

Refereed papers

Primary care physician attitudes towards using a secure web-based portal designed to facilitate electronic communication with patients

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ABSTRACT

Background Patient demand for email contact with physician practices is high. If physicians met this demand, improvements in communication, quality of care and patient satisfaction could result. However, physicians have typically been hesitant to communicate electronically with patients, largely due to concerns relating to workload, security and lack of compensation.

Goal To assess physician attitudes towards electronic communication with patients six months after the implementation of an application called Patient Gateway. Patient Gateway allows patients to access an extract of their medical record and facilitates online communication with medical practices.

Methods A paper-based survey was administered to the 43 primary care physicians in one integrated

delivery system, with a 56% (24/43) response rate.

Results Overall, physicians felt that Patient Gateway's impact on their practices was positive, especially in the areas of refill and referral request management and appointment scheduling. However, physicians are still hesitant to increase general electronic communication with patients; none opted to use Patient Gateway's general messaging function with patients, and those who had previously used outside systems to exchange emails with some patients continued to communicate with only a small proportion of their patient panel in this way. However, 38% of physicians already communicate with their own physicians via email, and another 19% would like to do so.

Conclusions Physicians' fears about being overwhelmed with messages were not realised. While physicians were generally enthusiastic about the application, none used it directly to communicate with patients. Over three-quarters of respondents indicated that they would be more enthusiastic

about electronic communication with patients if this time were compensated.

Keywords: direct electronic messaging, electronic health record system, physician–patient electronic communication

Introduction

Internet technology is affecting many industries, including health care, and physicians are increasingly using email as a part of their workday. Ninety-three percent of physicians have internet access at their office, in their clinical work area or at home, and at least 64% now use email to communicate with staff, colleagues, patients and third-party payers.¹ Physicians have generally been slow to adopt the use of email with patients, however. A Harris Interactive poll identified physician and patient usage patterns and preferences regarding internet use and email communication, and found that patients are often frustrated by the difficulty and inconvenience of communicating with physician practices via telephone, and that patient demand for email exchange with physicians is increasing.¹ The majority of Americans (63%) are now online, and 90% of those who have internet access would like to communicate with their physician via email.^{1,2} Thirteen percent of patients are even willing to pay out-of-pocket for the option to exchange emails with their physicians.¹ As the Institute of Medicine has proposed, if physicians were to meet patient demand and further integrate email communication into their practices, the continuity of care and timeliness of diagnoses could improve and the frequency of adverse events might be reduced.³

Increasing email use with patients might confer a number of benefits to physicians as well as to patients. For example, the asynchronous nature of email allows physicians to reply to patient messages at their own convenience, any time of day or night. Email could save time by allowing physicians to create templates for frequently asked questions that could be easily personalised and sent to patients. Email technology could allow physicians to point patients towards reliable internet links in answer to questions. Email communication also could allow for easier documentation than the telephone, as physicians can either print emails and insert the paper copies directly into a patient's paper record, or copy and paste email correspondence into a patient's electronic medical record. If email applications and electronic medical records were integrated, efficiency gains and savings could be even greater.

Nonetheless, despite the possible advantages of email, many primary care physicians are hesitant to increase their use of it with patients.⁴ As a result, a

large gap remains between patient demand for email communication and physician use of the technology; nationwide, 64% of physicians use email, but only 13% of physicians exchange emails with patients.⁵ In a study within the Partners HealthCare System, Inc. in Boston, MA, USA, we found that although Partners primary care physicians were experienced with the use of email in their practices, most emailed with only a few, if any, of their patients.⁴ We were especially interested in the email experiences of primary care physicians, since more people receive their care from this type of clinician.⁶ We identified a number of barriers to increasing email communication with patients, mainly relating to workload, security and payment. The results of this study revealed that adequate pre-screening and triage of patient emails in addition to the adoption of security and reimbursement mechanisms have the potential to substantially increase physician use of email with patients. We believe that web-based applications designed with these considerations in mind have great potential.

Currently, some healthcare delivery systems have begun using secure web-based portals to facilitate electronic communication between patients and physician practices.^{7–12} Such applications can improve patient communication with physician practices, thus increasing patient satisfaction and quality of care. We hypothesise that these applications could also help mitigate physician concerns relating to email communication with patients by allowing for pre-screening and triage of patient electronic communication, as well as by assuring HIPAA (Health Insurance Portability and Accountability Act of 1996; see www.hipaa.org)¹ compliant security measures. Therefore, we conducted a study to assess primary care physician satisfaction with a web-based portal allowing patients to access portions of their electronic health record, and to examine whether the use of the application affected physicians' attitudes towards emailing with patients.

Methods

The application

Partners HealthCare System is a large integrated healthcare delivery system in Boston, Massachusetts, affiliated with Harvard Medical School and its teaching

hospitals. An application called Patient Gateway (PG) is currently in its pilot phase in some of the ambulatory clinics within the Partners network. PG provides patients with a secure platform for electronic general messaging with physicians, appointment scheduling, and referral and refill requests (see Figure 1). The application also provides patients with an online health library and access to parts of their medical charts.

Survey

Between April and June 2003, a paper-based survey was mailed to 43 physicians from four different urban and suburban primary care practices in the Partners HealthCare network (see Appendix 1). The physicians surveyed were the early adopters of the PG technology during the pilot phase of the application. All the practices of the physicians surveyed use an electronic health record called the Longitudinal Medical Record (LMR). Both the LMR and PG were internally developed. At the time of the survey mailings, physicians and their practice staff had been using the PG application for approximately six months. Physicians were

sent subsequent survey mailings and reminder letters if they did not respond to the initial survey mailing.

The surveys were sent with cover letters explaining the purpose of the survey and indicating that all responses would be kept confidential. The survey questions related to PG's effects on office efficiency, physician workload, practice communication with patients and the management of refill, referral and scheduling requests. The survey also addressed overall physician satisfaction with PG, as well as physician use of email systems outside of PG.

Analyses

Descriptive analyses were performed on the data. Data are shown as counts and percentages.

Results

Of the 43 physicians contacted, 24 returned the survey, giving a response rate of 56%. Fifty percent of the responding physicians were female.

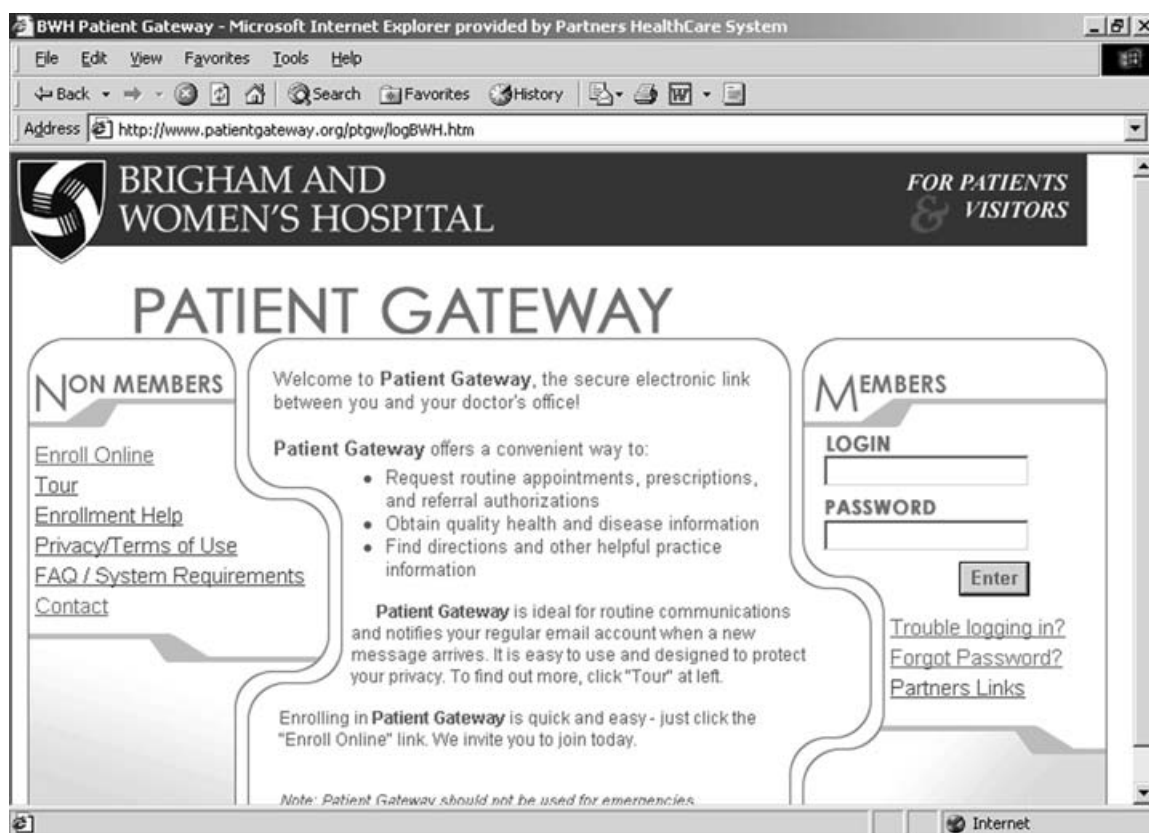


Figure 1 Patient Gateway's welcome page. A patient can go to this web page and log on using a secure login and password in order to request prescription refills, referral authorisations and to schedule appointments. Patients can also access an online health library, parts of their own medical records and medical practice information. PG also has the capability to allow patients to send general messages to their physicians, although physicians may opt not to use this function of the application.

At the time of the survey, an average of 83 patients from each physician's patient panel were using PG. None of the physicians surveyed opted to use the general messaging function in PG for direct email with patients (although all other PG functions were used). In all cases, ancillary personnel triaged patient requests received through PG. However, 58% of surveyed physicians reported emailing directly with patients outside of PG (most using unsecured Microsoft™ Outlook). We examined whether there was a correlation between email usage and age and gender of physician, and no statistically significant correlations were found.

Overall, physicians felt that PG's impact was positive (see Figure 2). Sixty-three percent felt that PG could improve overall practice communication with patients. Eighty-eight percent felt that PG could facilitate better management of refill requests, 84% felt that it could facilitate better management of referral requests, and 71% felt the PG could facilitate better management of appointment scheduling requests. Seventy-one percent thought that PG could improve overall office efficiency. Sixty-two percent reported that they would recommend PG to colleagues (29% were not sure whether they would recommend it and 10% thought that it was too early to tell; no respondents reported that they would not recommend the application to colleagues).

The vast majority of physicians who email directly with patients reported emailing with only a very small number of patients in a typical week (see Figure 3). The remaining 14% reported emailing with 11 to 20 patients in a typical week. More than two-thirds of

respondents claimed that they would be willing to increase email communication if they were offered reimbursement for this service (see Figure 4).

Notably, many of the physicians who answered this survey (38%) already communicate with their personal doctor via email and an additional 19% would like to communicate with their doctor this way.

Fifty-five percent of respondents reported that 'many' of the emails received directly from patients concerned clinical questions. No respondents reported receiving 'many' direct email refill requests or referral authorisations, although 36% reported receiving 'some' direct email refill requests and 27% reported receiving 'some' direct email referral authorisations.

Over half (57%) reported no noticeable change in their own email- or telephone-related workload (60%) since the implementation of PG. Thirty percent were not yet sure of PG's impact on workload, and 9% thought it led to decreases in both email- and telephone-related workload.

Discussion

In general physicians are reluctant to adopt new information systems, especially if the systems do not directly benefit them. Despite the numerous potential benefits of email, physicians have generally been hesitant to adopt the practice of regularly using it to communicate with patients. The survey results suggest that even the primary care doctors within the

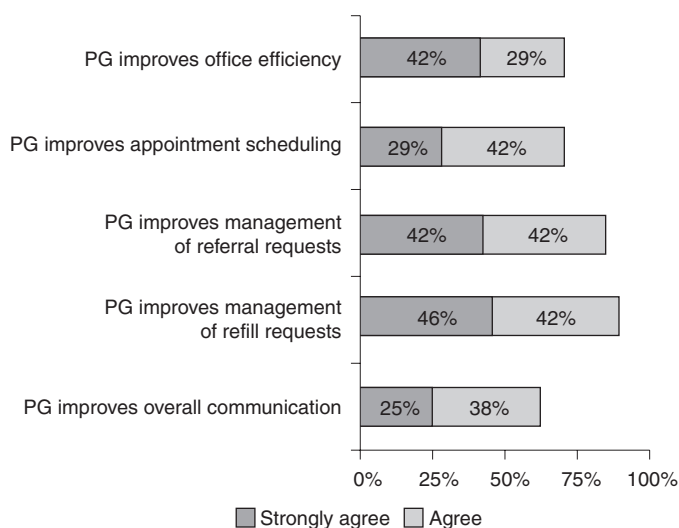


Figure 2 Physician satisfaction with the Patient Gateway application. Physicians were asked to what extent they agreed with a number of statements regarding the value of PG. A majority of physicians agreed or strongly agreed with each of the following statements: PG improves office efficiency; PG improves the management of referral requests; PG improves the management of refill requests and PG improves overall communication with patients.

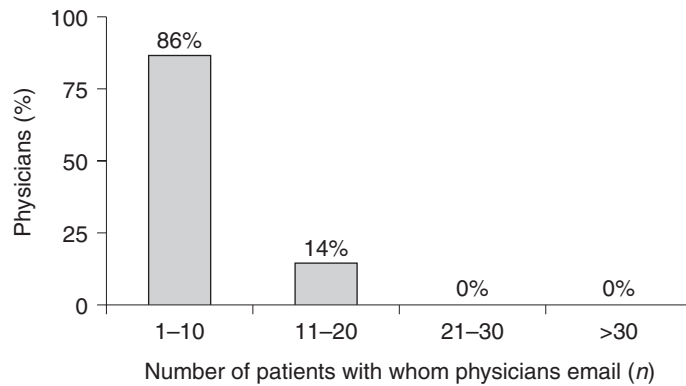


Figure 3 Number of patients physicians email within a typical week, as reported by physicians. Of those physicians who reported emailing directly with patients (outside of Patient Gateway), 86% reported only emailing with between one and ten patients in a typical week. Fourteen percent reported exchanging emails with between 11 and 20 patients. No respondents reported exchanging emails with more than 20 of their patients in a typical week.

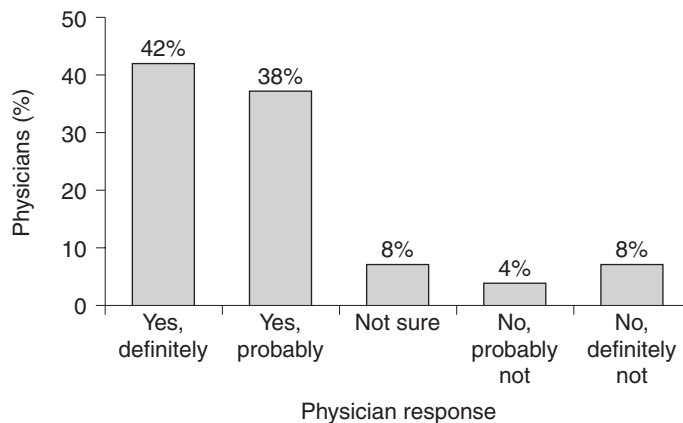


Figure 4 Physician responses to the following statement: 'If offered reimbursement for direct electronic messaging with patients, would you be more willing to engage in this form of communication?' Eighty percent reported that they would be more willing to exchange emails with patients if offered reimbursement, 8% were not sure and only 12% would not be more willing to email patients if offered reimbursement.

Partners network who use email the most only exchange emails with a very small portion of their patient panel, and that these physicians are using their own email systems to message patients rather than the general electronic messaging function of an application like PG. Before beginning to use PG, physicians feared that they would be overwhelmed with messages, which might have been the reason that no physicians chose to use the general messaging function of PG with patients. Interestingly, physicians reported that over half of the direct emails they receive outside of PG relate to clinical questions, the kind of email that would be appropriate for the general messaging function of PG.

In a previous study, we identified that barriers to increased physician–patient email related to workload, security and workflow.⁴ As more web-based applications

such as PG are developed to improve patient–practice electronic communication, we believe that these applications will address many physicians' fears regarding increasing email use with patients. Applications like PG are secure, designed with physician and staff workflow in mind, and allow for appropriate triage of patient electronic communication within the practice. As patients become more familiar with applications like PG and use these applications for electronic requests relating to refills, referrals and the scheduling of appointments, physicians are likely to receive fewer emails concerning these requests, which can be more appropriately handled by staff members through an application like PG.

Despite their hesitancy to use the general messaging function of PG with patients, physicians largely viewed the overall effect of PG's other functions (refill,

referral and appointment requests) as positive. A majority of survey respondents cited improved patient–practice communication as a benefit of the application, with specific improvements in office efficiency, appointment scheduling and the management of refill and referral requests. Over half would recommend PG to colleagues. In addition, physician fears that PG’s implementation would increase workload seem to have been unfounded. Prior to the implementation of PG, 64% believed it would increase their workload.⁴ Six months after PG’s implementation, over half of surveyed physicians believed that it had not affected their workload, and approximately 30% were not yet sure how it affected their workload.

Although surveyed physicians identified many benefits of PG, most remain concerned about the current lack of reimbursement for electronic communication with patients. This lack of compensation may contribute to many physicians’ hesitancy to use PG’s general messaging functionality. At this time no insurance plans in Massachusetts reimburse physicians for time spent communicating with patients via email. As a result physicians have little financial incentive to exchange emails with patients, whether using their own email systems or applications like PG. Physicians feel strongly about this issue; according to our survey, approximately three-quarters would be willing to increase email use with patients if they were financially compensated for time spent doing so.

This study has several limitations. It was conducted in a specific healthcare delivery network and results may not generalise to other settings, especially sites where implementing new technologies is not prioritised. Additionally, although physician feedback on PG was quite positive, direct physician experience using PG to communicate with patients is somewhat limited, given that physicians are not yet using the general messaging function of the application. Also, the surveyed population in this study was relatively small. Survey results are valuable in spite of the small population size, however, given the value of understanding the opinions of early adopters of PG. Although it is important to be somewhat cautious when extrapolating based on the opinions of early adopters of a technology, we believe that it is both necessary and valuable to do so in order to most effectively continue with the implementation of the technology.

In conclusion, electronic communication via internet technology is likely to become an increasingly important part of health care. Groups such as the Institute of Medicine are advocating the use of physician–patient electronic messaging, citing improvements in communication, better continuity of care, more timely diagnoses and reduced frequencies of adverse drug events as probable benefits of efficient and secure electronic communication between physicians and their patients.^{13,14} The development of

applications such as PG and others like it will facilitate such communication.^{7–11} The results of this study suggest that physicians who are early adopters of the PG application seem to be receptive to it, and that fears relating to workload increases were not realised. Results also illustrate the ways in which PG improves both communication with patients and overall office efficiency. However, despite the fact that PG allows for appropriate pre-screening and triage of electronic messages sent to the practices, physicians have been resistant to the idea of using PG to receive general messages concerning clinical questions from patients. This is unfortunate, given the quality gains that would likely result from such communication. The continued physician hesitation to use electronic communication with patients, even within a system that physicians have otherwise responded to positively, speaks to the need to address other factors in addition to workload and security concerns. The issue of reimbursement remains significant, illustrating the importance of developing plans to compensate physicians for time spent electronic messaging with patients.

ACKNOWLEDGEMENTS

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CONFLICTS OF INTEREST

None.

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Appendix 1

Paper-based survey

Thank you very much for your participation in this survey. The survey takes approximately 5–10 minutes to complete. *Please write neatly*

PRACTICE COMMUNICATION POLICY

1 Who in your office receives emails directly from the patients?

- Responsible MD provider
- Covering MD provider
- Nursing staff
- Other office staff
- I'm not sure

PHONE USE/EFFICIENCY

2 How much time do you estimate that you spend each day returning phone calls to patients?

Hrs Mins

(Please print)

3 What percentage of clinical time is used for phone calls with patients?

_____ %

(Please print)

4 Of this time, how much is unproductive (i.e. time spent on hold or getting incorrect information, etc.)

- A lot
- A little
- Not a problem

5 How often do you have a sufficient amount of time during office hours to return phone messages?

- Never
- Sometimes
- Usually
- Always

6 When do you return most phone calls from patients? (Tick all that apply)

- During a specified time during office hours
- Between appointments
- After hours
- Other

7 As a result of patient computing, the number of phone calls from patients with questions about medication and/or health concerns has

- Decreased
- Increased
- Stayed the same
- I'm not sure

EMAIL USE/EFFICIENCY

8 Do you access Partners Information Systems from home?

- Yes
- No

9 Please mark the email programs that you use at work.

- BICS
- Outlook
- LMR clinical messages
- Personal/other
- None → Go to Question 11

10 On average, how often do you use email at work?

- Many times a day
- Daily
- Weekly
- Monthly
- Never

11 Do you use email at home for work-related issues?

- Yes
- No

12 Do you use email to communicate with your patients?

- Yes
- No → Go to Question 28

13 If yes, what percentage of your patients do you communicate with using email?

- 1–5%
- 6–10%
- 11–20%
- 21+%

14 Please estimate the total amount of time you spend responding to emails from patients on a typical workday.

Hrs Mins

(Please print)

- 15 How long does it take to answer an average email from a patient?
- 0–5 minutes
 5–10 minutes
 10–15 minutes
 15–20 minutes
 Longer than 20 minutes
- 16 Volume of emails received directly from patients is generally
- Minimal
 Manageable
 Overwhelming
- 17 How many times have you received an email from a patient that you felt was too urgent to be dealt with through email?
- 0
 1–5
 6–10
 11+
- 18 When do you generally respond to emails from patients? (Tick all that apply)
- Office hours during a specified time
 Between patient visits and other responsibilities
 At home
 I don't respond to patient emails
 Other. Please specify: _____

(Please print)

- 19 Since Patient Gateway has been used in your practice, how has the number of emails between you and your patients changed?
- Increased
 Stayed the same
 Decreased
- 20 Overall, how has the time and effort spent communicating by email with your patients changed?
- Much less time and effort spent
 Less time and effort spent
 Stayed the same
 More time and energy spent
 Much more time and energy spent
- PRACTICE EFFICIENCY*
- 21 As a result of Patient Gateway, your overall workload has
- Decreased
 Increased
- Stayed the same
 I'm not sure
- 22 With Patient Gateway, the efficiency of office communications with patients has
- Decreased
 Stayed the same
 Increased
 I'm not sure
- 23 As a result of Patient Gateway, the quality of your communication with patients has
- Declined
 Improved
 Stayed the same
 I'm not sure
- 24 Has increasing email communications improved the quality of the care you deliver?
- Yes, definitely
 Yes, probably
 No, probably not
 No, definitely not
 Unsure

PATIENT COMPUTING OPINIONS

- 25 Overall, how would you rate your overall satisfaction with your use of Patient Gateway?
- Excellent
 Very good
 Good
 Fair
 Poor
- 26 How strongly do you agree or disagree with the following statement: There is value in using email to answer certain clinical questions.
- Strongly agree
 Agree
 Not sure
 Disagree
 Strongly disagree
- 27 Overall, how does the time and effort spent responding to an email compare with responding to voicemail or other kinds of messages?
- Much less time and effort
 Less time and effort
 No difference
 More time and effort
 Much more time and effort

28 Has increasing email communications between you and your patients changed your telephone-related workload?

- Yes, increased workload a lot
- Yes, increased workload somewhat
- Yes, decreased workload a lot
- Yes, decreased workload somewhat
- No, no change in workload
- Unsure

29 In general, how do you feel about patients using email to contact you directly?

- Enthusiastic
- Hesitant
- Indifferent
- It's inappropriate
- Other

(Please print)

30 In general, how do you feel about patients using email to contact the practice?

- Enthusiastic
- Hesitant
- Indifferent
- It's inappropriate
- Other

(Please print)

31 Would you increase email communications with patients if it were a reimbursable service?

- Yes, definitely
- Yes, probably
- No, probably not
- No, definitely not
- Not sure

32 Thinking about your experience with Patient Gateway, how likely would you be to recommend the application to colleagues?

- I would definitely recommend it
- I would probably recommend it
- Indifferent
- I would probably not recommend it
- I would definitely not recommend it

33 Please describe what you feel are the top three benefits to you of patient computing:

- 1 _____
- 2 _____
- 3 _____

(Please print)

34 Please describe what you feel are the top three disadvantages or problems to you of patient computing:

- 1 _____
- 2 _____
- 3 _____

(Please print)

35 What three things do you think could be added or changed to make patient computing work better in your practice?

- 1 _____
- 2 _____
- 3 _____

(Please print)

36 If you did not select all of your patients to use Patient Gateway, what were your exclusion criteria?

- _____
- _____
- _____

(Please print)

Thank you very much for your time!

When completed, please mail via interdepartmental mail to:

Anne Kittler
Partners HealthCare
IS Department
WG-2-2074C