

## Patient Use of Secure Messaging

Monitoring the use of secure messaging by patients over time is one way to measure the success of the implementation of secure messaging functionality, which may be made available through a patient portal or a personal health record (PHR).

**Category:** Patient Adoption, Knowledge or Attitudes Measures

**Quality Domain:** Patient Centeredness

**Current Findings in the Literature:** One of the six Institute of Medicine (IOM) recommendations aimed at redesigning health care includes making health care more personalized and patient-centric.<sup>1</sup> Electronic communication in the form of secure messaging can play a role in meeting this recommendation. Recognizing these advantages, the IOM includes electronic patient-provider communication as a core function of an electronic health record (EHR).<sup>2</sup> Secure messaging applications, which may be available through patient portals or PHRs, allow patients and their health care providers to securely send messages back and forth. In addition, some systems can create structured messages and triage them to appropriate staff.<sup>3,4</sup> Messaging may be used for administrative functions, such as requesting medication refills, inquiring about test results or referral requests, or for conducting medical consultations (i.e., an e-visit) for nonurgent issues.

The benefits of this asynchronous form of communication include avoiding multiple missed phone calls between patients and clinical and

administrative staff,<sup>5</sup> providing better documentation of communication as electronic copies of messages can be attached or imported into the medical record,<sup>6</sup> and eliminating unnecessary face-to-face provider visits that may be time-consuming and financially burdensome for patients.<sup>7,8</sup> Monitoring the use of secure messaging by patients over time is an initial measure to determine the success of the implementation of the application; before the impact of the application can be evaluated, its feasibility and use must be determined to see whether people will use it and if modifications to the tool are necessary. Since some providers fear that they may be overwhelmed by electronic requests,<sup>3, 9,10</sup> with the introduction of secure messaging, it may be important for organizations to monitor the type and frequency of its use.

An important and potential impact of the use of secure messaging is improved access to one's health care provider and office. In a system that provided secure and clinically structured Web-based, provider-patient communication services, 2,275 total incoming messages were received from 826 patients during the 5-month study period.<sup>4</sup> Of these, 398 were consults, 175 appointment requests, 120 test result requests, 112 medication refill requests, and 78 referral requests. In addition, over 75 percent of their patients believed secure messaging improved access to their provider. In conjunction with this analysis, the researchers also found that provider productivity did not decrease and that providers did not feel inundated with electronic patient messages.

Similarly, in a retrospective, cross-sectional study of patient use of secure messaging, researchers found that patients used secure messaging for medication refill requests (44 messages per 1,000 members),



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patient-provider clinical messages (31 messages per 1,000 members), and appointment requests (12 messages per 1,000 members).<sup>11</sup> Finally, in a retrospective, case-control study that examined telephone and electronic message volume, researchers found that the mean per-day case telephone volume was 18.2 percent lower (21.61 versus 26.43,  $p = .002$ ) after the implementation of secure messaging for those providers whose clinics were using secure messaging compared to those that were not.<sup>12</sup>

**Source of Data for the Measure:** Messaging logs from PHRs, portals, stand-alone secure messaging applications or EHRs.

## Methodology for Measurement

*Study Design #1:* Time series

*Evaluation #1:* Track use of secure messaging at set points in time after implementation of messaging functionality.

*Study Design #2:* Randomized control trial

*Evaluation #2:* Compare use of secure messaging between control and intervention clinics. Depending on the type of organization, evaluators may be able to randomize clinics to intervention (i.e., those using the secure messaging function) or control (i.e., those not using the secure messaging function) group for comparison.

### Analysis Considerations

Several issues should be addressed before proceeding with an analysis plan:

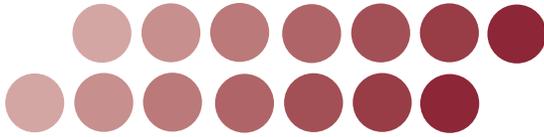
1. Your data collection and analysis plan should be based on sound methodology. To achieve valid,

robust results, consider using the input of a trained statistician to determine sample size and appropriate statistical techniques. It is not uncommon to begin analyzing data, only to find the original statistical plan was flawed, leaving you with data that is inadequate for analysis.

2. A simple chart or graph that visually displays secure messaging use over time is an effective way to communicate this information to stakeholders.
3. Similar to verbal encounters, electronic encounters may require a series of information exchanges between the patient and the provider. Instead of an aggregate count of messages, evaluators may want to conduct a more detailed analysis, by looking at a set of messages, also known as a thread, to help them evaluate the potential impact of secure messaging on provider workload and implications for provider compensation.<sup>13</sup>
4. Organizations may also want to track call volume to determine whether secure messaging supplanted phone calls.
5. If organizations want to evaluate message content, they will need to invest resources in extracting messaging content. This effort will be less intensive if the secure messaging system can create structured messages.

**Relative Cost:** Low, if the health IT systems' user logs track secure messaging. However, if organizations want to evaluate message content, resources will be required to extract message content.

**Potential Risks:** As with any technology, provider and administrative use of secure messaging may be influenced by the design and implementation of the technology; if the technology has not been appropriately piloted and training has not been adequately provided, its overall use may be impacted.



## References

1. Institute of Medicine. Crossing the quality chasm: a new health system for the 21st Century. Washington, D.C.: National Academy Press; 2001.
2. Institute of Medicine. Key capabilities of an electronic health record. National Academies Press. July 31, 2003:9–17. Available at: <http://books.nap.edu/html/ehr/NI000427.pdf>. Accessed January 22, 2009.
3. Moyer CA, Stern DT, Dobias KS, et al. Bridging the electronic divide: Patient and provider perspectives on e-mail communication in primary care. *Am J Manag Care* 2002;8(5):427–33.
4. Liederman EM, Morefield CS. Web messaging: a new tool for patient-physician communication. *J Am Med Inform Assoc* 2003 May-Jun;10(3):260-70.
5. Sands DZ. Electronic patient-centered communication: Managing risks, managing opportunities, managing care. *Am J Manag Care* 1999;5(12):1569–71.
6. Couchman GR, Forjuoh SN, Rascoe TG. E-mail communications in family practice: what do patients expect? *J Fam Pract* 2001;50(5):414–8.
7. Bergmo TS, Kummervold PE, Gammon D, Dahl LB. Electronic patient-provider communication: Will it offset office visits and telephone consultations in primary care? *Int J Med Inform* 2005;74:705-10.
8. Zhou YY, Garrido T, Chin HL, et al. Patient access to an electronic health record with secure messaging: impact on primary care utilization. *Am J Manag Care* 2007; 13:418-24.
9. Kleiner KD, Akers R, Burke BL, Werner EJ. Parent and physician attitudes regarding electronic communication in pediatric practices. *Pediatrics* 2002;109:740–4.
10. Mandl KD, Kohane IS, Brandt AM. Electronic patient-physician communication: problems and promise. *Ann Intern Med* 1998;129:495–500.
11. Ralston JD, Carrell D, Reid R, et al. Patient web services integrated with a shared medical record: patient use and satisfaction. *J Am Med Inform Assoc*. 2007;14(6):798–806.
12. Liederman EM, Lee JC, Baquero VH, Seites PG. Patient-physician web messaging: the impact on message volume and satisfaction. *J Gen Intern Med* 2005; 20:52-7.
13. Carrell D, Ralston J. Messages, strands and threads: Measuring use of electronic patient-provider messaging. *AMIA Annu Symp Proc* 2005:913.

