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**A critical appraisal of guidelines for electronic communication between patients and clinicians:  
the need to modernize current recommendations**

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This is the author's manuscript of the article published in final edited form as:

Lee, J. L., Matthias, M. S., Menachemi, N., Frankel, R. M., & Weiner, M. (2018). A critical appraisal of guidelines for electronic communication between patients and clinicians: the need to modernize current recommendations. *Journal of the American Medical Informatics Association*, 25(4), 413–418. <https://doi.org/10.1093/jamia/ocx089>

## **ABSTRACT**

**Background:** Patient-provider electronic communication has proliferated in recent years; yet there is a dearth of published research either leading to, or including, recommendations that improve clinical care and prevent unintended negative consequences. We critically appraise published guidelines and suggest an agenda for future work in this area.

**Objective:** To understand how existing guidelines align with current practice, evidence, and technology.

**Methods:** We performed a narrative review of provider-targeted guidelines for electronic communication between patients and providers, searching Ovid MEDLINE, EMBASE, and PubMed databases using relevant terms. We limited the search to articles published in English, and manually searched the citations of relevant articles. For each article, we identified and evaluated the suggested practices.

**Results:** Across eleven identified guidelines, the primary focus was on technical and administrative concerns, rather than on relational communication. Some of the security practices recommended by the guidelines are no longer needed because of shifts in technology. It is unclear the extent to which the recommendations that are still relevant are being followed. Moreover, there is no guideline-cited evidence of the effectiveness of the practices that have been proposed.

**Conclusion:** Our analysis revealed major weaknesses in current guidelines for electronic communication between patients and providers: the guidelines appear to be based on minimal evidence and offer little guidance about how best to use electronic tools to communicate effectively. Further work is needed to systematically evaluate and identify effective practices, create a framework to evaluate quality of communication, and assess the relationship between electronic communication and quality of care.

## **BACKGROUND AND SIGNIFICANCE**

The utility of email as a way for patients to communicate with their providers first emerged in the medical literature in the early 1990s.<sup>1</sup> While electronic communication offers many potential advantages for patients and providers, including convenience, negative consequences, such as gaps in communication can also occur. The literature on the effective use(s) of electronic communication between patients and providers is still growing, as the technology is still maturing. Two systematic reviews found that, although patients are interested in using email to communicate with their providers, the effect of electronic communication between patients and providers on health outcomes and utilization was inconclusive and, therefore, “recommendations for clinical practice could not be made.”<sup>2,3</sup> A more recent survey reported that use of secure messaging via email was perceived as improving overall health and reducing healthcare utilization, although these positive results relied on patients' self-report and were noted by only a minority of patients (42% and 32%, respectively).<sup>4</sup>

Although electronic communication occurs in many forms, including email, secure messaging, SMS text-messaging, and video conferencing, email and secure messaging (i.e., email with key security features)<sup>5</sup> are the most commonly used in clinical practice and are the main focus of this study. As email use increased in the healthcare sector, commentaries, editorials, and institutional guidelines regarding its use between patients and clinicians emerged in the healthcare literature. The American Medical Informatics Association published the first major guideline in 1997.<sup>6</sup> In 2013, the American College of Physicians and the Federation of State Medical Boards published a position statement on online medical professionalism.<sup>7</sup> In the intervening years, the use of patient-provider electronic communication—specifically emails and secure messaging via electronic health record portals has proliferated. Estimates of the use of electronic communication among healthcare providers range from 16% of surveyed physicians in a practice to as high as 72%.<sup>2</sup> As of 2015, nearly two-thirds of physicians had an electronic health record with secure messaging capabilities—an increase of over 50% since 2013.<sup>8</sup> It is unclear, however, what behaviors are, or should be, promoted and how best to establish electronic communication as an effective tool in clinical care while also preventing unintended negative consequences.

In contrast to electronic communication, the effectiveness of face-to-face communication has been examined in depth, with established best practices associated with clinical outcomes<sup>9</sup> and standardized measures of face-to-face communication behaviors.<sup>10-14</sup> The Toronto Consensus statement, for example, is a guideline that promotes behaviors such as open-ended questions, frequent

summaries, and negotiations based upon evidence of the association of these behaviors with the quality and quantity of information elicited.<sup>15</sup> Although electronic communication is in some ways an extension of face-to-face communication, its particularities, most notably the absence of nonverbal cues (body language, facial expressions, tone), and the asynchronous nature of most forms of electronic communication, present a number of unique challenges in translating face-to-face best practices to the electronic format. Thus, while guidelines designed for face-to-face communication offer a helpful model for how electronic communication measures can be developed and validated, they are inadequate for measuring and informing electronic communication; electronic communication research has not provided sufficient data to inform guidelines about effective practices.

To our knowledge, no evaluations of guidelines for electronic communication have been published. As such, it is unclear what practices guidelines should promote and the evidence underpinning these suggestions. An early study by Brooks and Menachemi identified physicians' low adherence to existing guidelines: only 6.7% of physicians reported complying with at least half of the recommended practices in 2005<sup>16</sup>. A follow up study found that although the use of email increased three years later, adherence to guidelines decreased over time.<sup>17</sup> Given the growth of electronic communication during the last decade, and the lack of critical analysis of effective practices and guidelines, we sought to appraise existing published guidelines and to suggest an agenda for future work in this area. The purpose of this review is to understand how existing guidelines align with current practice, evidence, and technology. The results of this article will be of interest to policymakers shaping institutional agendas for electronic communication, system developers creating products that foster effective communication, and patients and providers trying to understand how to maximize benefits and minimize harms associated with electronic communication.

## **METHODS**

### **Definition**

We defined “electronic communication” as the direct exchange of *text* information using computers, internet-enabled telephones, or other electronic devices between a patient and his or her healthcare provider. Asynchronous electronic communication occurs in healthcare most commonly today as the use of secure messaging via an electronic health record system, and guidelines governing email and secure messaging are the main focus of this analysis.

### **Guideline search**

We performed a narrative review of provider-targeted guidelines for electronic communication, searching Ovid MEDLINE, EMBASE, and PubMed databases using relevant search terms (for example, “patient” and “email,” “webmail,” or “messaging” and “guideline,” or “standard”). We limited the search to articles published in English and before March, 2017. We manually reviewed the citations of relevant articles for additional relevant articles to review.

### **Content analysis**

For each article, we identified suggested practices. For articles that offered commentary for types of digital communication beyond direct patient-provider communication (e.g., social-media broadcast), we focused specifically on practices regarding patient-provider communications.

We organized recommendations by theme, and then evaluated whether the recommendations reflected current evidence, current practice, and current technology. We conducted the evaluation by assessing what supporting sources, if any, the existing guidelines and recommendations cited, and further examined the published literature on the effectiveness of electronic communication, to determine whether any suggested practices were evaluated.

## RESULTS

The search yielded 421 citations. Of these, 11 were identified as English-language guidelines for electronic communication between providers and their patients.<sup>6,7,18-26</sup> **Table 1** summarizes the guidelines. Five of them represented official position papers of professional societies (e.g., The American College of Dentists);<sup>6,7,18,19,22</sup> four were adapted from existing guidelines (included in this review).<sup>23-26</sup> Of the 11 guidelines, one was published before 2000,<sup>6</sup> seven were published between 2000 and 2009,<sup>18,20,22-26</sup> and three were published after 2009.<sup>7,19,21</sup> Four of the guidelines were directed toward a general medical audience; the remaining guidelines pertained to dentistry, psychiatry, neurology (more specifically, epilepsy), pediatrics, and pharmacy.<sup>19-21,23-26</sup> Although many articles referenced emerging evaluations of electronic communication, no recommended practices were grounded in empirical evidence.

The earliest published article in this review, endorsed by the American Medical Informatics Association in 1998, organized its recommendations into two categories: administrative guidelines and communication guidelines.<sup>6</sup> The former govern issues relating to the infrastructure surrounding the technical aspects of electronic communication; the latter focus on relational communication between clinicians and patients. We found the distinction useful and organize the guideline themes accordingly, with minor modifications.

**Table 1:** Published Guidelines and Best-Practices regarding Electronic Communications between Patients and Providers

Guideline Characteristics				Practice Domains Addressed					
Author, Year	Specialty	Medical Society Represented	Close Adaptation	Security	Archival	Liability	Patient Discussion	Patient Instruction	Provider Instruction
<b>Bovi, 2003<sup>18</sup></b>	Not specified	Council of ethical judicial affairs of the American Medical Association	None	Yes	No	Yes	Yes	Yes	No
<b>Chambers, 2012<sup>19</sup></b>	Dentistry	American College of Dentists	None	Yes	No	Yes	No	No	Yes
<b>Farnan, 2013<sup>7</sup></b>	Not specified	American College of Physicians	None	Yes	Yes	Yes	Yes	No	No
<b>Gadit, 2006<sup>20</sup></b>	Psychiatry	None	Kane	Yes	Yes	Yes	Yes	Yes	Yes
<b>Kane, 1998<sup>6</sup></b>	Not specified	American Medical Informatics Association	None	Yes	Yes	Yes	Yes	Yes	Yes
<b>Koh, 2013<sup>21</sup></b>	Psychiatry	None	None	Yes	Yes	No	Yes	No	No
<b>Makinen, 2001<sup>22</sup></b>	Not specified	Standing Committee of European Doctors	None	Yes	Yes	Yes	Yes	Yes	Yes
<b>Mehta, 2006<sup>23</sup></b>	Pediatrics	None	Makinen	Yes	Yes	Yes	Yes	No	Yes
<b>Prady, 2001<sup>24</sup></b>	Epilepsy	None	Kane	Yes	Yes	Yes	Yes	Yes	No
<b>Silk, 2003<sup>25</sup></b>	Psychiatry	None	Kane	Yes	Yes	Yes	Yes	Yes	Yes
<b>Zierler-Brown, 2003<sup>26</sup></b>	Pharmacy	None	Kane	Yes	Yes	No	Yes	Yes	Yes

### **Administrative (Technical)**

The importance of maintaining proper privacy and data security safeguards was emphasized in all of the guidelines. Farnan *et al.*, for example, noted that “Maintaining trust in the [patient-physician relationship] requires that physicians consistently apply ethical principles for preserving the relationship, confidentiality, privacy, and respect for persons to online settings and communications.”<sup>7</sup> Given the value placed on preserving patients' confidentiality and privacy, the guidelines offered many suggested practices governing how physicians should best achieve these goals and protect the security of their electronic communications. The most common suggested practices focused on using software with adequate encryption, and backing up data (e.g. “Perform at least weekly backups of email onto long-term storage,” and “both hardware and software need to be regularly updated. In particular, up-to-date virus protection is essential”).<sup>6,22,23</sup>

The guidelines also recommended proper record keeping “to develop archival and retrieval mechanisms,” and saving communications to medical records “whenever possible and appropriate.”<sup>20</sup> For example, Kane suggested that “Providers must see to it that e-mail processed offsite on home systems [e.g., through secure online portals] or portable computing devices is subsequently printed in the office and included in the medical record.”<sup>6</sup>

Several guidelines also noted clinicians' responsibility in being aware of applicable laws and liability regarding their use of electronic communication. Although no specific case was cited, three areas of main concern regarding liability were noted, and many were specific to the U.S. context: whether a physician was insured to communicate via e-mail, whether electronic communication that crossed state lines (i.e., providers and patient were in different states) would allow a court to deem a physician as ‘practicing without a license’ in the patient's state, and whether the content of the email messages are within the bounds of professional conduct.<sup>19,23</sup> Many guidelines also suggested obtaining patients' consent to communicate electronically, and making patients aware of guidance or clinical practices regarding electronic communication.<sup>6,18-20,22-24</sup> Kane advised, for example, that “the most wary, not necessarily the best” approach to protect against liability concerns was to obtain signed consent.<sup>6</sup>

### **Communication (Relational)**

Guidelines regarding the relational aspect of electronic communication were more varied than those concerning the administrative guidelines. The most frequently suggested practice regarding communication was the importance of discussing the use of electronic communication with patients,



though the guidelines differed in what should be discussed. Several suggested having a discussion with patients about limitations, benefits, and risks of electronic communication.<sup>7,18,25</sup> Guidelines also suggested that providers set and discuss expectations regarding turnaround time and what is, and is not, appropriate for electronic communication with their patients, especially as it pertained to making patients aware that other members of the healthcare team may read their message and that electronic communication was not suitable for urgent matters.<sup>6,20,23-26</sup>

Communication guidelines also advised providers to instruct patients on many aspects of electronic communication, including using categorical subject headings, confirming their identity by including their name and patient identification number in the message (though other guidelines caution against this practice), using the auto-reply function to acknowledge receiving and reading the message, and limiting the length of their messages.

Beyond suggested practices for patients' behaviors, the guidelines focused on how providers should write their messages. Providers' professionalism was a common theme. Chambers *et al.* emphasized the importance of separating "personal elements" from professional communication, a point echoed by Koh and Farnan.<sup>7,19,21</sup> These guidelines cautioned against personal disclosures in electronic communication, which should "protect against the ambiguities of indistinct professional boundaries".<sup>19</sup> Comporting oneself professionally in electronic communication also meant that clinicians should avoid anger, sarcasm, and professional jargon as well as refraining from making disparaging references to third parties.<sup>6,19-21,25</sup>

### **Guideline Evaluation**

Although some, but not all, guidelines drew upon conceptual frameworks as a basis for their suggested practices, none of the practices were based upon evidence of effectiveness or acknowledged this limitation. While conceptual frameworks offer theoretical foundations for suggested practices, they do not (as currently invoked by the guidelines) offer practical suggestions for provider behaviors. Evidence-based suggestions help to validate and translate conceptual frameworks into effective practices. Yet these guidelines included no discussions of healthcare, utilization, or patient-centered outcomes (e.g., patient experience, timeliness of care) that might be associated with the suggested practices, or how adherence to guidelines should be assessed. The guidelines, then, do not appear to be supported by current evidence or measurement.

While maintaining patients' privacy and data security remains important in the current health technology environment, our environmental scan of the current electronic communication landscape reveals that many suggested practices offered in the guidelines are largely addressed by health organizations and administrations that control and maintain institutional email. More to the point, many of the guidelines regarding privacy and data security are not directly relevant to clinicians' communication practices. Examples include choosing an electronic health record vendor with proper encryption capabilities, developing archival systems, and scheduling periodic system backups. In addition, guidelines focusing on data security and other technical aspects of electronic communication are out of step with the capabilities and uses of current technology.

Although some recommended practices are no longer needed because of shifts in technology, many of the recommendations that remain relevant are likely not being followed. The existing literature on electronic communication, clinical practice, and exam-room computing has provided no evidence that providers are routinely instructing patients about how to engage in electronic communication.<sup>27-29</sup> Likewise, suggested patient practices such as creating automatic replies to acknowledge receipt and reading of messages, as highlighted by Kane and reiterated by Gadit,<sup>5,18</sup> and including their electronic signatures and identification numbers, are also out of step with routine electronic communication practice.<sup>6,18,20,22</sup> Many of the recommendations would benefit from updates to reflect more modern electronic communication platforms and practices that are feasible and relevant to today's clinical environments.

## DISCUSSION

The current review examined 11 published guidelines for electronic communication and found their primary focus to be largely on technical and administrative concerns, as compared with the equally important dimension of relational communication. The result is that there is little guidance about how providers can or should communicate with patients effectively via electronic platforms. Only a minority of suggested practices focused on how electronic communications should be composed and responded to. Moreover, we found that none of the reviewed guidelines cited evidence for the effectiveness of the very practices they proposed, and that many recommendations appeared infeasible, or have since become outdated.

Although we acknowledge, as one guideline did, that the suggested practices presented were “aspirational rather than requirements,”<sup>6</sup> and we recognize that guidelines may require tailoring and adaptation in some environments, our analysis revealed many opportunities for improvement in alignment and updating to reflect current technology and practice.

Many of the security and privacy concerns raised in the guidelines are as valid today as they were when they were published; however, they are now addressed at the institutional level and are thus outside of the scope of practice for most clinicians. With institutions handling the governance and implementation of constantly evolving technologies, such as those for electronic communication, and given the large gaps that remain in our understanding of how electronic communications can be optimized for patient care, it may be more helpful for providers if future guidelines focus more on the relational challenges of electronic communication rather than technical issues such as platform specifications. Future work in administrative and technical areas then could expand to include identifying effective messaging practices in the context of healthcare teams, and best practices for how providers could effectively and safely integrate electronic communication into their workflow— two areas largely overlooked by existing guidelines.

The communication aspects of the guidelines we reviewed focused primarily on preparing the patient for electronic communication, providing little guidance for clinicians. Electronic communication may be an efficient way to respond to patients' questions and provide a permanent record of medical information that patients may find helpful, but without face-to-face nonverbal cues or “teach-back” opportunities, errors in the delivery (e.g., typographical errors) as well as interpretation (misunderstanding) of the content of electronic communication may also periodically occur. Likewise,

while electronic communication may enhance the patient-provider relationship by expanding patients' access to their providers, the time lag between responses, and the potential for misinterpretation may affect the relationship negatively.<sup>25</sup> Guidance regarding how to optimize the format, content, and relational aspects of electronic communication, and how such practices may differ by both circumstances and as personal preferences by patients and providers, are much needed and lacking in existing guidelines.

Clinical guidelines are often iterative, rather than finite, and periodically updated as the evidence base for a specific behavior or therapy grows. Even with the limited evidence that exists today, the guidelines could, and should, be updated to reflect current technology and practice with expert experience and limited evidence—just as the original guidelines were crafted to anticipate the needs of the providers of that time. Future guidelines for electronic communication should incorporate evidence-based evaluations examining how communication attributes and behaviors are associated with clinical, utilization, and patient-centered outcomes as they develop. Shimada *et al.*, for example, recently observed that patients with sustained secure messaging use had better diabetes control than patients who did not<sup>30</sup> while Millman *et al.* observed messaging to be effective for improving adherence to evidence-based guidelines, especially to address diabetes-related gaps in care.<sup>31</sup> While more work is needed to understand in more depth the potential impact of secure messaging on clinical outcomes, these two studies suggest that this modality is promising for helping patients with disease management, and that additional research is merited.

Future research on communication should examine not just its use, but ways to optimize use to produce better outcomes for patients. Such a research agenda can be accomplished both qualitatively and quantitatively. A qualitative approach could entail eliciting patients' and providers' perceptions of the effectiveness of e-communication for different communication functions<sup>32</sup> (e.g. information exchange, decision making, or emotional support), soliciting best practices from the respondents, or determining preferences for specific communication behaviors. Quantitatively, one could establish a metric for evaluating aspects of electronic communications (e.g. its patient centeredness, or effectiveness in addressing patient concerns) by adapting existing frameworks for electronic communication,<sup>28</sup> or by expert consensus. Such a metric would then allow the evaluation of interventions or simulations that focus on specific electronic communication behaviors (e.g. comparing patient satisfaction of messages that close with a suggestion of next steps with those without) or allow for a comparison of electronic communication with other types of communication tools.

## **Implications**

This review and analysis of electronic communication guidelines offers implications for patients, providers, and other stakeholders. While it is true that most guidelines were directed at providers, there are implications for patients as well. For example, patients can inquire about their provider's policies regarding electronic communication and come to a mutual understanding of how and when it will be used. Providers should recognize that their concerns about electronic communication are perhaps different from those of patients, and that setting expectations and discussing the possible advantages and pitfalls of electronic communication, as repeatedly recommended by the guidelines, are worthwhile.

Medical educators and healthcare institutions should recognize the importance and need for more guidance and education on this topic. Electronic communication, now an increasingly routine part of clinical practice, should be added to the curriculum on effective patient-provider communication. If physicians are to be financially incentivized to use electronic communication with their patients, as they are under the Center for Medicare & Medicaid Services' EHR incentive programs, they should also be taught how to use the tools most effectively.

## **CONCLUSION**

In the last two decades, as the use of electronic communication has increased dramatically, the role of electronic communication in electronic health records has changed, and the workflow around electronic communication has also shifted. Patients now have more options for communicating with their providers electronically, and providers need guidelines that acknowledge these changes and help providers use electronic communication safely and effectively. Our analysis revealed three shortcomings of current guidelines for electronic communication between patients and providers: a) the evidence informing the guidelines appears to be limited, b) current guidelines offer little guidance about how best to use electronic tools to communicate effectively, and c) many guidelines are poorly aligned with current practice and technology. Just as clinicians and clinical trainees are taught face-to-face communication with patients based on an evidence-rich foundation,<sup>33-36</sup> the same rigorous work needs to be applied to electronic communication. Certain recommended face-to-face practices (e.g., responding to patients' emotions) may be adapted as a starting point, but research needs to expand to focus specifically on electronic communication. Researchers need to evaluate and identify effective practices systematically, create a framework to evaluate quality of communication, and test the

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relationship between electronic communication and quality of care. Such a foundation would enable organizational changes needed to promote effective electronic communication, thereby optimizing patient care.

## ACKNOWLEDGEMENTS

Dr. Weiner is Chief of Health Services Research and Development at the Richard L. Roudebush Veterans Affairs Medical Center in Indianapolis, Indiana. The views expressed in this article are those of the authors and do not necessarily represent the views of the U.S. Department of Veterans Affairs.

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