Social Media and Medicine

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Sections

Executive Summary

The growth of social media platforms on the internet represents both opportunities and threats to the way medicine is practiced. Greater social media use by patients, physicians, health care institutions, industry, and public health may result in significant positive and negative impacts both for individual patient care and at a population health level.

Social media refers to a new generation of platforms and applications on the internet that make it easier than ever for individual users to share and receive information on the web. Once the exclusive domains of blogs and wikis, websites like Facebook, Twitter, and YouTube are transforming the internet landscape. Today, hundreds of millions of internet users are involved in social media platforms, presenting a tremendous opportunity and challenge in controlling the veracity and flow of information presented in intensely personal networks.

Doctor-patient relationships and definitions of professionalism have undergone notable transformations, and the distribution of medical information and misinformation now occur at rapid pace, being easily archived and indexed for future review. In this context, while many of the same legal and ethical responsibilities for physician conduct, privacy, and patient well-being remain the same, the logistics behind meeting those responsibilities have become more difficult for all involved in an increasingly less private online world.

Social media exists in several different categories. Among these, those causing the greatest concern to health care and health care professionals are blogs, collaborative projects, content communities, and social networking sites. While there are overarching issues with their use by patients, physicians, and health care organisations, each individual category also presents unique concerns specifically related to the use of that individual platform.

For patients, social media represents the continued increase in the ease by which patients are able to access health information online. The greater functionality of interaction allows the development of online support groups, which can improve disease outcomes and knowledge but are vulnerable to abuse by unscrupulous agents. At the same time, the increased ease by which information (or misinformation) is received through social networking sites can influence various aspects of the doctor-patient relationship, related to diagnosis, testing, and treatment.

For health organisations, both public and private, there is potential to improve health literacy and knowledge with individual patients making use of social media. However, another challenge faced by these organisations is both the protection of their online credibility as well as the role they play in combatting significant misinformation on the World Wide Web.

Public health organisations benefit from decreased investments related to better health promotion with an increased ability to conduct research. However, better health promotion comes with the challenge of misinformation that threatens efforts, and the increased ability to conduct research brings forward significant legal and ethical concerns that must be carefully considered when using these novel technologies.

Finally, the use of social media by physicians presents a number of challenges. There is a blurring of professional boundaries when physicians choose to disclose information online that could, by

the nature of easy transmission of social media platforms, ultimately be seen as a breach of privacy or unprofessional behaviour. The protection of patient privacy and confidentiality, long a sacred trust held in the doctor-patient relationship, is threatened by an increasingly public online world. At the same time, the reputation of physicians is challenged by both online rating websites and their own personal postings and behaviours.

In view of the rise in use of social media among physicians, junior doctors, and medical students, the World Medical Association (WMA) has passed a statement on the professional and ethical use of social media. Adopted by the 62nd WMA General Assembly, the statement highlights that the boundaries of patient-physician relationship and medical ethics remain sacrosanct. It recommends further research into the privacy policies of websites, and encourages education of both medical students and physicians using relevant case studies to protect the public perception of the profession.

While such resources are being developed, the WMA statement goes on to direct physicians and medical students to monitor their own internet presence. It recommends separating professional and personal lives as much as possible by considering their intended audience when posting social media content by avoiding overly liberal disclosure of personal information, and reminding physicians and medical students of their responsibility to provide factual and concise information within declared conflicts of interest. It finally calls on physicians to look out for each other, speaking to colleagues about clearly inappropriate social media behaviour and reporting such behaviour to appropriate authorities as needed

In our review, we hope to address some of these issues in depth, and highlight both the tremendous potential that exists in harnessing social media and the equally contentious pitfalls that must be considered as social media grows,   ultimately transforming the online landscape.

Foreword

This white paper examines the role of social media in the provision of health care, particularly in light of a recently adopted World Medical Association General Assembly Statement on the Professional and Ethical Use of Social Media. [1]

The paper begins a comprehensive review on the growing phenomenon of social media by reviewing the definition of "Web 2.0" and offering a classification system based on current literature. This classification system provides an overview of the different types of social media in use by internet users today.

The paper continues by reviewing statistics related to the use of social media before examining considerations for the use of social media from the perspective of patients and physicians. It closes with a basic introduction to the specific legal and ethical considerations regarding the use of social media in the provision of medical services.

1.0 Introduction – social media: what and why

Social media refers to a collection of Internet-based entities that have vastly transformed the way people search for information, interact with each other and participate in their communities. [2] It encompasses a wide variety of websites, from online web journals (also known as blogs), social networking communities, video and photo sharing platforms, news and educational sites, and information websites ranging from research to reviews. Facebook, Twitter, YouTube, and Wikipedia have become household names. Combined with exploding worldwide Internet usage, they have transformed communication as shared platforms for the development and dissemination of information created by millions of individual users.

The industry term "Web 2.0", which arose in 2004, describes a new generation of web programs and applications representing a shift to a more dynamic, interconnected virtual world. "Web 2.0" represents a generation of websites that demonstrate rapid information sharing as a key attribute. Such platforms have made it easier than ever for individuals to share information on the web. Growing from simple beginnings, blogs, wikis, and social networking sites are now accessed by millions of Internet users on a daily basis. As a result, these platforms facilitate significant information flows between individuals, among online communities and forums, and further flows from individuals to larger entities such as governments, corporations, and researchers.

This flow of information has significant implications for the relationship between patients and the medical community. Together with Web 2.0, Eysenbach has suggested a definition for the specific term "Medicine 2.0" in the context of the evolving web: [3]

"Medicine 2.0 applications, services and tools are Web-based services for […] caregivers, patients, health professionals, and biomedical researchers who use Web 2.0 technologies, and/or semantic web and virtual-reality tools, to enable and facilitate social networking, participation, apomediation[1], collaboration, and openness within and between these user groups."

Standard social media and "Medicine 2.0" web services present opportunities and challenges for both patients and the broader clinical and preventive health care communities. Used carefully and judiciously, such websites can provide rapid access to accurate medical information, and offer disease sufferers and their families easy connection to role models and stories. [4] Interactive tools can empower patients to take responsibility for their own health, while public health work can be supported in their efforts to conduct disease surveillance, contact tracing, and health promotion efforts.

Conversely, the potentially rapid spread of misinformation also threatens efforts to protect the public's health. A group of cancer patients gathered on an online forum might turn to unproven treatments or natural therapy put forward by unscrupulous agents posing as peer sufferers. Newly ubiquitous "rating sites" provide no way to verify contentious reviews, which have the

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[1] The term 'Apomediation' characterizes a 'third way' for users to identify trustworthy and credible information and services. In this way the health professional gives 'relevant' information to a patient, by filtering what is credible quality information. [2]

potential to destroy a physician's reputation. Rapid information sharing can spread panic and fear about diseases and treatments across media such as Facebook or Twitter. It is clear that the immense potential presented by social media must be properly tempered by an awareness of the risks arising from the ease of the spread and longevity of digital information. Such risks must be properly managed by physicians and physician associations. Several national medical associations now provide guidelines on social media use, and social media in healthcare is a growing field of research and ethical debate. [5-7]

In its 2011 statement, the World Medical Association also calls on its members associations to establish comprehensive guidelines that address issues pertaining to individual physician disclosures and behaviour, training and education on proper use of social media, and privacy, confidentiality, professionalism and conflict of interest considerations in using such technologies. [1]

Classification

In a 2010 paper, Kaplan and Haenlein [2] categorise social media platforms in a two dimensional matrix that considers the intersection between self-presentation and self-disclosure with overall social presence, with each dimension ranked from high to low. The following are the six main categories discussed in their paper:

Blogs (high self-disclosure, low overall presence): Some of the earliest forms of social media, blogs are online journals published to the Internet at large by individual users. While initial blogs were personal in nature and published under pseudonyms, the development of specialty and expert blogs led to their eventual adoption by traditional media outlets as an accepted method of journalism. The end result has been the development of a wide array of blogs, from simple humour sites to professional blogs. Blogs have even grown popular with the medical community, often written by trainees or practicing physicians on topics ranging from clinical practice and healthy living tips to the "human side" of medicine. [8] While this has increased the ease by which patients access expert opinions, this presents threats to the traditional doctor-patient relationship and also makes blogs potentially negative influences on the public perception of physicians. Notably, blogs serve as potential flashpoints for ethical issues such as breaches of patient confidentiality. [9]

Collaborative projects (e.g. Wikipedia) (low self-disclosure, low overall presence): Collaborative projects represent the joint development of content for publication on the website. They can often be divided into two general types – websites that permit users to fully participate in adding, removing and changing web content, and websites that collate information (such as ratings, comments, or opinions.) In either case, the online community often agrees on a set of "rules and tools" to facilitate discussion between differing viewpoints and maintain the accuracy of the information. As a prime example of a fully participative online community, Wikipedia bills itself as "the free encyclopedia that anyone can edit". [10] In the same way, websites like Yelp [11] allow participants to rate experiences, products, and services on everything from restaurants to grocery stores, while other websites Urbanspoon [12] and RateMDs focus on being more in-depth, subject-specific community barometers. Specific health care considerations relate to the open nature of these projects – while they disseminate information more easily to patients and can even be tailored to specific communities of patients,

that same ease makes them vulnerable to spreading misinformation, distorting facts, or breaching privacy.

Content communities (e.g. YouTube) (low self-disclosure, medium overall presence): Sharing photographs and other media has been a staple since the formation of the Internet. However, content communities represent innovative central repositories of such media. YouTube, for example, is a video-sharing website that allows anyone to register and post video-based media content. Since its inception it has now grown to become the biggest video sharing site in the world, with over 100 million videos watched daily on an unlimited range of topics, with a number of imitation video-sharing sites attempting to emulate its success. Other content communities exist for other forms of media, such as Flickr for photos, [13] TED for educational videos, [14] and Slideshare for presentations. [15] All of these communities contain medical content in their libraries, which arises from numerous sources of varying repute. While many well-renowned health care organisations have made use of these content communities, many other interest groups have taken the opportunity to spread misinformation and fear.

Social networking sites (e.g. Facebook) (high self-disclosure, medium overall presence): The earliest incarnation of social networking sites were forums and bulletin boards, which today are ubiquitous and cover a range of topics. From these initial communities of conversation and discussion, Facebook, Myspace and Twitter emerged. These websites provide an opportunity for their members to connect with one another electronically, combining elements from content communities, collaborative projects, and blogs to allow users to share photos, stories, and personal opinions. [16-18] Due to their extremely personal nature and focus on human relationships, social networking sites represent some of the most behaviour-changing and risky online activities that physicians and patients partake in. The World Medical Association's guidelines call on physicians using social media to take care to review the privacy policies of the platforms they use in order to judiciously separate their personal and professional lives. This matters most in social networking, where patients can "connect" directly to physicians and monitor their personal online presence and data, and where physicians may be apt to disclose more private information under the mistaken assumption that it is only being published to their immediate connections (without considering the potential for onward transmission.) [1]

Virtual gaming worlds (e.g. World of Warcraft) (high self-disclosure, low overall presence): Virtual worlds provide an immersive environment in which users often take on 'character' roles, participating in various challenges and interacting with other players. The most famous of these is World of Warcraft, [19] which is a fantasy-themed multiplayer game and growing online community. Despite enforced limitations on self-disclosure, studies have shown that the character traits of regular participants in these online games are often reflected in their online persona. [20] Such gaming worlds have little relation to health care practice.

Virtual social worlds (e.g. Second Life) (high self-disclosure, high overall presence): Similar to virtual worlds for gaming, social worlds are a means for people to live a "virtual life" in parallel to their real life, though the popularity of such social worlds is waning. [21] Similar to virtual gaming worlds, virtual social worlds have limited impact on physicians, patients, and health care organisations.

2.0 Usage and statistics

In 2012, Facebook emerged as the largest social media network in use worldwide, and represents the enormous growth of social media usage among the general public. With nearly 750 million unique users, of whom 50% log in on any given day, Facebook allows internet users to interact with community pages, events, groups and personal posts from their friends. [16] In the same vein, Twitter is a platform that allows users to share ideas in posts lengthening 140-character. Using "hashtags" (a reference to the keystroke #) allows users to categorise their posts by topic, which can often lead to news and current events becoming popularly "tagged" in posts. [17] Many celebrities, entertainers, and politicians have made use of Twitter to reach out to members of the public. [22]

These platforms for social media are also increasingly used by medical professionals, trainees, and students. A 2010 study [23] demonstrated that 65% of students at the University of Otago, New Zealand, had a Facebook account. A comparative study carried out by Universal McCann in April 2008 [24] showed that the respondents in over 29 countries had overwhelmingly read and had their own blogs, uploaded or viewed video clips online, and continuously participate in social networks.

Despite the growth of such platforms, and their adoption by physicians and trainees alike, the health care industry in the U.S. has a low social media presence. A survey conducted by Deloitte found that only 700 of 5000 major U.S. hospitals had but a minimal social media presence. [25] This has not stopped the proliferation of various health-related social media websites across all the categories discussed by Kaplan and Haenlein. For example, RateMDs has caused controversy as a rating site for physicians, where patients can freely and anonymously post comments and ratings on a physician's knowledge, punctuality and helpfulness. [26] Even beyond this, physician networking sites (such as Sermo), health-focused search engines (such as Kosmix), and even online "eGames" focused on health (such as Exergames) have all arisen in the last few years and represent a growing source of health information and interaction for patients and physicians.

3.0 Patients and social media

People search for information and resources in a variety of settings. The simplicity and ease of the Internet has made it a source of health information from its very inception. Surveys indicate that eight out of ten American internet users have searched for health-related information, [27] and in this new era of Web 2.0, a large proportion of patients share their experiences and receive information and support through social media.

In 2010, the Pew Internet and American Life Project documented that 66% of Americans had access to broadband Internet, [28] compared with 5% in 2000. [29] Over the same time, the percentage of Americans looking for health information online had increased from 25% to 61%. [30]

A 2010 U.S.-based survey conducted by Deloitte found that patients commonly look for information regarding their diagnoses and treatment options, but also seek out quality of care data (such as doctor reviews) and hospital comparison data. [25] The same survey suggested that this implies that having information about traditional medicine sharing the same space as recent medical trends, such as medical tourism and alternative health care; patients are now more likely to ignore traditional medical advice in favour of information from peers and/or similar patients.

Beyond just information retrieval, however, patient information exchange has also been altered by social media. The Internet has provided a venue for support groups from as early on as 1982. Early computer-mediated communication via online support groups permitted anonymous, frank discussions of sensitive personal issues. [31] Social media sites today host the successors of many disease-specific information exchanges; these present both potential benefits and risks.

A study examined 15 Facebook groups focused on diabetes management and the content of their wall posts. [32] Two-thirds of the posts reviewed included sharing of diabetes management strategies, while others were related to feedback and emotional support. Of concern, a quarter of posts were related to non-FDA approved, 'natural' products, and 13% of posts contained requests for personal information from Facebook participants. These results highlight the usefulness of social media as a platform for health and disease specific social interaction and support, but also the potential for misuse by parties attempting to leverage the interaction for some sort of secondary gain.

Understanding these benefits and risks is important in the face of rapidly evolving health-specific social media utilisation. Literature already notes cohort as well as longitudinal differences in platform usage and preference. A survey of asthma patients aged between 12 and 40 years old named email as the most preferred method of electronic health information communication, with some interest also expressed in text messaging and Facebook. Communication via Myspace and Twitter elicited minimal interest. [33]

Some potential practice standards may arise related to chronic disease and social media. Social networks have fostered the creation of communities of patients with the same conditions;

sophisticated virtual communities facilitate information sharing on coping with a common disease condition, with the added benefit of a personal network of friends who understand. Online peer support services have been shown to improve cancer patients' outlook, helping them feel more in control of their health and strengthening their coping skills. This finding was consistent across age groups and was even more pronounced for older patients. [34]

Scheduled online support groups, moderated by a professional, can augment these efforts. A 'virtual coach' can provide individualized guidance and support based on readily available analyses of each patient's characteristics and performance. In addition, a clinician can communicate frequently and efficiently, offering personalized email support to each patient without requiring in-person meetings. Such professionals can monitor these 'virtual support groups', participating in patient discussions via informational chat rooms and blogs. [35] An example includes online cancer support groups, which might facilitate people coming together to explore medical concerns while responding to emotional needs. [36]

The balance of power in the physician-patient relationship is heavily influenced by these new sources of information and interaction that are now readily accessible by physicians and patients. Patients now often arrive at appointments with information that may or may not be relevant to the investigation and management of their conditions. However, this does not obviate the legal and ethical need for physicians to conduct assessments and work-up according to established standards of care.

It remains the responsibility of physicians to ensure that the patient receives the best possible care, avoiding unnecessary or frivolous testing and protecting patients from the potential mental and personal harm related to self-diagnosis resulting from misinformation from the Internet.

4.0 Health care and social media

4.1 Health Organisations

The importance of social media for health organisations relates to their need to manage their online reputation while combatting the spread of misinformation and opinions based on fallacy. While a growing body of scholarly evidence links online heath information to positive health-related behaviors, the growth and ease of social media platforms has also resulted in concerns about the quality and reliability of information provided through this medium. [37] For example, one study examining urinary incontinence resources on Facebook, Twitter, and YouTube found that the majority of information provided was not useful, consisting of advertisements for commercial products. These were in head to head competition with the fewer evidence-based YouTube videos from reputed health-care professionals and professional organisations. [38]

The previous example is one of many which highlight the importance for organisations and societies engaging patients through effective social media use. In all cases, organisations must strive to differentiate themselves from non-credible sources. Successful efforts will provide both credible information and extensive reach. The factors in their success should be the focus of rigorous evaluation to better understand how they were effective. Such findings should then be widely disseminated to inform on-going efforts by the medical community to engage their communities through social media.

There are many existing examples of successful health organisation efforts in both the public and private sectors. Private health-care organisations, such as the Mayo Clinic, [39] government public health agencies, such as the United States Centers for Disease Control (CDC), [40] and internationally, notably the World Health Organisation (WHO) have all developed successful social media programs which continue to grow. [41]

The Mayo Clinic Center for Social Media offers podcasts and YouTube videos on everything from disease overviews to health-care reform. Their social media website counts more than 175,000 followers on Twitter, as well as an active Facebook page with over 50,000 followers, while an active blog on the website presents both op-ed and research-based pieces on the growth of social media and its significance to health-care delivery. [39]

The CDC represents an example of successful public sector marketing through social media, having disseminated information through numerous internet and health campaigns. During influenza season, the CDC uses Facebook, Twitter, YouTube educational videos, and podcasts to increase community awareness of hand hygiene and immunization. They also team up with other partners, such as Whyville, to create virtual world vaccinations for younger adolescents. [40] Related to their success, the CDC has published a toolkit for health promoters to facilitate effective use of social media in health promotion. [42]

4.2 Public Health

Similar to clinical practice, public health and preventive medicine stands to gain potential benefit from the use of social media in health promotion efforts. Successful campaigns have made use of websites to inform and reinforce health-related behaviours among specific target audiences. At the same time, public health is challenged by the same misinformation that interferes with clinical practice, which poses even greater difficulty due to the already relatively lower profile public health and prevention has in the mind of patients and the public.

Health promotion uses

Social media has been used as an adjunct to traditional media sources (e.g. radio, television, print media), for communicating with target audiences. Digital media lowers barriers and offers new and easy opportunities for those who seek health information. [43]

Web-based learning and support technology benefits both clinicians and patients. Patients learn to overcome barriers and to self-document activities and interactions thereby permitting clinician review and feedback at any time. [35] Finally, the potential exists for social media to improve public understanding and appreciation for medical sciences. If used properly, this can drive quality improvement efforts in health care. For example, social media can be used to recruit appropriate patients for more effective clinical trials. [44]

Health promotion can benefit from the marketing principles espoused by social media. Today, health concepts can be easily and effectively distributed according to consumer marketing principles through the use of social media. Such strategies individualize health promotion concepts in ways that traditional media has failed, allowing word of mouth promotion of ideas, issues, and practices to create awareness, change attitudes, intentions, and behaviours regarding social and personal health issues. This concept of "social marketing", used appropriately, represents an opportunity to promote healthy attitudes and behaviors. [45]

Social marketing interventions have been shown to both promote and change health-related behaviors and issues. For example, a systematic review by Wei and others (2011) shows that there is some evidence that multi-media social marketing campaigns can promote HIV testing among men who have sex with men in developed countries. [46] Another example is virtual health fairs. Health fairs, traditionally used in worksite and community health promotion programs, have now developed cyber-versions that have demonstrated the potential to educate patients and enhance behavior change. [47]

Incident, Disaster, and Epidemic Management

Information exchange (dissemination and collection) is a hallmark of social media. Most significant in this role is the use of social media by public health officials in disasters and emergency situations. Using crowd-sourcing technologies and electronic communications tools allows quicker, more coordinated, effective emergency management. [48]

During the 2010 Haiti earthquake, social media was used to locate missing people, while during the oil spill in the Gulf of Mexico, social media helped to identify areas most in need of clean-up efforts. [49] The most pertinent example arises from the 2009 H1N1 influenza pandemic. Public

health officials used YouTube broadcasts to update the public [50] arming them with tips on what to expect and how to prevent the spread of the disease. Health departments also drew people quickly to immunization sites by texting and posting announcements on Twitter about vaccine availability.

Public Health Challenges

Public health's key reason for social media involvement is less about the potential benefits and more about the need to combat misinformation and incorrect evidence. While traditional media limits the opportunity for fringe ideas and non-evidence based viewpoints to reach audiences, the rapidity of information transfer and ease of access has made social media a haven for the spread of uninformed perceptions and opinions that threaten public health efforts.

The most common example cited is the rise of anti-immunization sentiment among patients. A single celebrity opinion or view is replicated en masse through Twitter; YouTube videos spread conspiracy theories or cling on to already discredited studies and evidence. Without proper safeguards, such use of social media threatens efforts to control and eliminate vaccine preventable disease, and underscores the importance of public health learning on how to effectively advocate and respond to unfounded allegations.

4.3 Patient advocacy

Social Media has been used by health professionals as a mechanism for health advocacy and inciting change. [51, 52] The group Doctors for Obama used Facebook in the 2008 presidential campaign to rapidly mobilize thousands of doctors to communicate their views on health policy to the Obama headquarters. This group of physicians continues to have a voice in the Obama administration. [52]

In response to the state of emergency rooms in Taiwan, on Feb 8, 2011, an emergency medicine physician created a Facebook group called "Rescue the Emergency Room". Within a week approximately 1500 people, mostly emergency department staff around Taiwan became members and started actively discussing and sharing their experiences. The group soon expressed their concerns on the Facebook profile of the Taiwanese Minister of Health and subsequently invited the Minister to join the group. Upon his engagement in the discussion, the Minister was quick to visit emergency departments. The Government in turn soon committed to improving resources for hospitals and emergency-room overcrowding. [51]

5.0 Physicians and Social Media

5.1 Patient information in online settings

The online setting presents a different set of security and privacy risks when compared to traditional face-to-face appointments. The inadvertent disclosure of patient information in a social media setting may result in a far more egregious breach. [53] Specifically, the concept of "digital footprints" refers to the potential permanence of information in cyberspace. The aftermath of a misplaced post in the social media arena may often extend far into the future. [54]

If there is a need to communicate with patients electronically, physicians should first obtain the patient's consent. Physician offices must also ensure that any communication systems used are secure and should avoid direct communication with patients via third-party platforms. [55]

5.2 Patient Privacy and Security on Social Media Sites

Physician use of social media technologies, as with all physician conduct, is subject to the ethical and legal responsibilities determined as best practice by the profession. Ethically, the principle of non-maleficence (being "primum non nocere" – first, do no harm) is directly linked to the patient's fundamental right to privacy and confidentiality, and as such, must be carefully considered and protected. [56] A person's health information is acknowledged to be the most sensitive of all personal information, [57] and the ease with which social media retains and spreads information makes it particularly vulnerable to privacy breaches and liability concerns for health-care providers and facilities alike. [58]

Privacy has been defined as 'freedom from the intrusion of others in one´s private life or affairs', and is a fundamental human right, protected by law. [59, 60] In the context of the internet, privacy is more abstract, and often misunderstood, relating not only to the underlying architectural solution being employed, but to the individual's level of comfort and degree of control over personal data contained therein. In essence, privacy is about the ability to make choices.

A speech by Boyd at the 2010 World Wide Web conference highlighted this concept:

> "Privacy is not about control over data nor is it a property of data. It's about a collective understanding of a social situation's boundaries and knowing how to operate within them. In other words, it's about having control over a situation. It's about understanding the audience and knowing how far information will flow. It's about trusting the people, the situation, and the context." [61]

Much of the discussion surrounding private health information and social media focuses on the potential for privacy breaches; the consequences of such breaches can be severe. Concerning results from a 2009 paper by Chretien and co-authors found 13% of interviewed medical school

Deans had noted an online breach or violation of patient confidentiality by a medical student. [62]

These breaches can arise directly from social media-based interaction specifically related to health care (e.g. a doctor and patient communicating online), or indirectly through other social media-based interaction not specifically related to the provision of health care (e.g. a physician communicating with another physician about weekend plans on a forum or blog.) Irrespective of the nature of the breach, the broad accessibility of social media requires continued physicians' vigilance in ensuring they do not divulge personal health information (even if the patient's identity is withheld) without the informed consent of the patient.

A potential knowledge disparity exists in online physician -patient relationships. Physicians benefit from numerous guidelines and codes of conduct, but patients are less well equipped and may not fully appreciate the privacy implications of discussing, sharing or interacting with health information online. Specific to social media, patients may not consider the full scope of the audience who may be exposed inadvertently (friends, co-workers, family), or indeed seek out intentionally (potential employers, health insurers) the personal health information they are sharing. Encouraging patient engagement in social media requires physicians to help them make informed privacy choices.

Another threat to privacy comes from the greater shift by health professionals towards a more contemporaneous and dynamic method of information sharing and research collaboration. In the past, traditional medical journals and textbooks had a limited audience, most often those within the medical profession. These journals and the professionals reading them are bound by their own codes of conduct in safeguarding case reports and other aspects of research study privacy and confidentiality. In contrast, information broadcast on the Internet or via social media is not only potentially accessible, and more easily searchable, by a far wider audience, but the audience itself is not be bound by any formal ethical standards or codes of conduct.

Disclosure of confidential information on social media platforms may have professional consequences. The Medical Board of New South Wales, Australia issued a general warning to physician about disclosing confidential information on social networking sites, [63] and at least one physician has lost her job after being seen to have breached patient privacy. [64] Hader & Brown (2010) succinctly highlighted a basis for appropriate social media use:

> "We are not suggesting that health-care providers shy away from common online networking applications. These new media tools and technology serve important social and professional purposes in today's society. But please, for your sake and the sake of the profession, stop and think before you post." [58]

The paradigm of "thinking before posting" is in-line with wider ethical and legal responsibilities, which still apply in the social media realm as in day-to-day interactions. Ultimately, physicians must still act professionally and in the best interest of their patients. Literature suggests that physicians intending to use social media should:

1. Ensure that, if engaging with patients or potential patients by use of social media, they are not inadvertently making their patients vulnerable to privacy breaches.
2. Ensure that, if intending to communicate with patients using social media, they educate their patients in order to empower them to manage their data and hence achieve privacy.
3. Ensure that professional interactions between health-care professionals, including the transmission of any health data, satisfy any local policy or legislation.
4. Ensure that consent is obtained for the disclosure of any personally identifiable information on social media forums.

5.3 Separating Personal and Professional Boundaries

Professional boundaries protect the unique dynamic of the physician-patient relationship, ensuring that interactions ultimately benefit the patient. [65] Self-disclosure of personal information by physicians to patient is rare, and often seen as inappropriate. Physicians may occasionally share information with individual patients to establish or maintain a positive physician-patient relationship. Such disclosures are in confidence, tailored to individual patients, and are usually relevant to the context of an interaction. [66]

In contrast, inadvertent social media "disclosures" release unrelated personal information about a physician that may influence patients' perceptions or trust, which may extend to perception and trust of the medical profession. In a commentary on medical trainees by Farnan (2009) [67] the dilemma presented questioned whether an individual trainee's usage of social media is within their capacity as a trainee or as an individual who also happens to be a medical trainee.

Similarly, physicians commenting on social media sites are encouraged to identify themselves by including a disclaimer and making it clear that they are not speaking on behalf of their institution. Restrictions dictate that any disclaimers should not include the logo or trademark of the physician's relevant institution without permission, and that this physician should also be careful to respect copyright, privacy, fair use and financial disclosure, as well as other applicable laws.

These issues arise from the availability, archivability, and indexability of social media. Use of social media permits greater sharing of personal lives, extending the "professionalism" required of physicians within the framework of their profession into their personal lives. It should be noted that sentiments expressed as an individual may be perceived differently once they are identified to be coming from a medical professional. Digital posts may be seen out of context by any number of people, archived and indexed for future reference. Furthermore, while one may attempt to appropriately tailor postings, Boyd (2010) points out that other social media users may refer to, comment on, or reply to postings that portray the original posting in a more negative light. In essence "participants do not have complete control over their self-representation". [68]

In order to establish appropriate personal/professional boundaries when using social media, medical professionals should:

1. Ensure that any interaction with patients occurs in a professional capacity, and that is made clear to the patient, physician, and any third parties involved.

2. Ensure that online a professional identity is delineated from a personal identity, and this delineation is clear to any potential audience.
3. Exercise restraint when divulging any information online, in either a personal or professional context, bearing in mind any future implications this may have

5.4 Legal aspects of social media use

Physician posting of inappropriate material may lead to legal sanctions, threatening the credibility of the physician and medical profession. To prevent inappropriate use of social media, professionals and institutions must be proactive in developing standards on "online professionalism". [53]However, it should be noted that the monitoring of physicians' online activities by institutions can slip into legal grey areas regarding the right of privacy and the duty to care. [69]

A difference may exist in perception between physicians and the public regarding what is appropriate to share on social media in contrast to what may be appropriate in medical literature. Information that might not contravene medical professionalism may be misinterpreted or distorted, and thus may potentially have legal implications. Therefore, alongside ethical and professional dictates, physicians must consider possible legal ramifications related to their interactions in social media environments. [53]

While physicians are entitled to freedom of speech, legal considerations arise from limitations imposed by professional codes of conduct. These commonly suggest physicians should not disclose information that could cause disturbance or "substantial interference" with a health-care institution's operation or in a patient's life. Further, there should not be any use of "vulgar, defamatory, and plainly offensive medical-related speech." [69] Guidelines from National Medical Associations on Social Media may be a helpful resource. [5-7] For example, before posting about an institution on a social media platform, professionals should first obtain the institution's consent. Physicians should also consider the permanence of digital content transmitted online. Other limitations apply to:

1. Any abusive, personal, malicious or off-topic comments, as well as redundancy;
2. Hate speech, especially discriminatory comments based on race, ethnicity or gender;
3. Attempts to promote or endorse products, private events or groups, including endorsements of pharmaceutical companies;
4. Comments that are likely to violate the confidentiality or privacy of patients and their families; and
5. Comments that are likely to infringe on the rights of any third party.

6.0 Ethical Issues

As patients and physicians use social media, there are social, cultural, or individual factors related to such use. Examples include different abilities to access the internet between groups of patients, as well as differences in the comfort level of patients and physicians in engaging in a social media environment. Like access to electronic health records, we must consider potential "health-care gaps" in the access and use of social media, such as poor access among non-native speakers of a national language, or patients from lower socioeconomic status. [70]

Notably, while social media has demonstrated decreased feelings of isolation and social exclusion, the opposite also occurs: concepts such as "status anxiety", related to anxiety or depression related to social media information shared by friends or colleagues, have indeed been described. [71] Further research is needed to better understand both how this influences physician–patient social media interactions, as well as the potentially maladaptive behaviours patients may develop. Also, as stated earlier, physician well-being depends on better understanding the additional burden of maintaining professional appearances in their online presence and interactions.

There is a demonstrated ease and benefit of using data from social media for research, public health, and geographic targeting of health care delivery. Such "secondary data usage" presents further ethical considerations, and despite the relative ease by which such data can be obtained, physicians are still bound to protect patient privacy and confidentiality. Any use of such data is therefore subject to standard research ethics and must ensure that mechanisms exist to provide informed consent and to protect patient privacy through data deidentification. [72]

Beyond our focus on physician and public health use on social media, there is also "patient-generated problematic content". In particular, Boyd and co-authors (2011) explored the aspects of the social media affecting the youth population, particularly social media disclosures of mental health disorders (e.g. self-harm and eating disorders). Social media may represent a source of support and encouragement for these patients. However, there is the potential that such interactions may encourage participation in negative practices. Currently, there is no easy "legal, technical, or social solution" and further research will be required. [73] Thankfully, the relative ease of access to such information through social media will assist research efforts. The article succinctly states:

> "…while the Internet does not provide a magic bullet, it does introduce new possibilities for leveraging visibility to learn from and reach out to those engaged in self-harm…"

It is apparent that many of the ethical considerations in the use of social media reflect those standards and codes set out by physicians, researchers, and societal ethical codes. It is the ease and simplicity by which information moves that challenges tradition. It is important for policymakers and stakeholders involved to work together to address and develop ethical standards for social media usage. Emerging standards will ensure that the benefits of social media can be realized by patients, researchers, health professionals, and public health officials, without succumbing to the potential ethical pitfalls of social media usage.

Conclusion

This white paper has sought to provide a broad overview and analysis of social media in how it relates to patients, the medical profession and health care overall. The potential opportunities presented by social media in improving health care must be weighed carefully against the significant drawbacks of its use. Any benefits to patients will only be realized if implementation and evaluation is carried out with the same caution, ingenuity, and scientific rigor dictated by our professional calling and responsibilities. Physicians are called to be proactive in shaping the social media environment and remain vigilant in ensuring that the use of such technology ultimately benefits the patients we serve.

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