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Older Adult Consumers' Attitudes and Preferences on Electronic Patient-Physician Messaging

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Introduction

As the Health Information Technology for Economic and Clinical Health (HITECH) Act enters stage 2 of implementation[1], providers must be cognizant of patient attitudes on health information exchange (HIE) while optimizing their electronic health record (EHR) systems. The crux of health information technology (HIT) integration lies in the ability to improve and enhance the providers' delivery of care, as well as positive patient outcomes through *meaningful use*. According to the Center of Medicare and Medicaid Services (CMS), benefits of meaningful use must include: *complete and accurate information, better access to information, and patient empowerment*.[1] Health information technology literature has repeatedly shown quality and efficiency benefits with successful implementation of EHR systems into capable health care systems. These benefits include increased adherence to guidelines, enhanced disease surveillance, and decreased medication errors.[2] EHR systems have demonstrated tremendous promise in improving health care delivery efficiency and quality, cost-effectiveness, and patient safety at benchmark institutions such as Regenstrief Institute (Indianapolis, IN), Partners/Brigham and Women's Hospital (Boston, MA), Intermountain Health (Salt Lake City, UT), Vanderbilt University (Nashville, TN), and Kaiser Permanente Health Care System.[3]

Lacking, however, is adequate health-services research regarding the attitudes and preferences of older patients as compared with younger patients with respect to electronic communication with their providers. Such research is important, especially with our aging population and cost of providing care for this population. As of 2011, more than one in every eight Americans (13.3% of the population) is aged 65 or older and, by 2040, there will be about 79.7 million older adults (21% of the population).[4] The increase in prevalence of chronic co-morbidities among the older adult population affords the opportunity for electronic health information exchange platforms to improve health outcomes through patient engagement. Given current patient trends toward consolidation into large health care organizations, comprehensive EHR systems can scale effective management of large populations. A comprehensive EHR system is comprised of two essential components: (1) *the provider network*, allowing for storage/retrieval of patient medical records as well as communication between providers, and (2) *the patient web portal (PWP)*, allowing patients (and proxy users) to access certain health records as well as communicate with the medical care team through various functions. Both components work in unison to enhance health

care delivery with secure and reliable medical record management, efficient interdepartmental communication, and interactive patient-centered care.

We surveyed older and younger adults who enrolled in a simple, secure patient-physician messaging system to better understand attitudes and preferences regarding electronic communication with providers. Between April 2010 and January 2012, 46 primary care physicians at UCLA's Geriatrics and Internal Medicine ambulatory practices, along with their medical care teams, enrolled 3,543 patients and exchanged 13,259 messages between them. This study surveyed patients and/or their proxies enrolled in this program to identify end-user attitudes, concerns, and preferences and inform the development of a more comprehensive PWP.

Methods

Patient-Physician Messaging System

Vision Tree® is a secure, freestanding internet-based two-way messaging system that allows patients and caregivers to communicate with the medical care team. Patients (or proxy users) do not have direct access to their personal medical records, but can be sent personal medical information through electronic messages. In the pilot program, interested patients were e-mailed a message containing login information and instructions on account set-up. Once the account has been set up, the account user is directed to the messaging site landing page, where one can compose and send new messages, and receive and review messages from the medical care team.

Messages are addressed to the provider and triaged by assigned medical staff during regular clinic hours. During triage, medical staff answers messages that are within their scope of work (e.g., appointment scheduling, referrals, and authorizations) or forward, via encrypted email, questions that require the physician's attention. The physician may then call the patient or reply to the medical staff's email with a response. The medical staff transfers the physician's response to Vision Tree messaging system and sends the message to the patient. Once the office's response is sent, an alert notification arrives in the patient's e-mail address instructing him or her to log into Vision Tree to view the new message.

Recruitment

On January 30, 2012, surveys were emailed to patients (or proxies) who, as part of Vision Tree enrollment, had provided an email to the medical office. We surveyed both patients and proxies who had logged into the messaging system after enrollment (users) and those who had never logged into the messaging system (non-users). The emails contained a brief study description and a hyperlink to a third party website hosting the survey. The survey asked questions including age, frequency of health care visits (*i.e., every week, every month, every two months, every three months, every six months, once a year, or other*), preferred methods of communication with the medical office (*i.e., phone, e-mail, postal mail, and/or other*), and who had introduced the respondent to the messaging system (*i.e., medical staff and/or physician*. Users were also asked questions about how long they had been using Vision Tree (*i.e., a few days, a few weeks, a few months, about one year, more than a year, or other*),

system ease of use (*i.e., not at all easy to use, slightly easy to use, moderately easy to use, very easy to use, or extremely easy to use*), the nature of the messages they sent to their physicians (*i.e., a health question, medication request, appointment requests, lab results, and/or other*), barriers to use (*i.e., forgetting login/password, limited access to computer/ internet, comfort, confidentiality, complicated interface, lack of value, and/or other*), and overall satisfaction with the messaging system (*i.e., extremely dissatisfied, moderately dissatisfied, slightly dissatisfied, neither satisfied nor dissatisfied, slightly satisfied, moderately satisfied, and extremely satisfied*). We asked an open-ended question on suggestions for improvement to messaging system and categorized those responses into four groups (*i.e., simplify interface, increase functionality, expand to more physicians, and increase responsiveness*). The survey did not require respondents to complete every question. The survey remained open until February 29th, 2012 and email reminders were sent to those surveyed two and three weeks after the initial email invitation.

Data Analysis

We used descriptive statistics for the entire sample (including both patients and proxies) and compared responses between persons age 65 years and older (older adult) and those younger than 65 years old (younger adult), as well as between users and non users. We used chi square tests to compare categorical data and t tests to compare continuous data.

Results

Of the 3,543 enrollees emailed, 3,212 e-mails were successfully delivered (91% of those emailed) and 372 responses were collected (12% of those delivered). Of the 372 respondents, 324 (87.1%) provided an age (mean 60.2 years, SD 16.8). Among the respondents that provided an age, 248 (76.5%) had used the system (users) (mean 60.5 years, SD 16.2) and 76 (23.5%) had never used the system (non users) (mean 59.1 years, SD 18.7). Among those users, 192 (77.4%) were patients; 56 (22.6%) were proxies. Among non users, 64 (84.2%) were patients; 12 (15.8%) were proxies.

Of the 324 respondents who provided an age, 179 (55.2%) were aged less than 65 years (younger adult) and 145 (44.8%) were aged 65 years or older (older adult). The mean age of younger adults was 48.3 years (range 18–64, SD 12.2) and 74.9 years (range 65–97, SD 7.15) for older adults. Among users, the mean age for the younger adult (54.4%) and older adult (45.6%) groups were 48.8 years (SD 12.1) and 74.5 years (SD 6.7), respectively. Among non users, the mean age for the younger adult (57.9%) and older adult groups (42.1%) were 46.3 years (SD 12.6) and 76.6 years (SD 8.5), respectively.

Results between user and non-user groups (Table 1) showed that users make more frequent visits to the doctor’s office. Compared to non-users, more users were introduced to the messaging system by staff and/or physician.

Among the user population, results between younger and older adults demonstrated a preference for phone followed by e-mail, when asked what means of current communication with the medical team (Table 2). Results between younger and older adults showed a preference for e-mail followed by phone, when asked what means of communication they

preferred. While younger and older adults both preferred email communication, a higher proportion of younger adults preferred e-mail communication with the medical team compared to older adults.

Results on attitudes and preferences about the messaging system were collected from 248 respondents who had used the messaging system (e.g. users) (Table 3). Ninety-one percent reported having used the system for at least a few months. Response rates to each question varied from 59% to 97%. Both younger and older adult respondents found the messaging system easy to use and were satisfied with it. Both younger and older adult respondents reported that most messages sent through the messaging system were health questions, followed by medication requests, lab results, and scheduling issues. When asked, few barriers were reported by users, with forgetting log-in or password being most common.

Qualitative data collected on system improvements from 163 users included simplifying system interface (19%), increased features/functionality to the system (19%), expand messaging to more physicians (11%), and increase responsiveness to messages (4%).

Discussion

Our data provided us with a better understanding of the attitudes and preferences regarding electronic health information exchange among our younger and older adult patient populations who had enrolled in an electronic patient-physician messaging system. Physician, as well as staff, engagement with patients in introducing the messaging system was an important differentiator between respondents who have logged into the messaging system and respondents who never logged into the messaging system.

Within a population of patients and proxy users with email who had enrolled in a patient-physician messaging account, there were no differences between younger and older adults regarding attitudes and preferences for electronic health information exchange. Another important finding was that both younger and older adult groups surveyed preferred e-mail as a modality of communicating with physicians and medical care teams. This finding, along with the increased preference for greater functionality of this platform highlights patients' and proxies' willingness and desire to transition some medical care and communication electronically.

Overall attitudes of the older adult patients about electronic communication were generally positive. Factors associated with positive attitudes include: physician/staff encouragement, improved patient education, a user-friendly program, and increased features and functionality. These suggestions can provide a guide for developers and implementers of future patient web portal systems. Results from respondents who never used the messaging system highlight the need for effective educational material and physician engagement.

Limitations and Future Research

Results of this study should be interpreted with care. The sample surveyed was limited to those who had email and signed up for the messaging service, and surveys were returned by 12% of the emails successfully delivered. Therefore our findings may not represent attitudes

and preferences of general patient populations. Future research with larger samples and with more outreach to those who are less computer savvy, as well as qualitative research with small groups of various patient populations, would provide greater insight regarding how to develop and employ patient and provider messaging systems.

Conclusion

This study suggests that the younger and older adult patients, with some experience with electronic communication, will embrace electronic communication for health care information. Although a majority of older adult patients have positive attitudes on health information exchange, electronic communication platforms must address key issues in consumer education/training, physician commitment to use electronic messaging with their patients, and adoption of an accessible interface to ensure productive older adult consumer participation. Successful patient and physician engagement may have implications in patient empowerment and positive health outcomes.

Abbreviations

HITECH	Health Information Technology for Economic and Clinical Health Act
HIE	health information exchange
EHR	electronic health record
HIT	health information technology
PWP	patient web portal

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Table 1

User and Non-user Characteristics of Total Sample

	User* N=261 n (%)	Non-user** N=106 n (%)	P-value
Frequency of Visits	N=225	N=95	0.012
More than every 2 months	39 (17.3)	18 (19.0)	
Every 3–6 months	156 (69.3)	52 (54.7)	
Once a year or less	30 (13.3)	25 (26.3)	
Introduction Modality to Messaging System	N=261	N=106	
Staff	120 (46.0)	33 (9.0)	0.009
Physician	142 (54.4)	22 (20.8)	<.0001
Website	18 (6.9)	18 (17.0)	0.003

* User = Have logged into the messaging system

** Non-user = Have never logged into the messaging system

Table 2

Younger and Older Adult Characteristics of Total Sample

	Younger Adult (<65 years old) N=179 n (%)	**Older Adult (≥65 years old) N=145 n (%)**	**P-value**
Current Method of Communication with Provider/Medical Team			
Phone	121 (67.6)	88 (60.7)	0.196
Email	19 (10.6)	10 (6.9)	0.244
Preferred Method of Communication with Provider/Medical Team			
Phone	98 (54.8)	85 (58.7)	0.484
Email	152 (84.9)	120(82.8)	0.560

Table 3

Younger and Older Adult Characteristics of User Sample

	Younger Adult (<65 years old) N=135 n (%)	Older Adult (≥65 years old) N=113 n (%)	P-value
Enrollment Duration	N=127	N=101	0.862
Less than a few weeks	10 (7.9)	10 (9.9)	
A few months to a year	74 (58.3)	57 (56.4)	
More than one year	43 (33.9)	34 (33.7)	
System Ease of Use	N=117	N=103	
Moderately easy or greater	101 (86.3)	85 (82.5)	0.437
Types of Messages Communicated with Provider/Medical Team	N=135	N=113	
Health question	81 (60.0)	60 (53.1)	0.274
Medication Request	67 (49.6)	57 (50.4)	0.899
Appointment Scheduling	43 (31.9)	39 (34.5)	0.657
Lab Results	49 (36.3)	42 (37.2)	0.887
Barriers to Increased Use	N=135	N=113	
Forget login	21 (15.6)	7 (6.2)	0.020
Forget password	23 (17.0)	10 (8.9)	0.059
Access to computer	1 (0.7)	0 (0)	1.00*
Access to internet	2 (1.5)	0 (0)	0.50*
Lack of comfort with technology	3 (2.2)	3(2.7)	1.00*
Confidentiality concerns	4 (3.0)	3 (2.7)	1.00*
Complicated interface	10 (7.4)	10 (8.9)	0.678
No perceived value	7 (5.2)	11 (9.7)	0.170
Overall Satisfaction with Messaging System	N=127	N=101	0.165
Satisfied	86 (67.7)	72 (71.3)	
Neutral	26 (20.5)	12 (11.9)	
Dissatisfied	15 (11.8)	17 (16.8)	

* Fisher Exact 2-sided P-value