Dangers and opportunities for social media in medicine

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Abstract

Health professionals have begun using social media to benefit patients, enhance professional networks, and advance understanding of individual and contextual factors influencing public health. However, discussion of the dangers of these technologies in medicine has overwhelmed consideration of positive applications. This article summarizes the hazards of social media in medicine and explores how changes in functionality on sites like Facebook may make these technologies less perilous for health professionals. Finally, it describes the most promising avenues through which professionals can use social media in medicine – improving patient communication, enhancing professional development, and contributing to public health research and service.

Keywords

social media; technology; professionalism; patient-physician relationships; communication; public health

Introduction

Social media (SM) sites such as Facebook, Twitter, and YouTube are powerful symbols of a new generation of online tools and applications that foster user-generated content, social interaction, and real-time collaboration. These technologies encompass blogs, social networks, video- and photo-sharing sites, wikis, and myriad other media, and are pervasive around the world – indeed, in 2012, Facebook surpassed a billion users worldwide, or nearly 1/7th of humanity. Invariably, social media are not only shaping peoples' personal lives, they are also influencing professional environments. Within healthcare, recent estimates of social media usage by doctors has risen dramatically from 41% in 2010[1] to 90% in 2011,[2] while rates of use have been found to be above 90% for medical students.[1,3] Furthermore, a growing majority of modern patients – particularly those with chronic conditions – are seeking out SM and other online sources to acquire health information, connect with others affected by similar conditions,[4–6] and play a more active role in their healthcare decisions.

The near ubiquitous usage of SM by medical professionals and trainees over the last several years, along with the powerful presence of patients on these platforms suggest that these technologies will invariably be a part of the landscape of modern medicine. However, given

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the divergent cultures of medicine – which values privacy, confidentiality, one-on-one interactions, and formal conduct – and SM – which values sharing and openness, connection and transparency, and informality – it is not surprising that these changes have generated consternation in the medical field. Indeed, SM have introduced profound questions about confidentiality, informed consent, public/private boundaries, professionalism, and other issues of ethical import for health professionals.

While there are signs that these technologies are emergently being used to enhance self-directed lifelong learning, professional networking, and communication, and improve efficiency and effectiveness of health systems,[7–10] the discussion of the dangers of SM in medicine has largely overwhelmed consideration of its potentially positive applications.[11] However, SM technologies are rapidly evolving to encourage greater privacy controls,[12] and there is emerging evidence demonstrating that medical professionals are finding ways to safely and productively integrate SM into healthcare. Further, given recent changes in US healthcare policy ushered in by passage of the Affordable Care Act, there is greater relative emphasis being placed on extending care into the community, communicating better with patients and families, and fostering team-based preventive care.[13] These recent shifts should at very least engender reflection on how SM – which can provide unprecedented opportunities for cost-effective two-way communication between health professionals and patients – can complement modern medical practice.

This article first discusses the well-established dangers of social media in medicine before exploring how specific changes in functionality on popular sites like Facebook may be making SM a less perilous environment for health professionals. Finally, it provides illustrative examples of three promising avenues through which SM can most contribute to medicine – improving communication with patients, enhancing professional development, and contributing to public health research and service.

The dangers of social media

Generally, the popular media has been quick to pick up on stories of malfeasance and misjudgment in the medical world involving SM. Recent articles have featured such sensationalistic headlines as: "Medical students' cadaver photos get scrutiny after images show up online", "Nursing students expelled from university after posting pictures of themselves posing with a human placenta on Facebook", "Fired for Facebook: ER personnel lost their jobs for online posts", etc. Stories invoking the "dangers" of SM are particularly condemnatory of the misjudgments of errant health professionals; however, they also often implicate the privacy control problems that have dogged SM sites such as Facebook and proven especially hazardous to users from the health professions.

So too is the academic literature replete with admonishments of how SM are dangerously breeching the old "boundary markers" of medicine: enabling all manner of distasteful content to be publically posted by medical students, residents, and other healthcare providers,[7,14–17] violating the sanctity of the patient-physician relationship by facilitating online "friendships"[18,19], and reducing privacy.[11] In response to these concerns, professional organizations such as the American Medical Association (AMA) have published guidelines for the ethical use of social media,[20] emphasizing the need to maintain patient confidentiality, be cognizant of privacy settings, maintain appropriate patient-physician boundaries, provide accurate and truthful information, act with collegiality, avoid anonymity, declare conflicts of interest, and maintain separate personal and professional profiles. Accepting friendship requests from patients on sites like Facebook is generally not advised, although there have been compelling arguments in favor of the value of online communication with patients via SM.[21] Overall, the tone and content of existing guidelines

focuses disproportionately on the risks rather than the benefits of SM, and suggests an expectation of misuse rather than consideration of how technologies might be used in a positive manner.[11]

Concerns about liability, litigation, privacy, lack of time/compensation are valid and shared across the spectrum of health professionals,[2] and medical professionals are wise to be exceedingly cautious about any foray into SM. However, there are manifold opportunities for professionals to use vast social networks to improve the wellbeing of patients and contribute to public health through the provision of high quality health information. In recent years, privacy settings on social networking sites have begun to evolve in favor of greater safety for physicians to facilitate such information-sharing. Perhaps the cardinal rule for any doctor interested in minimizing the dangers of SM is to stay abreast of the changing privacy settings that sites provide so that users can protect their private information.

Changing functionality of privacy settings

The landscape of SM privacy settings has quickly evolved over the last several years, and it has much to do with the emergence of Google's social network, Google+. Launched in summer 2011, Google+ aims to make sharing on the web more like sharing in real life. Unlike the indiscriminate mash-up of friends on Facebook, Google+ allows users to segment their network into "Circles" (i.e., "family", "friends" "work colleagues", etc.) and share particular information with the relevant subgroup of one's network. For example, a post about a personal subject could be shared with "family" and "friends" Circles, but rendered invisible to a Circle of "work colleagues". Google+ also enables users to customize their profile information for different Circles. For instance, one's personal contact details, present location, and relationship information can be rendered visible only to their "friends" Circle, while employment and education history can be visible only to one's "professional colleagues". This empowers the user to control their private and public information in ways that have not hitherto been possible (or comprehensible to the average user) on Facebook's interface.[12]

In response, Facebook has changed its functionality to allow users to easily group existing friends into smaller, segmented "Lists" akin to Google+ Circles; in fact, when adding new friends, users are automatically prompted to sort the person into a particular "List". Facebook has also created an "audience selector" within all profiles that enable users to manage the privacy of status updates, photos, and information using Lists. Users who post status updates can simply use the selector dropdown menu beneath their status update box to choose whether posts go "public" (to anyone on the Internet), to "friends" (to anyone in one's network), to "friends except acquaintances" (to only those in one's network identified as "close friends"), or to other "customized" lists of specific friends one can tag in the post. Users may also select persons they want to hide particular posts from, eliminating confusion about which friends their content is visible to. Facebook has also recently unrolled Privacy Shortcuts that appear in each users profile offering the user simple information about: "Who Can See My Stuff?", "Who Can Contact Me?", and "How Do I Stop Someone From Bothering Me?". Thus, privacy settings are easier to access and explained in plain English.

These tectonic shifts in favor of improved SM privacy controls invite the question of whether popular sites like Facebook and Google+ might soon enable health professionals to feel greater comfort accepting colleagues and patients into their networks – a subject that has been mostly taboo in modern healthcare for reasons aforementioned. After all, if one can selectively control the data that one's online friends have access to, it perhaps reduces (if not totally eliminates) some of the privacy concerns that have been so niggling for the medical professions despite clear signs that these technologies can be used to enhance self-directed

lifelong learning, professional networking, and communication with patients. These systemic changes may also make it more feasible for medical professionals to enlist patients in their personal network in ways that can add to the art of medicine and enhance the provision of healthcare, as will be further discussed below.

Quite understandably, the expected response of most healthcare professionals who practice in the long shadow cast by patient protection laws such as the Health Insurance Portability and Accountability Act (HIPAA) would be that social media is still too high risk of an environment, particularly given the time commitment required to understand the evolving nuances of SM privacy settings.[12] And indeed, the dangers posed by social media are myriad. If used recklessly, the technology can blur professional boundaries, serve as a conduit for the display of unprofessional behavior, contribute to building an irreversible online image, open the door for fines, litigation, and imprisonment, and serve as a massive time drain.[20]

However, in an era in which authoritarian regimes have fallen thanks in part to social media, and when a billion people (the majority of whom are presumably someone's patient) are on Facebook, it can be fairly asked whether these powerful tools of our time can help society's health professionals build deeper and more enduring connections with their patients. Further, by reaching multiple patients simultaneously, SM may contribute to greater progress on public health goals such as lowering chronic and infectious disease burden, improving patient outcomes, avoiding emergency room visits, and reducing overall healthcare costs.[12] The changes set in motion by Google+ and accelerated by Facebook may be a harbinger of a SM landscape in which healthcare professionals can more discerningly protect their private content while building more effective healing relationships with modern patients, a growing majority of whom are using social networks and other online sources to seek health information.

Opportunities for SM in medicine

Improving communication with patients

Social media have created vast global networks with immense power to quickly spread information, mobilize high numbers of people behind a cause, or even foment political change (as was observed during the events of the Arab Spring and recent presidential campaigns). It is therefore not a stretch to suggest this technology can also be used by health professionals to: improve patient-physician interactions, enhance patient motivation, drive awareness, provide accurate information, raise timely issues, facilitate the exchange of ideas, frame and reframe health-related questions, engage a larger community, and ultimately produce improved outcomes across health systems.[22] For instance, given the recent changes in the functionality of Facebook's privacy settings, one can imagine a social media-savvy family doctor creating a Facebook List or Google+ Circle specifically for "patients" and using it to disseminate general information such as: guidance on keeping blood pressure low, reminders of how to prepare for doctor's visits, postings about the availability of seasonal vaccines, or even links to salient medical research, archives of healthy recipes, or podcasts about innovative exercise programs. Additionally, the doctor could post short mobile phone videos reaffirming the values they bring to their work, showing a more human side of the clinic and its workers, or encouraging patients who are trying to lose weight. So too could they encourage patients to share their fears, hopes, and motivations, thereby creating community and perhaps fostering salutary and mutually-reinforcing relationships.[12] Unlike traditional health advice a patient might encounter online, doctors, knowing their patient base, could develop messaging that was comparatively more culturally competent and "local", and therefore more likely to resonate and be acted upon.

While doctors may cite lack of time and staffing as barriers to maintaining SM sites, for medical practices to be certified as Patient Centered Medical Homes, they will need to "provide educational resources" and "counsel at least 50% of patients on adopting healthy lifestyles".[23] Furthermore, there is a growing movement toward reimbursing medical practices for providing educational resources and health counseling, given the potential for long-term health care savings.[24] Because social networks are built for efficiency and have norms of pithy communication they might contribute to helping medical practices be certified as Patient Centered Medical Homes and reduce the time needed for more intensive lifestyle counseling. A doctor, staff member, or student intern could post such content daily, weekly, or monthly in relatively little time, thereby reinforcing clinical directives with dozens – if not hundreds – of patients and family members who might further share this content with their extended online networks. Healing relationships that start in the clinic could continue growing in online spaces in a format that is admittedly less personal than an office visit but more personal than having no contact until the next visit.

Moreover, in an emerging era of team-based care, multiple health professionals – particularly those in family practice and primary care – could maintain a collective SM site such as a Facebook Page/Group or Google+ Circle that enable physicians, nurses, social workers, or administrative staff to communicate directly with patients outside the clinic. Such collaboration could be done efficiently on smart phones or tablets, and the burden of adding content would be distributed across multiple professionals (or their administrative assistants). One could imagine teams of professionals using a joint Facebook Page to organize walking, running, or weight-loss clubs, or using status updates to keep patients and families informed about local events (i.e., farmers' markets, 5k runs, weather advisories, etc.), or even encouraging health screenings or mobilizing the community around local advocacy measures such as the construction of walking paths, reduced emissions to improve air quality, increased funding to fight obesity, etc.

Such examples demonstrate how SM can help extend care into the community and foster prevention without a massive time commitment from medical professionals.[13] Indeed, early SM adopters have demonstrated that sites such as Facebook Pages can be both a safe and effective means of improving healthcare professionals' communication with patients, particularly in smaller, rural communities.[12,25] Rather than being seen as a substitute for in-person interactions with patients, SM should be viewed as a resource that might enhance such interactions.[26]

There is yet much to learn about best practices for SM applications by health professionals. Researchers can publish detailed qualitative accounts of successful social networking strategies by health professionals, delineating the strengths and limitations of existing approaches and critically exploring the evolving nature of online relationships. Strategies can also be quantitatively evaluated based on whether they improve the provision of healthcare in both the short- and long-term while being compliant with HIPAA. For instance, can connectivity through SM assist health professionals in building greater rapport with patients before they enter the exam room as well as in between visits? Can these ongoing online relationships guide patients to more scientifically valid sources of online health information and support networks? Can they potentiate measurable benefits, as evidenced by fewer hospital visits or readmissions, improvements on vital signs, lower health care costs, or increased patient-satisfaction scores?[12]

At the policy level, those who develop professional and institutional guidelines should take care to conceptualize rules not merely with expectations of misuse but with openness to the changing nature of information exchange between patients and professionals, and awareness of the emerging culture of social learning and exchange in medicine. Administrators might

even entertain the notion of how to compensate social networking professionals (and their assistants) for their time, or factor in such efforts to the promotion and tenure process – particularly for those who use online networks to attract new patients, contribute to fundraising efforts, or provide positive publicity for their institution through amassing large networks of patient and professional followers and providing broad thought leadership.

Enhancing professional development

In addition to improving communication with patients, SM sites have served to connect colleagues via online networks such as Facebook, Twitter, and more professional-oriented platforms such as LinkedIn and ResearchGate. There are also a variety of physician-specific networks – such as QuantiaMD, Sermo, doximity, and iMedExchange – that have emerged in recent years to serve as an online gathering place for doctors to learn from peers, discuss clinical issues and management challenges, consult regarding specific patients, and even coordinate care team interactions; nearly a third of physicians report being present on these networks.[2] These closed platforms can, in turn, increase the transfer of ideas, practices, and career strategies. Those who successfully implement SM in their professional lives can help colleagues replicate best practices, and provide guidance on interpreting changes to privacy settings and applications of new technologies, all of which will continue to evolve.

Those formally involved in faculty and professional development may find it increasingly necessary to craft institutional strategies that utilize social media to enhance health professionals' career development. For instance, academic medical centers might find it useful to develop training workshops for successful social media strategies in healthcare as an indispensable component of new employee orientation. Moreover, as we have demonstrated at Penn State College of Medicine,[27] junior faculty development programs might find it advantageous to reach out to non-medical disciplines (i.e., communications, marketing, information technology, medical humanities, etc.) to provide useful SM knowledge, skills, resources, strategies, and ethical and professional guidance. Such skills may be especially beneficial to cultivate among established practitioners who may have less experience with social media than younger generations of medical professionals. To incentivize such inter-professional (and perhaps even intergenerational) learning, Continuing Medical Education credits could be used to encourage participation. Given the amount of time that many professionals spend on Facebook each day, program directors might also set up "Faculty and Professional Development" groups on Facebook as a complementary platform for disseminating information to junior and senior faculty about setting career goals, achieving promotion or tenure, conflict resolution, grant and manuscript writing, etc. Further, consistent with growing trends in academic medicine,[28] SM could be harnessed for strengthening mentor-mentee relationships – particularly for mentors who are savvy with social media and might connect with younger professionals more effectively on this platform than on email.

Contributing to public health research and service

The widespread use of SM sites by clinical professionals and the lay public has direct public health relevance, as social networks are established factors that influence health behaviors and outcomes through modeling and social norms, imitative behavior, and social reinforcement.[29,30] Indeed, research has demonstrated that social networks contribute to public health issues such as obesity, smoking cessation, eating behaviors, sexual risk behaviors, and almost infinite other phenomena.[30,31] As a highly social species, humans are affected not merely by proximate and more distal friends but also by their friends' friends. Across our vast in-person and online networks, our health behavior both influences, and is influenced by, the health behaviors and outcomes of others.

Therefore, medical professionals should not merely view social networks as a means of improving communication and outcomes with individual patients as described above, but also potentially engendering behavior changes across vast networks of people. One example of this powerful "networking" effect can be seen in Facebook's recent decision to allow users to state their intention to be an "organ donor" on their individual Timelines. This initiative aimed to create a viral "norming" effect through which friends across an individual's network might view organ donation as a more realistic choice for themselves. Ultimately, the networking effect on Facebook engineered rapid response in the US and online state donor registries experienced a 23-fold surge in donor pledges within one week of the feature being rolled out, according to Donate Life America.[32] Observable behavioral changes within a social network, both by medical professionals and the lay public, can potentiate larger, more profound effects.

At other levels of public health, organizations are using keyword content from social networks – particularly the rapid micro-blogging site Twitter and other location-based technologies – to track health and welfare, rapidly disseminate information, and respond to disasters. For instance, the CDC tracks Tweets for information pertaining to flu outbreaks while maintaining an active presence on Twitter and Facebook to share frequent flu-related updates. Further, organizations like the Red Cross track Twitter posts during earthquakes, hurricanes, and other natural disasters that threaten public health to gather actionable information about where needs are the most pronounced.[10] In this way, real-time technology provides greater agility for disaster-response while enhancing preparedness for public health emergencies and building community resilience and social capital.

Moreover, medical centers and hospitals have begun directly harnessing the viral power of SM to spread health messaging throughout their regions of service. The Mayo Clinic has been an international leader, establishing a Center for Social Media devoted to cultivating a presence on Facebook, YouTube, and Twitter and offering patients a vast library of podcasts and blog posts written from health professionals (http://socialmedia.mayoclinic.org/). Their "Know Your Numbers" campaign launched on YouTube in 2011 has presently received 72,000 views and helped inform about the importance of knowing one's profile for blood pressure, lipids, and body mass index to prevent heart disease[1]. Through these channels, medical centers can extend their mission to foster prevention in communities with minimal investments of time and resources.

Social media sites also provide an emerging – and compelling – venue for health research recruitment. Popular SM platforms such as Facebook offer the ability to recruit participants (with particular profiles) directly through the chosen online platform via advertisements that the site posts on the pages of users who fit the desired demographic. Facebook has demonstrated usefulness as a cost-effective recruitment method to reach young adults, as well as hard-to-reach populations with rare health conditions.[33] Furthermore, participants recruited for health interventions via SM sites may be successfully engaged in recruiting other participants.[34] Despite obvious concerns, investigators have been able to develop methods for protecting confidentiality on SM platforms that are consistent with IRB guidelines.

In turn, sites such as Facebook and Google+ provide sophisticated but user-friendly functionalities – (i.e. ability to post links, pictures, video, and documents, create events, conduct surveys, hold real-time group chats, etc.) that enable researchers to develop complex interventions on platforms that participants are already facile with. For instance, two recent studies emphasizing weight loss[35] and physical activity promotion[36]

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[1]Available at: http://www.youtube.com/watch?v=kkps4XwvxK4

demonstrated the feasibility of delivering a Facebook-based intervention with concurrent behavior change strategies, although it was unclear if Facebook made an incremental contribution to the positive effects observed in both interventions. At Penn State College of Medicine, we have used Facebook Groups to develop a stress-reduction intervention for first-year medical students,[37] and are currently evaluating an intervention to encourage improved nutrition and increased exercise in community participants, as well as a project in which third-year medical students are using a Facebook Group to share their experiences within the Patient-Centered Medical Home model during their clinical rotations. For such interventions, the fact that a SM site like Facebook is free-of-charge may increase the likelihood that the project/community can be sustained once grant funding ends.

Further research is needed to determine how differences in the range of recruitment venues and security settings may impact participant recruitment in online social network-based health interventions. Achieving greater cooperation between the developers of SM sites and health researchers will likely require increasing opportunities and incentives for site developers and health researchers to collaborate. Funding agencies such as the NIH and Robert Wood Johnson Foundation can support research projects that require participation by social networking site developers and the research community to advance the quality and disseminability of social networking platforms available for research.

There are also many unanswered questions about how to optimize the creation of social networks to enhance patient and community health. For instance, some evidence suggests that online social networks may exert greater effects on health behaviors when participants know each other, and when there are a sufficient number of people posting on SM sites to encourage engagement by others.[38,39] However, it is unclear what degree of friendship/familiarity, or what network size is needed to optimize SM-based interactions for health promotion. Furthermore, there are various strategies to change health practices within online networks such as connecting patients to health specialists or groups that can foster positive behavior change, and targeting popular leaders within networks who may influence other network members.[31] Understanding how diverse networking strategies interact with different populations, health and/or medical settings, and health behaviors is an important area for further inquiry.

Conclusion

In the early 21st century, the powerful connectivity achieved by modern digital tools has led to remarkable human achievements across the globe – from the overthrowing of autocratic regimes through public uprisings coordinated on Facebook and Twitter to the collective solution of complex mathematical problems across wikis. Empowering users to post content that is public, rapidly-indexed, and searchable to a global audience has had profound consequences for individual privacy, and the dangers these technologies pose to health professionals are formidable. However, the evolving nature of SM functions and privacy settings, coupled with the changing healthcare landscape in the United States necessitate that medical professionals strongly consider how the powerful tools of our age can be harnessed to promote individual and public health as well as personal growth and development.

Acknowledgments

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