

Social media and your practice: navigating the surgeon-patient relationship

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Abstract Utilization of social media both in the private and professional arenas has grown rapidly in the last decade. The rise of social media use within health care can be viewed as the Internet-based corollary of the patient-centered care movement, in which patient perspectives and values are central to the delivery of quality care. For orthopedic surgeons and their practices, general-purpose online social networks, such as Facebook and Twitter, are convenient platforms for marketing, providing patient education and generating referrals. Virtual health communities are used less frequently by orthopedic surgeons but provide forums for patient engagement and active surgeon-to-patient communication via blogs and ask-the-doctor platforms. This commentary reviews the current state of social media use in orthopedic practice, with particular emphasis on managing the extension of the surgeon-patient relationship online, including the unique practice risks social media poses, such as privacy concerns, potential liability, and time consumption.

Keywords Social media · Twitter · Blogging · Physician-patient relations · Health Insurance Portability and Accountability Act · Marketing of health services · Medical practice management

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Introduction

The percentage of adult Internet users has increased from an estimated 52 % in 2000 to 84 % in 2015 [1]. While offline references remain the dominant resource for medical information, the Internet is an increasingly popular source for it, with nearly 80 % of Internet users referencing online resources for some quantity of health information [2]. There has been a commensurate rise in the use of online social networking, social media websites, and online applications: 65 % of American adults (76 % of Internet users) used at least one social networking web site in 2015, compared to only 7 % in 2005 [3]. The average person now engages in social media use for more than 6 hours per week [4]. Approximately 15 % of these users obtain health information through social networking sites [2], with up to 34 % of all adult Internet users having turned to online commentaries, reviews, and blogs to learn about the experience of others with various medical issues or receiving specific treatments [2]. This translates into an estimated 6.5 million health-related search engine queries per day [5]. Patients with chronic conditions and caregivers are even more likely to access online medical resources [2].

Social media grew subsequent to the development of Web 2.0, the functions of which permit dynamic and user-generated Internet content, as opposed to static content. Social media services by definition encompass Web 2.0 Internet-based applications. Web 2.0 platforms are dependent on content generated by individual or group users who create user profiles. Social media sites connect the profiles of users and groups to create online social networks [6]. Common examples of social media sites include Facebook, Twitter, YouTube, and blogs. These social media platforms are emerging resources for health consumers, both patients and caregivers, seeking technical health information and emotional support. Ideally, informational exchange is bidirectional, and

within the context of social networks containing both physicians and also patients with their caregivers (i.e., health care “consumers”), bidirectional exchange creates the potential for physician-to-physician, consumer-to-consumer, consumer-to-physician, and physician-to-consumer (P2C) exchanges [7]. The latter is the focus of this commentary.

The relevance of social media to patients as a source of health information is clear, but its value to physicians is a subject of debate [8]. Approximately one third of physicians use no form of social media for professional purposes [9]. As a probable consequence, only 5 % of patients have received health information from doctors or other medical professionals online [2]. Therefore, the online P2C space is nascent and mostly supplemental to the traditional in-office P2C relationship, but it is an area that holds great potential opportunity. In particular, health care consumers prefer physician input in terms of making an accurate diagnosis, information about prescription pharmaceuticals, alternative treatments, recommendations for other doctors or specialists, and recommendations for a hospital or other health care facility [2]. They prefer fellow patients, friends, and family for emotional support in coping with a health issue [2]. In rank order, Internet users seeking health information are most commonly looking for information about (1) a specific disease or medical problem, (2) treatment or procedure, (3) doctors or other health professionals, and (4) hospitals or other medical facilities [2]. These largely fall under the category of technical information, for which they prefer physician input over other sources.

Thus, the potential opportunity social media offers for orthopedic surgeons, or any health professional, relies on their leveraging these platforms to become trusted online purveyors of high-quality, technical, health information to patients or potential patients. As with any opportunity, the benefits must be balanced against the risks, which in this case principally relate to patient privacy concerns, potential liability, and time consumption. The purpose of this commentary is to review the current utilization and value of online P2C interactions for orthopedic surgeons.

Rationale for socializing your practice

While the scientific evidence for adopting social media into an individual or group practice is underdeveloped, there is rationale for its utilization. First, social media provides physician tools to potentially improve their ability to deliver patient-centered care. In 2001, the Institute of Medicine proposed improving six dimensions of health care [10]. Among these, it recommended that health care should be patient-centered, “providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions” [10]. In many respects, social media can assist with this aim, because it enables

patients to become more active consumers of medical information, whereby they participate in its production, sharing, and discussion. In fact, patient-centered e-health (PCEH) has been defined as Internet-based technology that engages patients as the principal participants in the delivery of health services through an online environment [11]. PCEH is a method of approaching and thinking about information technology so that it can be optimally leveraged for patient care. For an Internet technology to satisfy the philosophy of PCEH, it must embody three essential elements: (1) It must be patient-focused; (2) it should rely on active patient participation; and (3) it should empower patients [11]. Existing, popular social media platforms can achieve these characteristics and permit patients and physicians to create patient-centered health care systems online [7], and it can empower patients with knowledge about their diseases and treatments so that they can be more active in their own care.

Second, social media is a tool that can improve communication with patients. Blogs and other social networking sites allow physicians to share health information to the public, for which there is an unmet need for high-quality online resources. There are numerous examples in the literature underscoring the poor quality of most medical information patients access through the Internet [12–14, 15•]. This poor quality information can lead to physician frustration at the time of an office visit. Physicians find that they have to spend additional office time defending their diagnoses and treatment plans, when patients present with contradictory health information obtained on the Internet [16]. Physician contribution to online health information should increase the quantity of high-quality health information available on the Internet. Referral to a website containing physician-curated information is a simple recommendation to improve patient education and reduce time spent re-educating patients during office visits [17•]. Social media platforms allow physicians to use multiple forms of communication to educate patients, including text, images, and video. Furthermore, communication can be specifically targeted to the audiences who are most likely to benefit. For example, websites such as www.patientslikeme.com as well as other blogs and social networking sites permit individuals with similar conditions to form online communities. Although awareness among physicians that such communities exist is very low [9], these groups frequently allow physicians access to share relevant health information to their users. This permits physicians access to patient populations relevant to their expertise and gives patients access to specialists who can provide relevant and accurate health information [8].

Third, social media represents a latent source of new patients. Sixty-five percent of US adults use social media, slightly more than half of those are using Web 2.0-type resources to access health information, and 25 % of Internet users access videos related to health or medical issues. Yet, only 5 % are

interacting with a health professional online [2]. Interestingly, 31 % of orthopedic hand surgery patients indicated that they would be interested in interacting with their physicians on social media [18•]. Therefore, there is a potentially large target audience for P2C social media, but only a small percentage of patients have interacted with a health professional online.

Physicians have largely delivered passive online content, and social media has been infrequently used for marketing individual or group practices [19]. However, building a digital presence and establishing an online reputation can complement other marketing efforts when growing a practice [20]. Curry et al. [17•] prospectively surveyed 752 first-time, adult patients presenting for orthopedic evaluation at a major academic medical center to determine the prevalence of social media and Internet use in this population and to define the patient characteristics associated with their use. Fifty-one percent of patients used social media. In their multivariable regression analysis, they found that younger patient age and patients having performed prior research on their condition were more likely to use social networking sites. They also noted a nonsignificant trend toward an association between longer travel distances (120–180 miles) and use of social networking sites (odds ratio = 4.08, 95 % confidence interval 0.96–17.29). The authors concluded that surgeons treating younger patients will have to rely increasingly on social media to capture new patients [17•]. Higher education level and computer ownership have also been associated with social media use within the orthopedic surgery population [18•], and it has been shown that patients earning less than \$18,000 annually are less likely to benefit from Internet-based physician services [21].

Current utilization

Social media can be divided largely into two categories: general-purpose online social networks (OSNs) and virtual health communities (VHCs) [7]. Examples of OSNs are Facebook, Twitter, and YouTube. They are the most commonly used social media platforms for health information. VHCs are more collaborative platforms usually built around specific health topics, attracting users with a specific interest or expertise. A defining characteristic of a VHC is that it attracts and maintains members who interact with each other frequently online. Examples include online community groups, like Inspire.com, and ask-a-doctor websites, such as MDTalks.com. Compared to OSNs, VHC platforms are less frequently used by physicians.

OSNs are easily accessible online platforms for mass communication and collaboration. Through these sites, physicians and physician groups can reach target audiences, including actual and potential patients, to enhance their awareness about certain health issues or to market medical services. Most

commonly, these platforms are used to broadcast professional achievements, research, awards, and services and to provide general health advice to a target community in lay language. They also offer inexpensive and effective marketing tools. For example, with Facebook, a physician or group can create a business “page” and use the site to promote its services to Facebook users within a specified geography. Targeting can be further narrowed based on age, sex, interests, online and offline behaviors, and user connections. Entry level fees are modest. At present, the minimum daily budget is \$1.00, and it costs \$1.50 per 1000 “impressions,” meaning the number of times the ad for a page is shown to users [22]. Approximately \$7.52 billion is spent on marketing through social media in the USA annually, with Facebook being the most widely used platform and perceived as the most effective channel for small business marketing to consumers [23]. Twitter, YouTube, and blogs are the next most frequently used social media platforms for physicians to communicate with patients. Lesser used platforms for P2C communication include Google+, Instagram, and LinkedIn.

Current patient engagement with these platforms is greater than it is for physicians. Up to 34 % of Internet users reference social media or other Web 2.0 resources [2]. However, only 6 % of all Internet users and 11 % of all social networking site users report posting comments, queries, or information about health or medical matters [2]. The discrepancy indicates that there are numerous users engaging with social media websites as “lurkers,” defined as users who read information on social media sites but infrequently or never contribute to the online discussion. Thus, the content on social media frequently broadcasts the perspectives of only a minority of its users. Despite the limitations of current online health information, up to 30 % of US adults report that they or someone they know have been helped by health information from the Internet, while only 3 % report harm [2].

Facebook

Facebook was founded in 2004. As of May 2016, there were 191.3 million Facebook users in the USA [24], representing approximately 58 % of the entire US adult population [25]. It is the most popular social media website [25], and approximately 70 % of its users access the site at least once daily [26]. Approximately 15 % of physicians use Facebook for professional purposes [9], and its utilization among health professionals is growing [8]. In general, its utility within health care is to bring together communities of patients with similar concerns and to facilitate information dissemination from physicians to large target audiences. Facebook “groups” permit building online communities, while “pages” are a useful mechanism for promoting a practice and sharing general advice and topical health information. Any Facebook user can access resources to target page advertisements to other users

meeting a narrow set of characteristics, and there are robust analytical tools to measure user response to pages and ad campaigns.

There are potential downsides to Facebook. In a survey of over 4000 physicians, one third reported that a patient had tried to “friend” them on Facebook, and 75 % of those physicians chose to ignore or decline the friend request [9]. Accepting a friend request from a patient and permitting access to personal content can compromise the physician-patient relationship [27]. This potential conflict underscores the recommendation to maintain personal profiles separate from professional ones and to be cognizant about one’s personal profile security settings and all information that is made publically available.

Twitter

Twitter is the most used micro-blogging site [28•], and it is used to broadcast short, 140-character messages (i.e., “tweets”) to target audiences. Through a process termed “retweeting,” users are able to rebroadcast other users’ tweets, spreading them rapidly to broader audiences. In 2017, there will be a projected 60.9 million active users in the USA [29], with 36 % of users accessing the site at least once daily [25]. Twitter’s purpose within health care is primarily to share information between users.

Tweets are disseminated in real time, making Twitter an efficient communication platform. In medicine, Twitter can be used to make the public aware of practice events, awards, and community events [8]. Live tweet chats allow opportunities for real-time conversations and collaboration among users with a similar interest [30]. Tweet chats are usually moderated by a single user. Other users follow the conversation by following a unique hashtag (a specific word or phrase preceded by a pound sign [#]) labeling the chat. Within health care, this platform has been successfully leveraged to conduct virtual journal clubs [31], and private groups created through Twitter Lists have been used for online support groups and to deliver health interventions [32].

Like Facebook, Twitter provides tools for targeted marketing to audiences within specific geographies and with specific demographics, interests, and behaviors. The associated fees are modest. Twitter analytics displays the geographic location, demographics, income levels, occupation types, and interests of followers. Users can also analyze their tweet activity, which displays metrics regarding the number of impressions (i.e., the number of times other users saw a tweet) and actual engagements with tweets (e.g., clicks on embedded links or hashtags, likes, retweets, replies, etc.).

An estimated 3 % of physicians use Twitter for professional purposes [9]. However, orthopedic surgeons appear to use Twitter less frequently than other physician groups. In 2011, Franko [28•] estimated that fewer than 0.3 % of board certified

orthopedic surgeons use Twitter for professional reasons. Chretien et al. [33] identified 260 Twitter users in May 2010 who were physicians with 500 or more followers. The researchers analyzed the last 20 tweets from each user (5156 tweets total). Only 49 % were related to health or medicine, 21 % were classified as personal communications, 12 % were self-promotional, and 3 % were categorized as unprofessional, including 0.7 % of tweets that were concerning for potential patient privacy violations [33]. Their results again highlight the need for physician awareness regarding guidelines and recommendations for professionalism when using social media, in particular separating professional and personal accounts.

YouTube

There are 167.4 million unique YouTube users in the USA per month [34], and it accounts for nearly 60 % of all online video content [15•]. It is the second largest Internet search engine behind Google. Thus, its potential as a communication channel for physicians to patients is enormous. However, only 8 % of physicians use YouTube for any professional purpose [9]. Like Facebook and Twitter, YouTube offers advertising tools to users who wish to insert video ads that will play before other videos and show up along search results. Pricing depends on how the ad is displayed and is approximately \$0.10 to \$0.30 per view. Targeting is similar to other social media platforms, including age, sex, location and interests, and analytical tools that are available to measure ad campaign effectiveness. This marketing platform appears to be underutilized by physicians and physician groups.

While there is an abundance of videos, the overall quality has been judged as low for information regarding diagnosis and treatment of specific conditions. For example, MacLeod et al. [15•] performed a systematic review of videos on YouTube related to femoroacetabular impingement (FAI) diagnosis and treatment and rated each video for the quality of the information it contained. Their search queries provided over 1.2 million possible videos, of which they reviewed 52 meeting their inclusion criteria. Of these, approximately 19 % were graded as having no usefulness, 54 % were graded as somewhat useful, and 21 % as moderately useful. The authors concluded that the preponderance of YouTube content on FAI was low quality [15•]. A systematic review of the literature pertaining to health and YouTube found that YouTube content frequently presented misleading health information contradictory to practice standards [35•]. The likelihood of lay users accessing such content is high, because finding pertinent videos is dependent on the search terms that are used to query YouTube. However, YouTube content from governmental bodies and professional associations was judged as trustworthy and high-quality [35•]. When tailored YouTube content is generated by health professionals and then promoted to a

target patient population, its utility for patient education can be high [36•].

Blogs

Like other forms of social media, blogs are used to share information publically. Approximately 8 % of US Internet users maintain a blog, while 39 % access information on one or more blogs [37]. Health blogs are a popular source of health information, particular for patients with chronic conditions [37]. However, few physicians contribute to blogs [9], those who do most commonly use them to broadcast their professional insights and opinions about health conditions and treatments. It is advisable to limit blog content to generalizable medical advice for the purpose of educating a broad patient population [8].

Patients frequently seek medical information and advice in advance of traditional office visits. The Pew Research Center found that 35 % of patients use online resources to determine their diagnoses before seeing a physician [38]. Face-to-face dialogues can be more efficient and productive, when patients are provided the opportunity to read a physician's insights and opinions on a condition or treatment in advance of an office visit [8]. While physicians can provide a lot of educational content on a static website, blogs permit more frequent publishing of fresh thoughts and advice, and they can be interactive, if readers are allowed to post comments.

Maintaining patient privacy is paramount when using any form of social media. The American Academy of Orthopedic Surgeons recommends blogging about composite or fictionalized patients only. If an actual patient is discussed, consent has to be obtained [39]. Further, Suryavanshi et al. [8] outlined several guidelines for physicians interested in starting a blog (Table 1). Importantly, the authors note that blogging requires a time commitment so that the content remains up-to-date and relevant. If a physician is not able to devote attention to developing high-quality, fresh, and timely blog entries, a below-average blog may actually do more harm than good [8].

Table 1 Blogging best practices

1	Know the audience of the blog, and write what is relevant to the audience
2	Respond to all questions and comments on the blog
3	Collaborate with patients and/or colleagues, asking them to contribute blog posts
4	Include personal insights about the blog topic, do not simply restate what is already known about the topic
5	Abide by all HIPAA regulations
6	Ensure that the content and responses are respectful toward all potential readers
7	Maintain separate professional and personal social media accounts

From [8]

HIPAA Health Insurance Portability and Accountability Act

Ask-A-Doctor platforms

“Ask-a-doctor” platforms facilitate direct P2C interactions. Users can ask health professionals approved by the website specific medical questions. Therefore, the responses are specifically tailored to a user's question. Unlike P2C interactions through Facebook, Twitter, or blogs, the interactions hosted through ask-a-doctor websites are initiated by patients. Communication can either proceed as a private conversation or an open one. Private channels keep the conversation confidential between the consumer and physicians (e.g., Sharecare.com). Other VHC websites (e.g., MedHelp.org) provide open ask-a-doctor platforms, through which users post questions and health professionals answer them, and the conversation threads are visible to other users. Other users are also able to engage in the discussion [7].

Practice risks

Despite the potential benefits associated with social media use, there are potential risks and challenges to be considered. For example, whenever there is a possibility of transmitting protected health information, concerns regarding security, privacy, and confidentiality naturally arise [7]. Furthermore, as demonstrated in many analyses [12–14, 15•], the accuracy and quality of medical information shared through the Internet and social media are concerns for patients and physicians. Surveyed physicians indicated that the top reasons for not interacting with patients online were liability concerns, privacy concerns, lack of compensation for online services, and lack of time to devote to online patient communication [9].

Legality and liability

Although there is not a robust body of case law and legal opinions to guide the online doctor-patient relationship, potential liability exists for orthopedic surgeons who communicate with patients on open social networking platforms [40]. The Health Insurance Portability and Accountability Act

Table 2 One surgeon's experience with third party social media management

Sample posts predating active surgeon management of his Twitter account	Sample posts once the surgeon actively manages his Twitter account
<ul style="list-style-type: none"> • Applied mathematician interested in publishing research? Submit your paper for IMAmaths' 2016 Best Paper Prizes http://bit.ly/1rwqBX • Analyzing the current state of American #poetry http://oxford.ly/1rY8BWu "Is American poetry still a thing?" Commentaries from ALH • Atrial fibrillation http://bit.ly/1XNIY7N novel risk factors, mechanisms and ablation techniques #podcast escardio • Changes in psychosocial and physical working conditions and common mental disorders EUPHActs http://oxford.ly/1UwNKCC • Won't someone think of the children?! Political views of children in 1930s–1950s Britain http://oxford.ly/1P55bpP New #oa from TCBHJournal 	<ul style="list-style-type: none"> • Bridging the Gap Between Hip and Spine Surgeons http://buff.ly/29Ziflr #hip #surgeons • Detroit Lions linebacker DeAndre Levy battling injuries again after missing most of last season due to #hipsurgery • Australia's first #robotic help in a hip replacement operation http://buff.ly/2achfdA via @QUT #hipreplacement • Study to evaluate outcomes of different #hipreplacement techniques using mobile gait analysis system http://buff.ly/2ackX6D #surgeons • Arthroscopic #hipsurgery on the rise, but study shows it may not be the best choice for patients with #arthritis http://buff.ly/29hCprg

This table lists sample posts from the actual Twitter feed of an orthopedic surgeon who employed a third party web development company to manage his social media channels. It demonstrates the importance of physician oversight of his or her social media content. In the first column, Twitter posts were made on behalf of the surgeon by the third party. The content is not relevant to orthopedic surgery, the surgeon's practice or expertise. In the second column, posts are displayed after the surgeon took an active management role in the content of this social media account. The content is now pertinent to the surgeon's practice and services provided

(HIPAA) [41], Health Information Technology for Economic and Clinical Health (HITECH) [42], and Communications Decency Act (CDA) [43] statutes are relevant to protected health information (PHI) and use of social media in a physician's practice. Lifchez et al. [44] succinctly reviewed the issues pertaining to each of these statutes. HIPAA provides a definition of PHI, while HITECH specifically addresses issues related to the electronic transmission of PHI and the enforcement of HIPAA. The CDA pertains to all Internet content, and a particular section (CDA 230) is relevant to social media, as it protects "interactive computer services," such as Facebook, against liability from wrongdoings perpetrated by their users.

It is paramount to note that a personal encounter is not requisite to initiate a physician-patient relationship. This means that online interactions can constitute the beginning of such relationship, but social media should not be used for this purpose. Similar to offline interactions, discussions regarding specific medical advice for a patient should not occur publicly. If online, a patient's questions are specific to his or her diagnosis or treatment, the doctor should direct the patient to discuss the topic offline in an office setting, where the encounter can be documented sufficiently and added to the patient's medical record. Open social media platforms are not channels through which specific medical advice should be broadcasted [8].

Malpractice liability for medical information provided online is a concern that limits physician engagement with social media. Posting disclaimers typically offers sufficient protection for most interactions, and physicians should limit online content to general advice and medical information supported by published evidence. Clearly state when you are providing an opinion. It should be clear that information through online channels is for general knowledge and not for specific treatment recommendations for an individual patient [44].

A physician should never share PHI on personal social media sites. When e-mail and text messaging are used to communicate PHI, it must be done through secure and encrypted services [10]. Clinical photographs or videos with a patient's face or other clearly identifiable features such as tattoos or scars should never be uploaded to a social media site, without prior patient consent [44, 45]. The "Safe Harbor" method provides guidelines for properly de-identifying clinical photographs [8]. For other forms of media, such as radiographs, names, date elements other than the year, medical record numbers, and account numbers should be removed [44]. Even when no identifying features are present, the issue of consent can be unclear [45].

Professionalism and reputation

Patient interests should always take precedence over physician interests [8]. The American Medical Association [27], Federation of State Medical Boards [46], and the American Academy of Orthopedic Surgeons [20] have each published guidelines for the professional use of social media. In order to ensure professionalism, physicians or physician groups seeking to use OSNs for business purposes, such as promoting "services and products, educate health consumers, and raise public awareness on diseases, medical conditions, and treatments" should create professional profiles distinct from any personal accounts [30]. Doing so ensures that physician-patient relationships remain purely professional [10]. Furthermore, distinct professional profiles are more easily monitored for the purposes of brand and reputation management. Physicians and practices can utilize Google Alerts, which is a free service that will notify the physician or practice representative when any new online content mentioning the physician name or practice is published.

Table 3 Ten tips for getting started in social media

1	Define your objective for utilizing social media (e.g., marketing, patient education, etc.)
2	Define your online persona and your message, then keep your messaging on point with continual, frequent posts
3	Use social media aggregators (e.g., Everypost.me) which permit simultaneous posts across social media platforms
4	Encourage online discussions through your posts and/or blog, and respond to user comments
5	Use social media in a way that is enjoyable to you; only if you enjoy it will you be successful using it
6	Set realistic goals for social media; do not expect an immediate influx of new patients after you start
7	Never acknowledge that a user is your patient but accept comments from your patients through Facebook, Twitter, or a blog; it is advisable not to follow or “friend” your patients
8	Publish a disclaimer, and note that your social media posts do not constitute a doctor-patient relationship
9	Monitor and analyze your online presence and reputation; Google Alerts (https://www.google.com/alerts) is free and will notify you when new online content mentioning your name or practice is published
10	Link to high-quality online content, like that found on the AAOS patient education web site (http://www.orthoinfo.org/)

Time consumption and compensation

Physicians who have successful experience with social media estimate that it requires approximately 30 minutes of time per day [39]. They find that it takes this much time to engage each of their social media channels and respond to blog comments twice daily [39]. In order to save time, there are social media aggregators (e.g., Everypost.me) that will allow users to post content across all of their social media channels simultaneously. Additionally, physicians can employ services that specialize in web presence optimization (e.g., Docero and OrthoRank). These services offer to build practice websites, manage a physician’s social media channels, monitor one’s online reputation, and help maintain blogs. However, physicians should be wary about giving these services complete control over their online content (Table 2). Ultimately, a physician is responsible for his own online presence and reputation. These services can help curate content, but the physician should request final approval for any content posted in their name.

At this time, there is no direct compensation for time spent using social media; in fact, many services represent a cost to physicians. Physicians should weigh these costs (both time and money) associated with social media use and the return on investment they perceive. In the future, health care payers may find solutions to reimburse physicians for effective physician-patient interactions that decrease overall health care utilization [9].

Conclusion

Social media channels offer novel ways for physicians and patients to communicate and engage with one another. At this time, physician utilization of social media significantly lags consumer use. However, there is strong patient interest and trust in online

content generated by physicians. Continued adoption of social media by patients will allow them to become more active participants in their care, and social media ideally will facilitate shared decision - making and the delivery of patient-centered care. Physician participation in social media channels is crucial to providing high-quality health information online. Schafer et al. [39] offer ten tips for orthopedic surgeons who want to start using social media professionally (Table 3).

While social media offers potential benefits to patients and physicians, its challenges and limitations must be acknowledged. For physicians, social media use requires continual engagement and time. Maintaining professional conduct at all times is as essential to online communications as it is to offline communications. Since online content is especially difficult to retract or delete, physicians must be vigilant about inadvertent disclosures of PHI, concerns for patient privacy, and accuracy of the information they provide.

Compliance with ethical standards

Conflict of interest All of the authors declare that they have no conflict of interest.

Human and animal rights and informed consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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