Online Social Networking: A Primer for Radiology

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Abstract Online social networking is an immature, but rapidly evolving industry of web-based technologies that allow individuals to develop online relationships. News stories populate the headlines about various websites which can facilitate patient and doctor interaction. There remain questions about protecting patient confidentiality and defining etiquette in order to preserve the doctor/patient relationship and protect physicians. How much social networking-based communication or other forms of E-communication is effective? What are the potential benefits and pitfalls of this form of communication? Physicians are exploring how social networking might provide a forum for interacting with their patients, and advance collaborative patient care. Several organizations and institutions have set forth policies to address these questions and more. Though still in its infancy, this form of media has the power to revolutionize the way physicians interact with their patients and fellow health care workers. In the end, physicians must ask what value is added by engaging patients or other health care providers in a social networking format. Social networks may flourish in health care as a means of distributing information to patients or serve mainly as support groups among patients. Physicians must tread a narrow path to bring value to interactions in these networks while limiting their exposure to unwanted liability.

Keywords E-communication · Doctor patient relationship · Facebook · Sermo

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Introduction

Online social networking is an immature, but rapidly evolving industry of web-based technologies that allow individuals to develop online relationships. The technology has been present in various forms since the 1990s, capturing some of the range, and subtle nuances of human relationships through online communities [1]. News stories populate the headlines about various websites which can facilitate patient and doctor interaction. There remain questions about protecting patient confidentiality and defining etiquette in order to preserve the doctor/patient relationship and protect physicians. How much social networking-based communication or other forms of E-communication is effective? What are the potential benefits and pitfalls of this form of communication? Physicians are exploring how social networking might provide a forum for interacting with their patients, and advance collaborative patient care. Several organizations and institutions have set forth policies to address these questions and more. Though still in its infancy, this form of media has the power to revolutionize the way physicians interact with their patients and fellow health care workers.

Online social networks have many forms: web sites, web logs (“blogs”), micro-blogs (e.g. twitter), broadcasts (podcasts), and specialized computer applications (“apps”) for sharing information such as ideas, thoughts, ratings, and reviews through video, audio, and text. The information can be shared among a group of people who are linked by a common characteristic, such as friends and family, profession, school, residence, and even likes and dislikes [2].

In comparison, e-mail is an asymmetric single peer-to-peer interaction that many are familiar with. Patients like e-mail as a form of communication for many things such as asking questions they forgot to ask at their appointment, asking simple questions that do not require a full visit, or reminders for preventative care [3]. E-mail has been

employed in limited cases as a means for prescription refill requests, appointment booking, or even routine clinical follow-up.

Non-physician-Specific Networking Sites

Facebook, LinkedIn, and Twitter are all popular social networking sites, yet the relationships represented in these social networks are fundamentally different. On Facebook, once someone has been added to a network of “friends” they are then considered a peer—an equal—with abilities to view any and all of the published content and, potentially, content associated with their peers that has been posted by people outside of their network. Members can create a group page, or join pages others’ have made. LinkedIn is a professional peer-to-peer network containing tools to seek out expertise across the social network. A user can connect to peers of people connected to him or her, i.e., “friends of friends”. This differs from Facebook, which is considered more recreational in nature, and relies more on direct “friendships”. Twitter, on the other hand, is an asymmetrical, hierarchical medium: when people subscribe to someone’s “feed” (postings), the subscriber is not considered a peer. Subscribers are only allowed access to what has been posted in a news-feed style format.

When managed correctly, these sites can provide a great way for doctors to communicate and educate others. For example, a surgeon used Twitter during a robotically assisted partial nephrectomy to let other surgeons know that a total nephrectomy was not necessary, despite the large tumor size [4]. The surgeons felt using Twitter would be a faster way to let colleagues know about their experiences, than other methods. Patients’ families could also potentially follow such a feed to track their loved ones as they progress through surgery, instead of sitting in the waiting room unaware.

Many patients are turning to social networking, seeking information, social support, and advice [5]. Websites, such as “Patientslikeme.com”, allow interaction among patients suffering from the same condition; sharing treatment ideas, getting support from the shared experience, learning about clinical trials, and alternative treatments. Patients can leverage their discovered knowledge en masse to find and discuss possible avenues of treatment. An internal survey within the site concluded that 12% of the patients changed their physician’s opinion about their course of treatment through information they received on the website [6].

Physician-Specific Networking Sites

In addition to the non-physician-specific social networking sites, there are several others that are specific to medicine and radiology [7]. While there are too many to provide a

comprehensive list, below we list a number of sites that have specific missions or functions that make them relatively unique.

Sermo (www.sermo.com) is designed only for US-licensed physicians. After the authentication process and profile creation, doctors can post questions or lend their clinical knowledge to others. The site will alert users to discussions based on their entered specialty, continuing medical education opportunities and other events that are applicable to their field. There are random US \$100 prizes for “Sermo Rads Snapshot Diagnosis” or honoraria of up to US \$250 for leading discussion on a topic.

MedicalPlexus (www.medicalplexus.com) is another social networking site, though is much more tailored for collaborative work. Members have access to HIPPA compliant online storage, called PlexDrive, for images, documents and other files. Other applications include a task list, group calendar, project management tool, tools to share medically related web links, forums for querying others with questions and a wiki-like database of teaching file material. This site also requires authentication that you are a US physician. There are over 100 US academic institutions that are members of this web site [7].

Doximity (www.doximity.com) is a new physician-dedicated social networking service that aims to provide definitive physician directory information, facilitating real-time searches for domain-specific expertise, and services through authenticated content. It can provide assistance to physicians for referrals to other physicians, specialists, pharmacies, or other facilities.

radRounds (www.radrounds.com) was created for radiologists. This site allows networking, group formation, private group discussion and image storage. It allows for multiple security levels for access to both group discussions and images/files stored online. Similar to other sites, it also has forums for discussion of radiology topics. Some groups have gone as far as using the site for keeping their practice documents and links to the call schedule on the site [7].

It is difficult to predict which if any site will become a dominant force in online social networking in the future. The success of such sites depends on a combination of good design, fulfilling a need, and attaining critical mass to serve the intended community. The sites listed provide a sample of sites with a range of functions and missions.

Current Guidelines and Issues Surrounding Online Social Networking

“You are what you tweet”

The first ‘tweets’, from an operating room were in 2009, were from a patient hoping to share his experience and alleviate some of his own, and others, anxiety about the operation[4]. Robert Hendrick was able to keep people up

to date during his entire varicose vein procedure. Mr. Hendrick stated that by keeping people informed of what was going on, he was able to focus his attentions away from the procedure and that he had access to the support of friends and family. In an e-mail after the procedure, he said “I wanted a record for other people who might be interested in the same surgery. It later allowed me to connect with others with the same issues.” [4]. Mr. Hendrick went so far as to also post pictures and videos of his procedure.

One of the primary concerns with social media in health care is breach of confidentiality, for both patient and physician. Health care workers may accidentally post personal information about a patient. Doctors, calling on colleagues for advice, may forget to anonymize images prior to sharing them. While many of the networking sites claim, or do not claim, privacy and security, their standards may not be sufficient for medical information. Physicians have been investigated when details were revealed from social networking entries that also caused a loss of trust with their patients [8].

As part of HIPAA, health care workers are all taught to not disclose any, especially sensitive, patient information. If something slips out, perhaps in the elevator ride between floors, damage is done, but it is still contained. With the power of social media, information rapidly disseminates over a large area; the problem grows considerably. The information is now accessible to many more people, and can be electronically traced back to its source. A Mississippi health care worker was placed on suspension and eventually resigned after responding to a tweet by the governor, in which she indirectly referenced a Saturday appointment the governor had 3 years earlier, in which staff had to come in during off hours to provide the service [9]. While no direct personal health information was posted, her actions were enough to trigger a response from the institution.

Physicians also need to be on guard when they are on the other side of the table, i.e., as a patient. A woman in Quebec lost insurance coverage for major depression, after going on vacation at her doctor’s suggestion and from other posted events [10]. She had posted pictures showing her smiling and having a good time, which were found by her insurance company. While the company denies terminating coverage based solely on the information from these sites, they clearly make use of the information when analyzing claims. In 2008, a Federal court had a patient provide e-mail, diaries, and online-shared information to an insurance company when they were trying to identify the etiology of her eating disorder. More recently, a judge allowed a defendant access to the plaintiff’s Facebook page in a personal injury lawsuit, including backed up deleted material [11]. The privacy policy of many social networking sites state they are not private, but public sites. The judge went on to say, because of this, the “plaintiff has no legitimate expectation of privacy.”

Professional Organization Guidelines

In the late 1990s, the American Medical Informatics Association set forth a task force to create guidelines for e-mail use between patients and physicians [12]. While e-mail is not, strictly speaking, the same as social networking, it does parallel it with respect to security concerns and etiquette. Their guidelines outlined expectations for e-mail turnaround time, content, and limiting use to non-emergent communication. At the time, e-mail was not considered secure given the lack of encryption. Even with today’s sophisticated encryption algorithms, sensitive information such as HIV status or news of a new cancer diagnosis should not be sent over e-mail, not just because of security considerations, but also as a basic rule of etiquette. Discussions of that magnitude should happen face to face, where the patient can have a chance to immediately interact with the physician.

The group also stressed making e-mail use part of or a separate informed consent process. The physician would need to detail who would be reading the e-mails, what were appropriate clinical indications to escalate to another form of communication, and other security measures that would be taken. As clinicians could undoubtedly receive many e-mails a day, a nurse or other assistant would likely be triaging the e-mails to help. Non-clinical, administrative questions could be sent to the front desk or office manager. Non-urgent clinical questions could potentially be fielded by the nurse. At that time, the Task Force recommended all e-mail communication be printed and put into the patients chart for posterity. Today with electronic medical records, it would be possible to import the information, requiring fewer physical resources.

These guidelines, as well as others outlined by the group, can be aptly applied to the use of online social networking. Non-clinical, administrative questions could be handled in a social networking forum. Non-urgent clinical posts could be responded to, via a non-public method by a nurse, or an appointment could be made for the patient to see the doctor. One would not want to discuss sensitive patient information on a public or semi-public forum. Also, physicians must avoid frustration, sarcasm, or libelous remarks, both in e-mail and social networking situations. Remarks in these public to semi-public venues will likely remain for posterity, having the potential to ruin a doctors standing in the community. In a recent Wall Street Journal article, Erich Schmidt of Google went as far as suggest, given the information stored in social media sites, that our youth would “one day will be entitled automatically to change his or her name on reaching adulthood in order to disown youthful hijinks stored on their friends’ social media sites.” [13].

In mid-November 2010, the American Medical Association (AMA) released a set of guidelines specific to social networking. They also stressed the need to safeguard personal information to the fullest extent possible and suggested active

monitoring of physicians' internet presence. Additionally, they proposed that physicians also police themselves, stating "When physicians see content posted by colleagues that appears unprofessional they have a responsibility to bring that content to the attention of the individual, so that he or she can remove it and/or take other appropriate actions. If the behavior significantly violates professional norms and the individual does not take appropriate action to resolve the situation, the physician should report the matter to appropriate authorities." [14].

Effects on the Doctor–Patient Relationship

The Indiana University School of Medicine has published social media guidelines for their medical students and physicians in training. They stress physicians need to be very careful in using these sites given their "unique social contract and obligation". Many of the policies outlined in those guidelines express the need to maintain professionalism, to retain maximum privacy of online profiles and to exercise discretion in what is written about; physicians' words can potentially carry more weight than those of the general public. Also, as typed words often do not carry the nuances of spoken language, comments could easily be misconstrued, damaging credibility both as an individual and as a health care provider. In fact, the guidelines explicitly state that physicians should not interact with patients on these sites as it "provides an opportunity for a dual relationship, which can be damaging to the doctor–patient relationship, and can also carry legal consequences." [15]. Some social networking sites allow for two different profiles; a professional one, and a personal one. If a doctor wished to have a social networking presence, this separation between profiles may be necessary [14].

The use of social media could cause one of two effects on the physician–patient relationship. Firstly, it could erode this relationship by further distancing patients from their doctors, lessening face-to-face interaction. The physician becomes a distant authority figure and less of a fellow human being. These face-to-face interactions foster trust and mental well-being. Radiologists have been relegated to the dark corners of the hospital, almost never to be seen by patients, with our technology clearly acting as a buffer between the groups. Edward Hallowell writes in the *Harvard Business Review*, regarding times when there is decreased human interaction: "In the worst case, paranoia fills the vacuum. More often, the human moment is replaced by worry." [16]. Again, this is because the electronic interaction removes our normal social cues, making it easier to misinterpret the incoming information. While technology keeps pushing forward the boundaries of science and our methods of communication, we cannot lose sight of the simple fact that we are entrusted with taking care of people. And that requires person-to-person contact.

The second possibility is that the technology can help equalize power in the patient–physician relationship. Power

distance is the "extent to which power, prestige and wealth is unequally distributed within a culture" [17]. Aviation research into crew resource management has implicated cultures with high power distance index as a causal factor in plane crashes [18]. Co-pilots feel uncomfortable directly confronting the pilot, as culturally the pilot is the authority figure in charge and the co-pilot is the subordinate, leaving the co-pilot to resort to more indirect means of raising concern. In the physician–patient relationship, physicians traditionally hold the power as they are considered the learned or authority figure. If the patient feels intimidated or does not want to appear stupid in the physicians' eyes, it can be difficult for the patient to speak his or her mind or to ask questions concerning his or her health. In many ways social networking can help reduce this distance by empowering and educating patients. Information is accessible to everyone, at any time. The rate limiting step to this empowerment is access to the technology however. Reducing power distances to patients have shown to improve patient confidence in starting, stopping, or making changes to treatment regimens [6].

Misinformation

Social networking can allow for leveraged knowledge of masses, and thus reduce power distance in the doctor–patient relationship. But what if the information is wrong? Social media is an amazing tool for disseminating information, but on many of these sites there is no attempt at verifying the truth of the material that is being disseminated. The quality of the information must be brought into question [19]. Greene et al., found non-FDA approved drug advertisements, "recommendations", and other fake testimonials that were planted by unknown third parties posing as diabetic patients on Facebook forums. The internet does not have people verifying data, defending truisms or refuting falsehoods. Reputable news organizations have been burned by assuming a posting online or submitted story was true without going through basic fact checking [20]. Patients and doctors are vulnerable to the follies of misinformation. Physicians, however, have the advantage of basic science knowledge, better access to peer reviewed literature, and training on integrating these pieces of information. We are taught to read the primary literature, analyze it for strengths and weaknesses, and assess applies to our patient population, not just listen to sound bites on the radio or read someone else's opinion in the newspaper.

Strategies for Social Networking Use for the Radiologist

Radiologists are a unique subset of physicians. We generally don't have patients, and therefore there is low likelihood of being "friended" by one. Interventional Radiologists may follow patients on a continuing basis, and may come across

this issue more often. This does not mean we would then have *carte blanche* to do as we please across the Internet. It may be equally important to preserve an absence of social networking connections. It may be in the physician's best interest to not "friend" patients on these websites. While physicians strive to have an open patient–physician relationship to improve health care, they must also strive to remain professional. It may not serve the patient to know too much about their doctor.

We can, however, make use of these tools for professional development and collaborative work, especially using physician-specific websites. We, like the patients described on "PatientsLikeMe.com," can leverage our knowledge based on the sheer number of physicians and researchers across the globe. We can stay alert for new clinical trials, or discuss with colleagues our experiences with new drugs or techniques. New patient treatment strategies can be created by people who would not otherwise be likely to be in contact with each other. Residents can share anonymized teaching files, or collect cases for research projects. Virtual journal clubs could be created, allowing members from various geographic regions to participate. In this way, we can bring about highly effective care for our patients. These physician-specific sites also take adequate and necessary steps in their security and authentications measures, unlike many of the general social networking sites available.

Question and answer blogs may also be an excellent venue of social networking outreach with patients. Physicians could answer questions sent in by their patients as blog posts (with appropriate anonymization). Patients would then have access to information relevant to them, and peruse questions by others. Radiologist could offer information about procedures, what patients should expect, or other questions relevant to radiology. The physician would then have the option of talking with the patient directly if they feel a question requires face-to-face communication, instead of posting an answer to the submitted question. Physicians can also control the reach of the information by providing patients with log-in to a practice/hospital web site, instead of publishing the information directly to the public internet. Forums may also serve a similar function, however this could potentially become a dialogue between the patient(s) and the physician. Confidentiality could break down quickly, especially in smaller communities, where people might be able to determine someone's identity based on their comments or questions.

Conclusions

Online social networking, despite its immaturity and some disadvantages, has the potential for being a powerful collaborative clinical tool. While it has the potential to revolutionize our industry, in the end physicians must ask what value is added by engaging patients or other health care providers in a social networking format. Social networks may flourish in health care

as a means of distributing information to patients, or serve mainly as support groups among patients. It could also become a key medium for physician-to-physician collaboration. Social networking may ultimately allow patients access to better health care or improved services. Physicians must tread a narrow path to bring value to interactions in these networks while limiting their exposure to unwanted liability.

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