

# Successful Practices in the Use of Secure E-mail

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## Abstract

Physician use of secure e-mail with patients is anticipated to increase under Stage 2 Meaningful Use requirements, but little is known about how physicians can successfully incorporate it into daily work. We interviewed 27 “super user” physicians at Kaiser Permanente and Group Health who were identified by leaders as being technologically, operationally, and clinically adept and as having high levels of secure e-mail use with patients. They highly valued the use of secure e-mail with patients, despite concerns about a lack of adequate time to respond, and provided tips for using it successfully. They identified benefits that included better care and improved relationships with their patients.

## Introduction

In 2004, Kaiser Permanente (KP) implemented an electronic health record (EHR), KP HealthConnect, in all Regions. Beginning the next year, the ability to securely e-mail clinicians became available to all patients registered on kp.org, the personal health record/patient portal integrated with KP HealthConnect that also offers partial records access, appointment scheduling, and online prescription refill services. As of October 2013, more than 15,000 physicians actively used KP HealthConnect, and 4.4 million patients were registered on the patient portal. Annually, kp.org-registered members send more than 14 million secure e-mails to KP clinicians. Group Health (GH) began offering secure e-mail in 2001, before EHR implementation in 2003. As of October 2013, more than 1000 GH physicians actively used EpicCare (Epic Systems Corporation; Verona, WI), and more than 265,000 patients have sent 3.5 million secure e-mails to GH clinicians.

Despite the scale of the KP HealthConnect implementation, secure e-mail is not used evenly across KP. In 2012, the average number of e-mails sent per day by primary care physicians (PCPs) in each Region ranged from 2.0 to 7.3. On average, PCPs across KP send 5.6 secure

e-mails to patients each day, but the proportion of PCPs in each Region who send a daily average of 0-1 secure e-mails to patients ranges from 15% to 62%.

The benefits of secure e-mail with patients are well documented. For patients with chronic diseases like diabetes, using secure e-mail positively affects glycemic control and improves patient engagement and patient satisfaction.<sup>1-3</sup> On the organizational and population health level, secure e-mail use improved Healthcare Effectiveness Data and Information Set (HEDIS) measures for members with diabetes and hypertension in KP Southern California; patients sending 2 or more secure e-mails to PCPs per month had significantly better health outcomes.<sup>4</sup> From the perspective of PCPs, benefits include improved communication and enhanced physician-patient relationships.<sup>5</sup> A 2013 study among Veterans Administration providers found secure e-mail to be a “missing element of complex information ecology” that improves access, communication, and relationships; clinicians reported more direct communication, improved efficiency and convenience, and a reduction in “phone tag.”<sup>5</sup> In another study, 53% of Mayo Clinic physicians reported that secure e-mail using a standardized inbox

positively affected their work, and a postimplementation survey revealed that 100% of clinicians reported no negative impact on their work.<sup>6</sup>

Less understood, however, is how to optimize the use of secure e-mail in daily clinical practice or the impact of secure e-mail on workflows and workload. Some studies have documented clinician concerns about inadequate time to respond to patient e-mails.<sup>7,8</sup> A recent study found that most resident physicians feared an increased workload before implementation of a patient portal with secure e-mail. However, after implementation, residents responding to secure e-mail from patients reported that it improved their work and the care they provided.<sup>9</sup> Some concern exists that secure e-mail, among other aspects of physician EHR use, is yet another challenge to physician work-life balance.<sup>6,10</sup> This is of particular concern at a time when physician burnout is on the rise and we face a growing shortage of PCPs.<sup>11-14</sup> Additionally, a core objective in Stage 2 of Meaningful Use, which pertains to both specialists and PCPs, is likely to increase the amount of e-mail between physicians and patients over the next few years.<sup>15</sup> Under this objective, to qualify for financial incentives for EHR implementation, eligible clinicians must use secure electronic messaging to communicate relevant health information with at least 5% of their patients seen within the reporting period.<sup>16</sup>

After eight years of organizational experience with secure e-mail, KP’s Health Strategy Governance Group, a senior leadership group overseeing online care delivery, sponsored a study of physician best practices related to using secure e-mail to communicate with patients.

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## Methods

We conducted interviews with physician secure e-mail “super users” at KP and GH. We focused on physicians who were highly proficient at using secure e-mail to communicate with patients because we assumed that they would be most experienced at integrating it into their daily workflows and would have developed adaptive strategies that could potentially benefit their less proficient colleagues. Super users were identified by members of the Health Strategy Governance Group and other regional physician leaders as meeting 2 criteria: they

were frequent users of secure e-mail and they had extensive technical expertise with the EHR. We interviewed 27 physicians in 7 KP Regions and at GH. Ten participants (37%) practiced internal medicine and 17 (63%) were family physicians. They were primarily men (17, 63%) and practicing full time (24, 89%). Their years in practice ranged from 8 to 41.

We generated 25 interview questions about workflow, e-mail management strategies, physician-patient communication, and concerns and recommendations (see Sidebar: Interview Questions). Responses

were recorded during the interviews verbatim onto an Excel spreadsheet (Microsoft; Redmond, WA). Iterative analysis of responses revealed recurring themes, and we used frequency counts to describe patterns across all those interviewed.

## Results

### Workflow

According to EHR administrative data, super users sent, on average, 17.3 messages a day. Twenty super users (74%) reported that incoming messages went to an inbasket support pool to handle routine administrative messages; 7 (26%) received all e-mail directly from patients. Those using a support pool estimated—and appreciated—that the pool reduced by 20% to 30% the volume of e-mail they needed to respond to by handling more routine administrative messages. Super users most frequently identified registered nurses as staffing inbasket pools; medical assistants also filled this role, although one physician reported that a more limited scope of practice inhibited their effectiveness. Super users directly receiving all secure e-mail from patients strongly preferred this method, describing their approach to patient care as “hands on,” perceiving that it took too long for inbasket staff to forward messages, or disliking a “dumping” phenomenon of receiving multiple messages simultaneously. Three super users (11%) noted that coverage during time off was important to preventing an unmanageable backlog of e-mails; coverage was provided by other physicians or by registered nurses, and one super user noted that standardizing the responsibility of registered nurses for managing inbasket pools would facilitate cross-coverage.

### Time Management

Super users estimated that they spent 2 to 3 minutes responding to a single patient secure e-mail, slightly less than a previously documented 3.5 minute response time.<sup>4</sup> Twenty-one interviewees (78%) reported that they lacked dedicated time on their schedules for secure e-mail and consequently squeezed it in at every possible opportunity throughout the day. Twenty participants (74%) completed secure e-mail during working hours, and 7 (26%) handled secure e-mail after hours. One super user (4%) did both.

### Interview Questions<sup>a</sup>

#### I. Workflow management and scheduling

1. What is the workflow for patient e-mails?
2. Do patient e-mail messages come into a common inbasket shared with others or do they go directly to you?
  - a. (If they go to a common inbasket) How is the workflow structured: who shares the inbasket and what are their roles?
3. How many secure messages from patients do you receive each day?
4. About how long does it take for you to respond to them?
5. When do you respond to e-mail from patients?
6. Do you have a set time within which you try to respond to messages, or do you respond as soon as or shortly after you see the message, or both?
7. Are you given dedicated time to handle messages?<sup>b</sup>

#### II. E-mail management strategies

8. What types of patient messages are difficult to deal with (eg, those that are too long or not clear)?
9. What do you do to address these messages?
10. What do you need from the patient to handle these messages more efficiently?
11. Do you try to coach, establish ground rules for, or otherwise guide your patients' use of e-mail?<sup>b</sup>
12. Is there a way the kp.org “E-mail my doctor” feature could be structured to help patients send clearer or more appropriate messages?
13. Do you close secure message encounters?<sup>b</sup>
14. Have patients ever sent you digital images? If yes, were they clinically useful?
15. What messaging functions (eg, smart phrases, smart texts, patient instructions, or any other functions) do you use regularly?
16. What new strategies (eg, tips and tricks) have you or other physicians developed, tried, or envisioned to make patient e-mail communication more effective and efficient?
17. How could “E-mail my doctor” on kp.org be structured to support those strategies?
18. In what ways do you see your colleagues struggling with secure e-mail with patients?<sup>b</sup> What sorts of suggestions do you most often offer them?<sup>b</sup>
19. Do you initiate e-mail with patients? In what context?

#### III. Physician-Patient Communication

20. How has the use of secure messaging affected your relationship with your patients, if at all?
21. Has the use of secure e-mail affected the quality of care?<sup>c</sup> If so, how?<sup>c</sup>

#### IV. Future Concerns and Recommendations

22. What concerns you the most about the use of secure e-mail with patients?<sup>c</sup>
23. What additional features would make secure e-mail with patients more useful for you?<sup>c</sup>
24. How do you prioritize responding to patient e-mails?<sup>b</sup> Any suggestions for managing this part of your practice you can offer to others?<sup>b</sup>
25. What is your most amazing patient story that resulted from secure messaging?<sup>b</sup>

<sup>a</sup> The number of questions in the interviews evolved as they progressed. The final 25-item version is displayed here.

<sup>b</sup> Added to interview schedule after first 15 interviews.

<sup>c</sup> Dropped from interview schedule after first 15 interviews.

### Response Time

Super users reported two general beliefs about responding to patient-initiated secure e-mail. The first, reported by 6 (22%), was that responding quickly saved time over the long run. These super users cited a response time of less than 24 hours as the gold standard for patient satisfaction and took pride in having a minimal backlog of e-mails. They also expressed concern that a slower response would result in additional e-mails or phone calls. The second, reported by 1 super user (4%), was that a quick response would encourage patients to use secure e-mail. However, a subsequent unpublished analysis found no correlation between average response time and secure e-mail volume.

### Secure E-mail vs Phone Calls

Among super users, 5 (19%) expressed a preference for secure e-mail for communicating with patients, compared with phone calls. These users appreciated 3 characteristics of secure e-mail: communication is asynchronous, a known and limited amount of time is required, and it can be easily handled between office visits. In contrast, they described phone calls as open-ended and more likely to evolve into longer discussions on multiple topics; consequently, they returned patient phone calls over lunch or at the end of the day. Super users appreciated the ability to do as much work as possible between patient visits and thought e-mail contributed to this ability whereas phone calls detracted from it. Other super users appreciated secure e-mail but selected telephone communication or secure e-mail according to the patient's communication preferences and the type of information that needed to be conveyed.

### Messaging Tools

Super users typically prioritized secure e-mails at or near the top of all work tasks in their inbasket, the transactional hub of the EHR. The use of "Smart Tools," such as SmartPhrases (see Sidebar: Sample SmartPhrases Employed by Super Users), was widespread; they provided technical shortcuts for templated notes, descriptions, patient instructions, and clinical details. Twenty-five interviewees (93%) used Smart Tools alone or in combination

with free text. Only 2 participants (7%) reported writing e-mails to patients in full without using any technical shortcuts.

### Content of E-mail

Nine super users (33%) identified what they perceived as vague, rambling, and multipart patient e-mails as the most challenging types of messages and responded to these messages by asking the patient to schedule a phone or office visit to discuss their concerns. One interviewee (4%) asked patients who sent frequent secure e-mails to keep a daily log of health concerns and send it for review every two weeks.

### Tone and Length of Messages

Although we did not ask about writing style, a theme of brevity emerged. Four super users (15%) reported writing succinct messages with a professional, rather than personal, tone. Two participants (7%) described using this approach to model for patients a preferred style of communication. One clinician used system phrases to choose one of several closings and commented that it was possible to be simultaneously brief and personal. However, some super users (3, 11%)

appreciated occasional updates from patients on things like family vacations and personal triumphs.

### Provider-Initiated Messages

All super users sent secure e-mail without waiting for patients to initiate it. Physician-initiated e-mails included messages containing lab results, despite the fact that most lab results are also automatically made available online to patients when they are available to physicians.

### Images

Seven super users (26%) had received clinical pictures from patients via e-mail; all but one appreciated the additional information. One super user reported, "A college student sent me a picture of his throat. I forwarded it to the ENT [ear, nose, and throat specialist] who immediately said the student needed his tonsils out. Surgery was arranged and the student flew home and went straight to the hospital—no need to wait for an appointment." Of 20 super users (74%) with no experience receiving an image attachment, all were open to it; 15 (56%) thought it would be useful and could aid decision making, especially for dermatologic conditions.

## Sample SmartPhrases Employed by Super Users

### Results

- .pmcholesterolrisk = "Your cholesterol values, along with all of the other information to estimate your risk of having a heart problem, suggests that you have about a one in \*\*\* chance of having any symptoms of heart disease in the next 5 years—some see that as a high risk, whereas others focus on the fact that there is \*\*\* out of 100 chance that you won't have trouble. At your level of risk, the benefits of a daily aspirin outweigh the small risks."
- .smxraynormal = "The results of your \*\*\* have been reviewed and I am happy to report that no significant findings were noted. Let us know if you have any questions."

### Navigating the system

- .referral = "I have entered the referral—here is the info that you need. Feel free to call the number listed to rebook the appointment if this day/time does not work for you."
- .appt = "The best way to make an appointment is to call the appointment center at xxx-xxxx at 7 am and request a same-day appointment."
- .pharm = "The medication can be picked up whenever you'd like. The pharmacy is open Monday through Friday, 8:30am to 7:30pm. If you'd like to pick the medication up at a different pharmacy, or have it mailed to you (at no charge) instead, just call xxx-xxxx to speak with a pharmacy representative."

### Personalization

- .signed = "Name of Doctor, MD"
- .happy = "I hope that your winter holidays are wonderful!"
- .wkend = "Have a nice weekend."

### Patient education

- .walking = "Walking is a great way to get exercise. It requires almost no equipment, and can be done rain or shine, any time of year. A good goal is 5x/week, for an average of at least 30 minutes per day—so 150 minutes over the course of a week. There's a great 9-minute video on the benefits of walking here (URL inserted)."

### Super User-Reported Benefits of Secure E-Mail

- Improved ability to communicate with patients between visits
- Fast way to follow-up on medication questions
- Pre-examination outreach to identify clinical concerns (which may eliminate need for visit) or order labs ahead of time
- Clarification of visit information not understood or remembered
- Ability to use timed secure e-mail delivery to follow-up with patients they're concerned about (eg, new depression diagnosis)
- Ability to communicate more often with senior members who are less mobile

However, half (3 of 6) of the super users who had received images from patients commented on their poor quality. One super user expressed a desire to receive forms, such as logs, from patients as e-mail attachments.

### Physician Concerns

When 16 super users were asked what concerned them about secure e-mail, their most frequent responses were e-mail volume (and the related issue of inadequate time for responding) and misuse of e-mail by patients for urgent medical conditions. Of these 16 super users, 5 (31%) identified each issue as a concern. Despite concerns about volume overload, 4 super users (15%) actively encouraged their patients to sign up for kp.org.

### Patient Care Successes

Despite the concerns they reported about workload and volume, super users unanimously agreed that patients appreciated secure e-mail. More importantly, they also unanimously agreed that secure e-mail improved patient care quality and extended their ability to care for their patients in ways they had not anticipated. The benefits of secure e-mail reported by super users are contained in the Sidebar: Super User-Reported Benefits of Secure E-Mail. A particularly interesting theme, reported by 3 super users (11%), was that secure e-mail was very helpful in caring for seniors with limited mobility who were adept at communicating electronically. As one super user reported, "I had a patient that I feel like I kept alive and out of the hospital because of e-mail, an

older man who didn't hear very well and had some problems with congestive heart failure. We did a lot of adjustments to his medicines and brought him in for labs, all over e-mail."

In addition, 17 super users (63%) commented that secure e-mail strengthens the physician-patient relationship because it is an avenue for patients to share problems of a more intimate nature that they may be reluctant to share in a face-to-face encounter.

### Encouraging the Use of Secure E-Mail by Colleagues

We asked super users what they thought might inhibit their colleagues from using secure e-mail. Two themes emerged: lack of technical skill (8, 30%) and fear of being overwhelmed by e-mail volume given already heavy clinic schedules (14, 52%). Participants suggested secure e-mail tips (see Sidebar: Secure E-Mail Tips from Super Users).

### Discussion

Physician super users were engaged, facile with technology, and proactive at handling secure e-mail. Despite concerns about volume and adequate time for responding to messages, some suggested their members sign up for access to it, wanted to receive images from patients by e-mail, and initiated secure e-mails with patients. Most used available time between seeing patients to respond to secure e-mail from patients, valuing a minimal backlog at the end of the day. Some super users believed that their response time influenced patient secure e-mail behaviors. However, an unpublished internal study of the use of secure e-mail with patients among nearly 3200 KP PCPs separately found that neither a rapid nor a more delayed response pattern was

associated with increased e-mail volume.

Our interviews confirm the benefits of secure e-mail reported by others.<sup>5</sup> Super users indicated that it improved the quality of care and contributed to patient satisfaction. They consistently reported that e-mail extended their ability to care for patients in unexpected ways; for example, one super user provided care to a patient who was in Antarctica. Some also appreciated a more personal, nuanced relationship with patients that occurred through e-mail.

Strengths of our study include the fact that it is, to the best of our knowledge, the first to explore how physicians who are highly proficient with e-mail use it to communicate with patients. Limitations include the small size and qualitative nature of our project. Early interviews informed the questions we asked in later ones; we eliminated some questions and added others after the first 15 interviews. As a result, we did not have responses to all items from all participants. The questions we asked throughout all interviews undoubtedly influenced the information super users provided. We did not use patient-centered metrics to confirm participants' perceptions of the contribution of secure e-mail to patient satisfaction, although a previous study indicates that the use of kp.org, in which secure e-mail is a core functionality, is such a patient pleaser that it is associated with a greater member loyalty.<sup>17</sup> In addition, the analysis of qualitative data is inevitably subjective. Further study is needed to confirm our findings in other settings, to assess varying levels of secure e-mail use with patients among physicians and the extent to which their colleagues who use secure e-mail less experience the benefits reported by super users, and to identify strategies to increase proficient use of secure e-mail by physicians to communicate with patients.

**Be brief but personal.**

### Secure E-Mail Tips from Super Users

- Work on secure e-mails throughout the day to reduce backlog and increase patient satisfaction
- Know how to set limits:
  - Use system templates (SmartPhrases) and limit free text to 2 to 3 sentences
  - Set time limits: eg, today I'll finish every e-mail/lab etc received before 3 pm
  - Know what you can and can't do over e-mail and when to ask the patient to come in or have a phone visit
- Master as many technical shortcuts as possible and use them
- Be brief but personal
- Use future e-mail delivery functionality for ticklers
- Ask patients who send long, vague, or complicated messages to schedule a phone or office visit
- Ask patients who e-mail more frequently to keep a daily log and send once every week or two
- Establish good systems to cover physician time off

Our findings lead us to suspect that those strategies may include adequate training, workflow design, and time allocation and management. For instance, improving the technical skills of physicians and their support teams at managing e-mail inbaskets and using SmartPhrases to streamline responses may decrease some barriers to broader use of secure e-mail. Identifying and refining supportive, flexible workflows that leverage the whole health care team to communicate with patients via secure e-mail and establishing standardized e-mail cross-coverage systems for clinicians who are out of the office may also be salient. Effective time management strategies for individual clinicians are likely important. Finally, health care organizations implementing or encouraging the use of secure e-mail under Stage 2 Meaningful Use objectives would do well to consider the value of even a small amount of dedicated time for physicians to use this mode of communication with patients. ❖

#### Disclosure Statement

*The author(s) have no conflicts of interest to disclose.*

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## A Calling

The practice of medicine is an art, not a trade, a calling, not a business, a calling in which your heart will be exercised equally with your head.

— Sir William Osler, 1849-1919, Canadian physician and author