Electronic Communication in Plastic Surgery: Guiding Principles from the American Society of Plastic Surgeons Health Policy Committee

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Background: With the advancement of technology, electronic communication has become an important mode of communication within plastic and reconstructive surgery. This can take the form of e-mail, text messaging, video conferencing, and social media, among others. There are currently no defined American Society of Plastic Surgeons guidelines for appropriate professional use of these technologies.
Methods: A search was performed on PubMed and the Cochrane database; terms included "telemedicine," "text messaging," "HIPAA," "metadata," "video conferencing," "photo sharing," "social media," "Facebook," "Twitter," and "Instagram." Initial screening of all identified articles was performed; the level of evidence, limitations, and recommendations were evaluated and articles were reviewed.
Results: A total of 654 articles were identified in the level I screening process; after more comprehensive review, 41 articles fit inclusion criteria: social networking, 12; telemedicine, 11; text messaging, 10; metadata, four; video conferencing, three; and Health Insurance Portability and Accountability Act, one. General themes were identified from these articles and guidelines proposed.
Conclusion: Electronic communication can provide an efficient method of information exchange for professional purposes within plastic surgery but should be used thoughtfully and with all professional, legal, and ethical considerations. (*Plast. Reconstr. Surg.* 141: 500, 2018.)

Electronic communication has become an increasingly common mode of sharing clinical images and information within plastic surgery. The broad category of electronic communication includes the modalities of text messaging, e-mail, video conferencing, smartphone applications, and social media, among others. Electronic communication can provide an efficient method of information exchange between health care providers, and between patients and their providers.

Plastic and reconstructive surgery is an inherently visual specialty; inspection is a key component of clinical evaluation and contributes highly to diagnosis and treatment. Visual assessment can take many forms. Electronic communication, including the sharing of pictures and videos, can be useful at many stages of patient care, including the initial

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consultation, formulation of an ongoing treatment plan, and postprocedural monitoring and follow-up. Recent studies have shown that an increasing number of physicians directly communicate electronically with their patients[1–4] and that there is a significant interest among patients for communication with their providers by means of e-mail and social media.[5] The value of telemedicine, as an overall tool within the domain of plastic and reconstructive surgery, has been previously reported in the literature.[6,7]

As technology has evolved, patients have become increasingly facile with the use of smartphones and digital technology. However, a number of ethical and medicolegal considerations germane to these modes of communication have arisen and are of paramount importance to the practicing plastic surgeon. These include compliance with the Health Insurance Portability and Accountability Act related to transmission of secure medical information, concerns related to establishment of the doctor-patient relationship through virtual means, privacy with storage of electronic files, and concerns about provision of interstate medical care without appropriate licensure. Given the relative novelty of many of these technologies, there is significant practice variability and no consensus exists among practitioners.

This study sought to investigate the evidence and previously described guidelines for plastic surgeons to safely and effectively use electronic communication, and to better define the associated ethical and medicolegal considerations. General guidelines regarding the communication between medical professionals, and between the medical professional and patient, are then offered.

MATERIALS AND METHODS

A literature search was performed on PubMed and the Cochrane database relevant to several topics in electronic communication in January of 2015. Specific search terms were collectively chosen by members of the Electronic Guiding Principles subcommittee of the American Society of Plastic Surgeons Health Policy Committee. Search terms included "telemedicine," "text messaging," "HIPAA," "metadata," "video conferencing," "photo sharing," "social media," "Facebook," "Twitter," and "Instagram."

Inclusion criteria were articles published in the English literature from 2004 to 2014; narrative reviews, case reports, patient experience surveys, and physician surveys were also included. Meeting abstracts and articles published in a language other than English were excluded.

An initial search was performed of each aforementioned term, and potentially relevant citations were identified (level I screening). A title and abstract search was then carried out and the full text of each article was reviewed for appropriateness. For each topic, a list of articles meeting the inclusion criteria was created (level II screening). The level of evidence for each study was noted and a summary of the evidence, challenges, and limitations was created. This process was performed separately for each search term.

RESULTS

A total of 654 citations were identified in the initial (level I) screening process. There were 245 citations identified for text messaging, 178 for video conferencing, 115 for social networking, 60 for telemedicine, 32 for metadata, 18 for Health Insurance Portability and Accountability Act, and six for photographs. Critical appraisal of these citations and their appropriateness for this topic pared down the list.

After complete application of inclusion and exclusion criteria (level II screening), 41 articles were identified: social networking, 12; telemedicine, 11; text messaging, 10; metadata, four; video conferencing, three; and Health Insurance Portability and Accountability Act, one. General themes were identified from articles related to each search term.

With the identified articles for social networking, the majority were composed of patient and physician surveys. General themes included a developing familiarity and comfort with these technologies among surgeons, and the perceived importance of having an online presence for one's practice. Most social networking interactions appear to be initiated by patients, and many physicians either decline to interact or admit to interacting with patients on a case-by-case basis. One identified concern is the potential for misrepresentation of credentials through social networking and the implications for care delivery.

Within the search term telemedicine, articles indicated that this technology might be beneficial for patients in rural areas, particularly for wound care and management of burns. There was a noticeable concern about the veracity of the transmitted information through telemedicine, and worry about missed diagnoses (such as digital nerve injury in the setting of a finger laceration) requiring additional or more urgent medical care. Challenges noted by the authors of these studies included medicolegal issues related to provision of medical care between states, potential Health

Insurance Portability and Accountability Act violations with transmission of digital photographs, and issues related to billing for telemedicine visits.

Articles about text messaging presented few scientific data but focused more on the potential uses of smartphones in health care. Thematically, this included the use of smartphones for postoperative monitoring and its effect on flap salvage rates and the use of smartphones for tracking patient progress. The main unresolved issues identified by the articles were the stated concerns about confidentiality and data security. Another unanswered question is the role for use of hospital-provided smartphones versus personal smartphones.

Metadata consist of information associated with location, call logs, and Web searches and are tracked and stored by smartphones and computers. Although there are anonymization models available, they are not used extensively, which places physicians and their patients at risk for unwanted (and perhaps unintended) privacy violations. Newer techniques such as medical image watermarking have been proposed as a means of safely storing and protecting electronic data. However, none of the proposed solutions, to date, has been validated or widely implemented within the plastic surgery community.

Video conferencing, with appropriate high-quality imagery, may be useful in emergency medical communication and between teams of providers, particularly in cases of patient transfer. There are some instances, as in cases of procedural consent, that video conferencing may be inadequate. Issues related to Health Insurance Portability and Accountability Act compliance are also pertinent to video conferencing.

DISCUSSION

Electronic communication has become an increasingly effective and ubiquitous modality for transmitting health care information. With the advent of smartphones that are capable of taking and sending high-quality photographs and videos, electronic medical communication has changed dramatically over the past 10 years. This technology, as it relates to health care and specifically to plastic surgery, will continue to evolve and will likely be an important component of medical care delivery in the future. When used properly, it can benefit both patients and providers. As new models for delivery of care and patient-physician interactions emerge, the use of telemedicine and the manner in which it is provided will continue to evolve. The American Society of Plastic Surgeons will monitor the telemedicine arena and incorporate necessary updates to this document on a biennial basis. A sample consent form for electronic communication with patients is included in the article's supplemental digital content. (**See Figure, Supplemental Digital Content 1**, which shows a sample patient consent for electronic communication, ***http://links.lww.com/PRS/C607***.)

Although electronic communication is pervasive, there is a paucity of literature describing appropriate legal and ethical guidelines. Most reports in the plastic surgery literature have examined the use of electronic communication for patient triage, particularly between providers in the emergency setting. In 2004, Hsieh et al. used electronic photography to assist with triage of patients with finger injuries. Using three independent reviewers, they found that in 12 cases (15 percent) there was disagreement between the teleconsultation and the actual treatment by the attending surgeon.[8] Jones et al. also used digital photography to evaluate 150 trauma referrals to the plastic surgery service, and they found a high concordance between injury severity and operative priority.[6] In 2008, Diver and colleagues performed a pilot study of 20 patients and found that five patients might have been managed differently through the use of effective electronic communication.[9] A study in 2014 by Hoppe et al. demonstrated that digital photography was a useful adjunct to patient presentation in the emergency room.[10] In total, these articles underscore the utility of electronic communication between physicians to streamline and optimize patient care, although they did not formally establish guidelines for use.

In addition to use between physicians, there are many ways in which electronic medical communication can occur between patients and providers. Social media sites such as Facebook and Instagram have been increasingly used for this purpose. Electronic interactions between patients and their providers are fundamentally different than communication between physicians and have medicolegal implications that have not yet been clearly defined. Some medical organizations, such as the Federation of State Medical Boards, discourage physicians from interacting with patients on "personal sites such as Facebook."[11] There is little scientific literature on the topic, and many of the recommendations are derived from statements from the American Telemedicine Association. Additional applications, such as Snapchat, are intended to provide a temporary method of electronic communication. The same principles and guidelines apply to plastic surgeons with use of this "transient" social media.

Despite the lack of robust data and established legal consensus, it is clear that physicians must follow strict rules when communicating with patients. Physicians must maintain compliance with the Health Insurance Portability and Accountability Act during all modes of communication, and must exercise care in providing medical advice and recommendations, particularly across state lines. There are at least 10 state medical boards that issue a special practice license or certificate to allow for telemedicine across state lines, and the majority of states require an in-state license to render a medical opinion or consultation. Plastic surgery, as a specialty, is particularly vulnerable to medicolegal issues, given the visual nature of the field. As described by Dauwe et al., there is a significant amount of potential liability in such encounters, including malpractice, patient abandonment, and interstate medical licensing issues.[12]

E-mail and text messaging are inherently insecure modes of communication. Many hospitals and enterprise servers offer the option of sending secure e-mail, which should be used at all times when communicating with patients and health care providers. Text messaging from personal cellular telephones, without the use of specific encryption software or applications, should be avoided, when possible. If text messaging is conducted, refrain from using specific diagnoses and identifying information (including protected health information), and direct the patient or provider to more secure communication channels to further discuss care. If communication involves the patient, documentation in the medical record should be performed by including a summary, copy, or screenshots of the conversation. Such information should be deleted from a personal smartphone or computer once it has been transferred to the medical record.

Given the absence of rigorous, universally accepted guidelines for electronic medical communication, plastic surgeons should use good ethical and clinical judgment for the appropriateness of such communication.[13] As new technologies improve and evolve, physicians' ethical responsibilities do not change. Most plastic surgeons are unaware of the specific medicolegal implications of such communication and use professional rationale to guide practice. The billing implications for electronic communication are not well defined; there are some hospital systems and third-party payers that provide reimbursement for these visits, but this is not standard. From our review of the aforementioned studies, we have identified 12 important considerations for plastic surgeons regarding the use of electronic communication:

1. Surgeons and their staff should have policies and procedures in place to ensure the security of telehealth equipment and the electronic security of data, particularly as related to electronic modes of communication.[14]
2. Health Insurance Portability and Accountability Act compliance must be maintained at all times during electronic communication.[15]
3. Physicians must understand and adhere to state and federal regulations related to electronic communication, scope of practice, and interstate medical licensing. In certain situations, this means that medical advice and/or recommendations cannot be provided electronically.[15,16]
4. Physician practices should document and maintain a log of all patient encounters, including all technical issues, in a Health Insurance Portability and Accountability Act–compliant manner with secure storage.[14,16]
5. Physicians should have an emergency or contingency plan for electronic communication that is communicated to the patient in advance of the encounter. That is, if aberrations occur, there should be a streamlined process by which to address them.[16]
6. Providers should be cognizant of establishing a provider-patient relationship in the context of a telemedicine encounter. The acceptability of this may vary by state and may depend on or necessitate previous face-to-face interactions.[16]
7. Physicians and patients should obtain verbal or written consent before any recording of the encounter, and this should be clarified before beginning the interaction.[16] For purposes of compliance with the Telephone Consumer Protection Act, physicians should (1) maintain records of consent from current and prospective patients for physicians and practices to send text messages and/or faxes of any kind (including advertisements), and (2) create opt-out practices and records with respect to the transmission of such text and/or fax messages.
8. Physicians and their designees should abide by the same local and regional credentialing policies as required for a traditional in-person visit as mandated by state and federal law. That is, the plastic surgeon is responsible for the visit, and all credentialing policies must be followed.[16]
9. Practices should implement means for verification of provider/patient identity, using established means of identification similar to those for in-person visits.[17]

10. Physicians should refrain from directly advising patients through social networking sites without secure modes of personalized communication. Specific recommendations for individual patients should not be provided over insecure social networking sites; providing general, impersonal information can be acceptable.[12]
11. In general, physicians should encourage patients to schedule an office visit to discuss their medical care and treatment plan.[12]
12. Practices should have a defined plan to deal with adverse events, including spam, negative comments, complaints, and unprofessional behavior. Physicians are not permitted to write their own evaluations on review sites, or to have this done by someone in their practice unless he or she is an actual patient of the physician and does so voluntarily.[18]

These guidelines are broadly applicable to many clinical situations within plastic surgery, both inside and outside of the operating room. Intraoperative photographs, commonly obtained by plastic surgeons, must also adhere to all Health Insurance Portability and Accountability Act/privacy regulations and should not be transmitted without ensuring patient confidentiality. In addition to these overarching principles of electronic communication, three hypothetical scenarios through which to consider the most appropriate use of electronic communication are listed below.

A Patient, Known to You and on Whom You Have Previously Performed Surgery, Finds Your Personal Profile on Facebook and "Adds" You as a Friend

It is not recommended to "accept" the friend invitation from this patient on one's personal profile, unless a personal relationship has already been established. Personal and professional relationships should be separated, particularly on social media sites. If the surgeon has a professional profile for his or her practice, independent of a personal profile, it may be acceptable to accept this invitation.

A Patient for Whom You Have Provided an In-Office Consultation Obtains Your Work e-Mail Address and Sends You an e-Mail to Ask about Additional Details of Surgery and Expected Outcomes

If the communication is secure, it is acceptable to respond to the patient from your professional e-mail address to address the patient's query. Personal details of the procedure and Health Insurance Portability and Accountability Act–related materials should not be disclosed nor discussed during the reply. Practices should consider having patients sign a consent/waiver form for use of electronic communication. Patients should understand and acknowledge that the use of electronic communication may not be secure, particularly if the patient is not using a secure communication platform.

A Personal Friend, Who Is Not a Physician or Colleague, Sends You a Photograph of His Neighbor—by Means of Text Message—Who Sustained a Laceration to His Forehead and Inquires Whether an Emergency Room Visit or Suturing Is Recommended

It is not appropriate to provide specific medical recommendations through electronic means, in this scenario, without direct evaluation of the patient. It is appropriate to respond to this inquiry with a general message about these types of injuries, but the message should not be directed at this specific patient without a clinical, in-person evaluation.

This study has many limitations, primarily because few of the searched studies contain level I or prospective data. Furthermore, there are no universally accepted guidelines for these communications and there are few clearly defined medicolegal regulations. We believe that electronic communication will become increasingly common over time, particularly with our younger generation of plastic surgeons, and future prospective studies are needed to clarify the legal ramifications of different technologies.

CONCLUSIONS

Electronic communication can provide an efficient method of information exchange for professional purposes within plastic surgery, but should be used thoughtfully and with all legal and professional considerations. Based on current medicolegal standards, it can be acceptable to communicate electronically with patients, provided that federal statutes and other professional obligations are strictly followed.

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