demonstrated a significant likelihood of patients' willingness to report urgent problems to physicians. Sittig [8] did find that 22% of electronic messages to physicians were specific requests for information about specific symptoms or diseases. Although the number of messages which were of a more urgent nature was not specified, the example given was one

in which the patient questioned the presence of herpes zoster, which would be a time sensitive problem. In addition, Rosen and Kwoh [9] found that more than 1 in 20 messages in a pediatric practice were of an urgent nature.

A majority of patients in at least one study also requested that test results be communicated by electronic messaging [12]. However, no studies have evaluated whether patients would want test results communicated via electronic messaging when a serious or life-threatening condition was detected. A more recent study by Labacher and Mitchell [13] found that university students wanted to have information about sexually transmitted infections (STI) be transmitted face-to-face rather than electronically. Our study did not include a scenario about STIs, but a significant portion of patients would want other serious conditions communicated through the MyChart system, despite advice that such diagnoses should be communicated in person [14]. Thus, we have demonstrated the potential for patients to be using electronic messaging with their physicians in a manner contrary to physician recommendations, with the potential for adverse consequences.

No studies have evaluated whether patients who have not previously signed up for electronic messaging systems would have knowledge of the appropriate use of those systems. In this study, the demographic factor most associated with the likelihood of using the electronic messaging system appropriately was whether the patient had signed up for the system. All patients in this study who signed up for the MyChart system were given instructions about the MyChart system use. This information includes the need to refrain from using the system for urgent medical problems or to communicate sensitive information. Patients were also again reminded of the rules of the system use anytime they conveyed information new symptoms or medical problems. Apparently, the information given to patients about the appropriate use of electronic messaging systems can help in ensuring that the system is used appropriately. However, since the potential for inappropriate use of electronic messaging has been demonstrated, these messages may need to be triaged more expeditiously since an urgent problem may be communicated in this manner despite instructions not to do so.

There are several limitations to this study. This study was conducted as a convenience sample in only one university internal medicine primary care practice in California, with a highly educated patient population. Further studies of other types of practices which utilize electronic messaging systems is warranted. In addition, this study was not intended as a reflection of what patients might actually do in these situations. Rather, the aim of the study was to survey attitudes of patients using a range of cases which might be encountered.

In conclusion, many patients would use e-mail messaging with their physicians for urgent problems instead of calling or going to the emergency room, or for sensitive issues in place of face-to-face communication. These attitudes about how to use an electronic messaging system vary from the recommendations by physicians [5,7,9-11]. Those patients who had signed up for the electronic portal and received instruction on its use were more likely to use the system in a manner concordant with physician recommendations than those who had not signed up, and female patients were more likely to use the system appropriately than male patients.

All patients need to be instructed and then reminded about the appropriate use of electronic messaging systems. Instructions may ideally need to be given verbally as well as electronically, as the data

from this study show that electronically communicated guidelines are not always followed by patients. In addition, consideration should be given to sending a standard message discouraging the use of electronic messaging for more urgent complaints anytime such guidelines are not followed. Those who especially need to be targeted for detailed instruction include those who will be newly signed up for the electronic messaging system, and male patients regardless of whether they have already signed up or who will be doing so.

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