

Summer 7-2015

Tweeting and Treating: How Hospitals Use Twitter to Improve Care

Christian Gomes

Alberto Coustasse

Marshall University, coustassehen@marshall.edu

Follow this and additional works at: http://mds.marshall.edu/mgmt_faculty



Part of the [Health and Medical Administration Commons](#)

Recommended Citation

Gomes, C., & Coustasse, A. (2015). Tweeting and treating: How hospitals use Twitter to improve care. *Health Care Manager*, 34(3), 203-214.

This Article is brought to you for free and open access by the Management, Marketing and MIS at Marshall Digital Scholar. It has been accepted for inclusion in Management Faculty Research by an authorized administrator of Marshall Digital Scholar. For more information, please contact zhangj@marshall.edu.

TWEETING AND TREATING: HOW HOSPITALS USE TWITTER TO IMPROVE CARE

ABSTRACT

Introduction: Hospitals that have adopted Twitter primarily use it to share organizational news, provide general healthcare information, advertise upcoming community events, and foster networking. The purpose of this study was to explore the benefits that Twitter utilization has had in improving quality of care, access to care, patient satisfaction, and community footprint while assessing the barriers to its implementation.

Methodology: The methodology used in this study was a qualitative study with a semi structure interview combined with a literature review which followed the basic principles of a systematic review.

Results: The utilization of Twitter by hospitals suggest that it leads to savings of resources, enhanced employee and patient communication, and expanded patient reach in the community. Savings opportunities are generated by preventing unnecessary office visits, producing billable patient encounters, and eliminating high recruiting costs. Communication is enhanced using Twitter by sharing organizational content, news, and health promotions and can be also a useful tool during crises.

Discussion: The utilization of Twitter in the hospital setting has been more beneficial than detrimental in its ability to generate opportunities for cost savings, recruiting, communication with employees and patients, and community reach.

Key Words: Benefits, Barriers to implementation, hospital, social networking, Twitter.

INTRODUCTION

Twitter is a free social networking forum and micro-blogging service that allows its users to post and read each other's "tweets," or short updates of 140 characters or fewer. Twitter was founded in 2006 and is now a publicly-traded entity with over 2,000 employees that has posted annual revenues of \$317 million as of 2012.^{1,2} It has rapidly gained international popularity, reaching 517 million registered users worldwide in 2012, including 141.8 million in the United States (U.S.).³ During the second quarter of 2013, Twitter had approximately 218 million average monthly active users, which is its most vital metric that represents how many users are active participants in the site.²

Given the popularity of Twitter, industry leaders in public relations have seen Twitter as a valuable asset to their day-to-day operations and communications strategies thanks to the ability to instantaneously disseminate information to a variety of audiences in a manner that differs greatly from other social networking websites.⁴ In the hospital setting, Twitter remains a largely untapped resource despite the opportunities to revolutionize healthcare and create a competitive advantage for adopters.⁵

Those hospitals that have chosen to utilize Twitter oftentimes use it as a free marketing tool to share organizational news and services, general healthcare news, community events, success stories, and consumer outreach and engagement opportunities.⁶ Other applications of Twitter in the hospital setting include improving customer service, increasing patient education, providing real-time experience, and enhancing public relations.⁷ Healthcare professionals in the

hospital setting have been using Twitter to foster networking, exchanging of information, and sharing of ideas from varying perspectives at professional conferences.⁸ Twitter can also be used as an educational tool in the medical setting by engaging medical students and updating healthcare professionals about the latest developments in their respective fields.⁹

Despite the benefits of Twitter utilization, many hospitals have remained cautious about committing to implementation and maintenance of a sponsored Twitter account. For hospitals planning to establish a Twitter account, hesitations may include privacy concerns regarding compliance with the guidelines of the Health Insurance Portability and Accountability Act (HIPAA), uncertainty about physician licensing legal issues attributable to transcending geographic barriers, and unknown costs.¹⁰

The main purpose of this study was to explore the benefits that Twitter utilization has had in improving quality of care, access to care, patient satisfaction, and community footprint while assessing the barriers to its implementation.

METHODOLOGY

The research methodology applied in examining the utilization of Twitter by hospitals followed the basic guidelines of a systematic literature review combined with a semi-structured interview of Selena Brewer, the Director of Marketing at Carroll Hospital Center, a private, nonprofit, 193-bed hospital located in Westminster, MD (see Appendix A). This interview was tape-recorded, and only appropriate answers were used to support findings from the literature

search to offer an example in practice and a more complete outline of this technology and its utilization in the hospital setting.

The research approach and conceptual framework found in this study followed those implemented by Yao, Chu, & Li.¹¹ The current study's use of this conceptual framework is appropriate because its original application was to explore how an adopting an emerging technology could enrich the healthcare delivery system. The circular process is similar to any project development method; it defines a problem and determines a need before preparing and implementing a solution. In this study, the solution is the utilization of Twitter in the hospital setting. After the adoption of Twitter, the benefits and barriers are assessed which permits the process to restart to address barriers and evaluate benefits (see Figure 1).

The literature review was separated into three stages: (1) Literature recognition and compilation; (2) Literature analysis and evaluation; and (3) Literature categorization.

Stage 1: Literature Recognition and Compilation

The search of literature was conducted using the search engines and academic databases accessible through Marshall University Libraries. Databases that were used to explore literature included Academic Search Premier, LexisNexis, ProQuest, PubMed, SpringerLink and Google Scholar. For articles found that were not readily available through Marshall University Libraries, IDS Express was used to submit interlibrary loan requests and access electronically delivered items. In the search, the keywords 'Twitter' or 'social networking' were combined with the terms 'hospitals' or 'healthcare' or 'medicine' as inclusion criteria. Journal articles and other scholarly press written in English and from sources within the

U.S. regarding hospitals and their uses of Twitter were pinpointed. Given the shortage of scientifically peer-reviewed publications concerning the subject matter of the current study, articles written in English from well-respected newspapers and magazines within the U.S. were referenced to supplement the academic literature.

Stage 2: Literature Analysis and Evaluation

Literature was chosen for review on the basis of benefits and barriers to the utilization of Twitter by hospitals. The search queries were narrowed to include articles published between 2006 and 2014 to keep it a current review. Only primary and secondary data from literature written in the U.S. were included in this review. The primary step in establishing the relevancy of literature to the current study was to review the abstract of each respective article. If the material offered accurate information concerning the utilization of Twitter by hospitals with an emphasis on benefits and barriers, the articles were determined to have satisfied the inclusion criteria. The literature search was performed by CG and validated by AC who acted as a second reader and also verified that references met inclusion criteria. From a total of 53 initial results, only 33 were considered suitable for use in the current study.

Stage 3: Literature Categorization

Those articles that were found to be relevant were then categorized using the adopted conceptual framework. The findings of the literature review are shown in the following sections of the results using the classifications of *Benefits and Advantages of*, as well as *Barriers to Twitter utilization by Hospitals*.

RESULTS

Twitter is an underutilized social networking technology in the hospital setting. There are over 5,700 hospitals registered in the U.S., yet only a reported 1,000 health-related organizations actively maintain an officially-sponsored Twitter account.^{12,13} Despite the lack of Twitter utilization by the majority of hospitals in the U.S., the most distinguished have experienced great success in their utilization efforts.

U.S. News & World Report publishes annual rankings of the best hospitals in the U.S. In 2013, 18 hospitals nationwide made the Honor Roll, an illustrious honor given to those hospitals that qualify near the top of the rankings in at least six different medical specialties.¹⁴ Hospitals awarded honor roll status included highly regarded healthcare organizations representing various regions across the U.S. Of the 18 Honor Roll hospitals, each maintained its own sponsored Twitter account. Altogether, the 18 hospitals combined for over 1.25 million followers on Twitter as of February 17, 2014. The Honor Roll hospitals that had the most followers were The Mayo Clinic (722,000), Johns Hopkins Hospital (219,000), and The Cleveland Clinic (189,000). Honor Roll hospitals in MD, MA, MN, OH, CA, NY, NC, and IN all had more than 10,000 Twitter followers. No Honor Roll hospital had fewer than 2,775 followers as of February 17, 2014 (see Table 1).

Benefits and Advantages of Twitter Utilization

1. Savings Associated with Twitter Utilization

Many hospitals have resisted implementation due to uncertainty about the costs associated with Twitter. Setting up a Twitter account is free, but may require part- or full-time management by hospital staff or other personnel in marketing or public relations. The Mayo Clinic, one of the most well-respected and well-established hospitals that utilizes Twitter, implemented all of its social media for less than \$1,500.¹⁵

Twitter utilization also has the potential to save hospital and physician resources while creating revenue streams. Hoppszallern & Weinstock found that 14% of hospitals indicated that social media was used as a tool for online chats with physicians.¹⁶ An analysis of a 2010 study conducted in the Department of Family Medicine at Mayo Clinic found that online interaction with physicians can prevent office visits for 40% of patients. Additionally, in 16% of online interactions with physicians, non-billable telephone protocols were replaced with billable encounters. Online interactions with physicians acted as a primary gatekeeper by generating requests for face-to-face appointments to further examine a condition in 13% of interactions (see Table 2).

With the looming retirement of baby boomers in the hospital setting, Twitter can be utilized as a free recruiting tool to attract young workers belonging to the millennial generation.¹⁷ The forecasted nursing shortage in the U.S. is expected to generate exponential increases in recruitment and selection costs. For a hospital looking to fill 80 or more registered nurse positions over a period of one year, recruitment and selection costs are a conservative minimum of \$800,000.¹⁸

According to Ms. Brewer, the interviewed hospital marketing director, Twitter has had a positive impact on recruiting efforts. Posting job opportunities on the organization's sponsored Twitter account has generated an increase in job responses and applications by prospective hires. It has also allowed the organization to attract the level of talent that aligns with the organization's recruiting objectives. By establishing and maintaining a sponsored Twitter account used partially for recruiting, hospitals can connect with millennial job seekers who view social media as typical, effortlessly navigable, and beneficial in stressful situations such as job searching.¹⁷ In a 2013 Jobvite survey of 1,600 recruiting and human resources professionals, 94% reported using social media as a recruiting tool, 78% hired someone using social media, and 55% used Twitter as a recruiting tool by showcasing the employer's brand and posting jobs. By utilizing social networking as a recruiting tool, 33% of professionals reported an improved time to hire, 49% reported an increased quality of candidates, and 43% reported a higher quantity of candidates (see Table 2).

2. Enhanced Communication through Twitter Utilization

One study from Thaker et al.¹⁹ using a structured review of 1,800 hospital websites found that, while only 16% used Twitter and provided a link to or indication of their institutionally-maintained account, the hospitals' Twitter accounts had many applications. Of those hospitals that used Twitter, 97% targeted a general audience rather than a specific demographic group within the community. In terms of use, 93% of accounts provided content about the organization, 91% provided news and events announcements, 90% promoted health, and 89% furthered public relations (see Table 2).

Twitter can also be used during times of crisis. During the 2007 California wildfires, the American Red Cross used Twitter to provide updates, deliver aid, and raise money.¹⁵ The American Red Cross regularly uses Twitter to post information about storms and natural disasters.¹⁵ A 2012 survey found that 32% of hospitals used social media for crisis communication. A healthcare system in North Dakota used Twitter during a state of emergency in 2009 to communicate with patients' families, staff, emergency authorities, media, volunteers, and the general public in order to disseminate updates to the masses to ensure safety during a critical time in their community (see Table 2).

3. Expanding Patient Reach through Twitter Utilization

Twitter can be used to expand patient care and reach new patient bases. Most hospitals today are using Twitter to reach a patient base that is increasingly engaged in online social networking.²⁰ A 2010 AHA report found that 87.3% of 18- and 19-year-olds and 76.9% of 20- to 24-year-olds reported using social networking websites several times per week, while only 47.2% of 25- to 29-year-olds and 15.9% of those 30 years and older reported using social networking websites that often. In an anonymous questionnaire of 450 adult upper-extremity outpatients within the Hand and Upper Extremity Service at Beth Israel Deaconess Medical Center, Rozental, George, & Chako²¹ found that 349 (77.6%) patients owned a computer while 170 (37.8%) used social networking sites. Users of social networking sites were younger, more educated, and more likely to be employed (see Table 2).

According to a survey of 1,060 healthcare consumers conducted by PwC HRI,²² one-third used social media for accessing medical information, sharing symptoms, and providing

feedback about treatments while 41% used information from social media to choose treatment at a specific hospital (see Table 2).

Barriers to Twitter Utilization

1. Privacy and Legal Issues

The fear of violating patient privacy law may be partially attributed to the case of two nurses at a Wisconsin hospital who posted a photograph of a patient's x-ray to one of the nurses' personal Facebook pages and, subsequently, were fired from their jobs and faced action from the state licensing board.²³ Despite the violation of HIPAA, the hospital avoided sanctions and liability lawsuits thanks to its immediate termination of the nurses and its existing comprehensive HIPAA training program for employees.²³

As new social networking technologies have emerged, instances of patient privacy violations have soon followed. In three separate scenarios reported by the NCSBN,²⁴ violations of patient privacy have been made using three different social networking media. Nurses at one hospital used email to forward a picture of a patient in her hospital gown with her backside exposed to others. In another case, a nurse wrote about caring for her physically disabled pediatric patient on a small town's newspaper blog, mentioning the patient's age and use of a wheelchair. Using Facebook, a student nurse posted a photo of a 3-year-old pediatric patient that she had been caring for throughout chemotherapy treatments with his room number visible in the background. Once the violations were discovered and the proper people were made aware of the situations, serious ramifications were brought about, including hospital and law enforcement investigations, formal warnings, being placed on administrative leave, legal

action by patients, expulsion from a nursing program, and a dismissal of future clinical experiences for nursing students at the children's hospital (see Table 2).

2. Maintaining Medical Professionalism

If social media access and use is not properly regulated and monitored, the professional-patient relationship can be compromised by anyone with access to or affiliation with a hospital's sponsored Twitter account.²⁵ An evaluation of social networking profiles of medical students and residents at the University of Florida, Gainesville, found that 83.3% of social networking sites listed some form of personally identifiable information while only 37.5% were private and inaccessible to the public. Some accounts also exhibited inappropriate material that could hinder a graduate's opportunity to obtain a job due to a lack of professionalism (see Table 2).

Existing physicians and healthcare professionals struggle to maintain an acceptable level of medical professionalism on their social networking profiles. One study done in 2011 found that physicians' personal public Twitter profiles were used to jeopardize medical professionalism; issues included tweets that violated patient privacy, contained profanity, included sexually explicit material, and included discriminatory statements (see Table 2).

DISCUSSION

The purpose of this research was to examine the benefits that Twitter utilization by hospitals has had on quality of care, access to care, patient satisfaction, and community footprint. The

results of this study suggest that utilizing Twitter has resulted in cost savings, increased communication, and expanded patient reach.

While only 20% of U.S. hospitals currently utilize Twitter, the most well-respected hospitals in the U.S. have seen tremendous success in their utilization efforts. Though smaller hospitals throughout the U.S. may not have the resources to compete with those that are larger and well-established, following their social media strategies can certainly have an impact on their organization and the community being served. Healthcare entities that have established an elite healthcare brand name, such as The Mayo Clinic and The Cleveland Clinic, have been social media pioneers and, given their success, should be the example to be followed.

Twitter also provides hospitals with the opportunity for cost savings. Savings are generated through reducing unnecessary visits, reducing recruiting costs, and attracting a new generation of talent to replenish the productivity of the aging baby boomer generation. For those hospitals that may be hesitant about establishing a Twitter account due to uncertainties about the time and resources required to manage the account, responsibility can be shared with an outside advertising agency who will post content at the request of and under guidelines established by the hospital. According to the interviewed hospital marketing director, her organization uses an outside advertising agency to manage their Twitter account, with the primary focus on recruiting. The fees paid to the advertising agency fall well short of the recruiting and training costs that would be needed to attract, train, and retain the high level of talent that has been acquired using Twitter, making it well worth the investment.

Twitter utilization by hospitals can also provide an increase in communication with prospective job candidates. If the hospital or even executives of the hospital are on Twitter, job candidates can follow them to obtain insight about the culture and personalities of management at the respective organization.²⁶ It also allows the organization to research and learn about where and how well a candidate is connected within the community.²⁶ By utilizing Twitter, hospitals can avoid being stigmatized as archaic by young workers who may otherwise be uncomfortable working in an environment that lacks the technology with which they are familiar.

The increase in communication not only applies to prospective hires, but also to current employees and patients. Twitter allows hospital executives who may travel frequently to keep in touch with staff by sending and receiving Twitter updates while on the road.²⁶ According to the interviewed hospital marketing executive, Twitter has allowed her hospital to become a health and wellness news source and has also allowed her organization to engage in and create conversations with members of the community being served. For the community, Twitter can be used as an instantaneous communication tool during times of crisis to provide updates on accessing the care that is needed.

Another purpose of this study was to assess the barriers to hospitals' Twitter utilization, with the main barrier being concerns about privacy violations. Concerns regarding social media use by healthcare personnel generally arise from the fear of negative ramifications due to breaching patient confidentiality and privacy.²⁷ Because of the violations of patient privacy on healthcare professionals' personal social media accounts, access to a hospital's Twitter account

must be restricted to those who have a clear understanding of privacy laws and established acceptable social media use guidelines.

Another obstacle is attempting to maintain an acceptable level of medical professionalism. Most of the issues discovered in this study point towards medical students' mismanagement of their personal social media accounts. If measures are established for an instructional training concerning acceptable social media use by both medical students and employees of hospitals and healthcare organizations alike, a professional image can be maintained to improve opportunities for the individual.

This research study could be limited by the search strategy undertaken, the quantity of databases searched, and publication bias, which may have constrained the articles that were used in this study. Researcher bias may also have been an issue given that articles were searched for and evaluated by the researchers to establish their relevancy to this study. Published research on Twitter utilization by hospitals is limited compared to that of other industries.

Due to its current utilization rate of only 20%, Twitter can grow substantially to be the future of social networking in the hospital setting; it can produce cost savings opportunities and enhance communication with employees, patients, and the community. Given that Twitter was founded in 2006 and is still an emerging social networking technology, further research is needed to assess the impact that Twitter has had in the hospital setting. A comparison of the purposes and methods of Twitter utilization by more hospitals would progress the adoption of this newer social networking technology by providing examples to be followed.

CONCLUSION

The findings of this study have suggested that the utilization of Twitter by hospitals has the capacity to generate opportunities for cost savings, increase communication for both patients and employees, and expand patient outreach. Nevertheless, barriers to Twitter utilization still persist in the hospital setting, the main one being concerns about patient privacy.

REFERENCES

1. Quittner J. Twitter Unveils IPO Papers; Includes \$317 Million in 2012 Revenue. *Inc.com*. 2013. <http://www.inc.com/jeremy-quittner/twitter-s1-ipo.html>. Accessed March 8, 2014.
2. Twitter, Inc. Form S-1. *U.S. Securities and Exchange Commission*. 2013. <http://www.sec.gov/Archives/edgar/data/1418091/000119312513390321/d564001ds1.htm>. Accessed February 12, 2014.
3. Lunden I. Analyst: Twitter Passed 500M Users In June 2012, 140M Of Them In US; Jakarta 'Biggest Tweeting' City. *TechCrunch*. 2012. <http://techcrunch.com/2012/07/30/analyst-twitter-passed-500m-users-in-june-2012-140m-of-them-in-us-jakarta-biggest-tweeting-city/>. Accessed March 6, 2014.
4. Evans A, Twomey J, & Talan S. Twitter as a public relations tool. *Public Relations Journal*, 2011;5(1):1-20.
5. Weaver B, Lindsay B, & Gitelman B. Communication technology and social media: Opportunities and implications for healthcare systems. *The Online Journal of Issues in Nursing*, 17(3), n.p.. 2012. <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-17-2012/No3-Sept-2012/Communication-Technology-Social-Media.html>. Accessed March 9, 2014.
6. ECRI Institute. *Social Media in Healthcare*. Plymouth Meeting, PA: ECRI Institute. 2011.
7. Meskó B. Use of Social Media by Hospitals and Medical Practices. In *Social Media in Clinical Practice*. 2013. (pp. 109-144). London: Springer-Verlag.
8. McCartney P. Twitter at a nursing conference. *Health Information Technology*, 2012;37(6):402.
9. Babayan J. Reporter, editor, publisher, and surgeon: Use of social media in the medical community. *American Urological Association News*, 2011;16(11), 29.
10. Hawn C. Take two aspirin and tweet me in the morning: How Twitter, Facebook, and other social media are reshaping health care. *Health Affairs*, 2009;28(2):361-368.
11. Yao W, Chu CH, & Li Z. The use of RFID in healthcare: Benefits and barriers. In *RFID-Technology and Applications (RFID-TA), 2010 IEEE International Conference*, 128-134.
12. American Hospital Association [AHA]. *Fast Facts on US Hospitals*. 2014. <http://www.aha.org/research/rc/stat-studies/fast-facts.shtml>. Accessed January 27, 2014.
13. Mayo Clinic Center for Social Media [MCCSM]. *Health Care Social Media List*. 2014. <http://network.socialmedia.mayoclinic.org/hcsml-grid/>. Accessed January 27, 2014.

14. Leonard K. Best Hospitals 2013-14: Overview and Honor Roll. *U.S. News & World Report*. 2013. <http://health.usnews.com/health-news/best-hospitals/articles/2013/07/16/best-hospitals-2013-14-overview-and-honor-roll>. Accessed March 8, 2014.
15. Morrison K. Health care meets social networking. *Jacksonville Business Journal*. 2009. <http://www.bizjournals.com/jacksonville/stories/2009/01/19/daily9.html>. Accessed March 9, 2014.
16. Hoppszallern S, & Weinstock M. 2012 Most Wired. *Hospital & Health Networks*, 2012;86(7):24-36.
17. Sarringhaus M. The great divide: Social media's role in bridging healthcare's generational shift. *Journal of Healthcare Management*, 2011;56(4):235-244.
18. American Federation of State, County, and Municipal Employees [AFSCME]. The Cost of Failure. In *Solving the Nursing Shortage*, 2010. <http://www.afscme.org/news/publications/health-care/solving-the-nursing-shortage/the-cost-of-failure>. Accessed February 24, 2014.
19. Thaker S, Nowacki A, Mehta N, & Edwards A. How US hospitals use social media. *Annals of Internal Medicine*, 2011;154(10):707-708.
20. Bush H. Time to Tweet?. *H&HN: Hospitals & Health Networks*, 2009;83(6):46-48.
21. Rozental T, George T, & Chacko A. Social networking among upper extremity patients. *Journal of Hand Surgery*, 2010;35(5):819-823.
22. PricewaterhouseCoopers Health Research Institute [PwC HRI]. *Social media "likes" healthcare: From marketing to social business*. New York, NY: PricewaterhouseCoopers LLP. 2012.
23. AHC Media LLC. Facebook firings show privacy concerns with social networking sites. *Healthcare Risk Management*, 2009;31(5):49-52.
24. National Council of State Boards of Nursing [NCSBN]. *White paper: A nurse's guide to the use of social media*. 2011. <https://www.ncsbn.org/2930.htm>. Accessed April 14, 2014.
25. Azizi T. The issues surrounding social network sites and healthcare professionals. *Journal of Perioperative Medicine*, 2013;23(10):233-236.
26. Gamble K. Just a tweet away. *Healthcare Informatics*, 2009;26(5):30-36.
27. Hader A, & Brown E. Patient privacy and social media. *American Association of Nurse Anesthetists Journal*, 2010;78(4):270-274.
28. Adamson S, & Bachman J. Pilot study of providing online care in a primary care setting. *Mayo Clinic Proceedings*, 2010;85(8):704-710.
29. American Hospital Association [AHA]. (2010). *Workforce Facts and Trends at a Glance: The Hospital Leader's Guide*. 2010. <http://www.aha.org/content/00-10/workforce2015chartbook.pdf>. Accessed April 22, 2014.

30. Squazzo J. Best practices for applying social media in healthcare. *Healthcare Executive*, 2010;25(3):34-39.
31. Jobvite. *Social Recruiting Survey Results.2013*.
http://web.jobvite.com/rs/jobvite/images/Jobvite_2013_SocialRecruitingSurveyResults.pdf. Accessed April 22, 2014.
32. Thompson L, Dawson K, Ferdig R, Black E, Boye, J, Coutts J, & Black N. The intersection of online social networking with medical professionalism. *Journal of General Internal Medicine*, 2008;23(7):954-957.
33. Chretien K, Azar J, & Kind T. Physicians on Twitter. *Journal of the American Medical Association*, 2011;305(6):566-568.

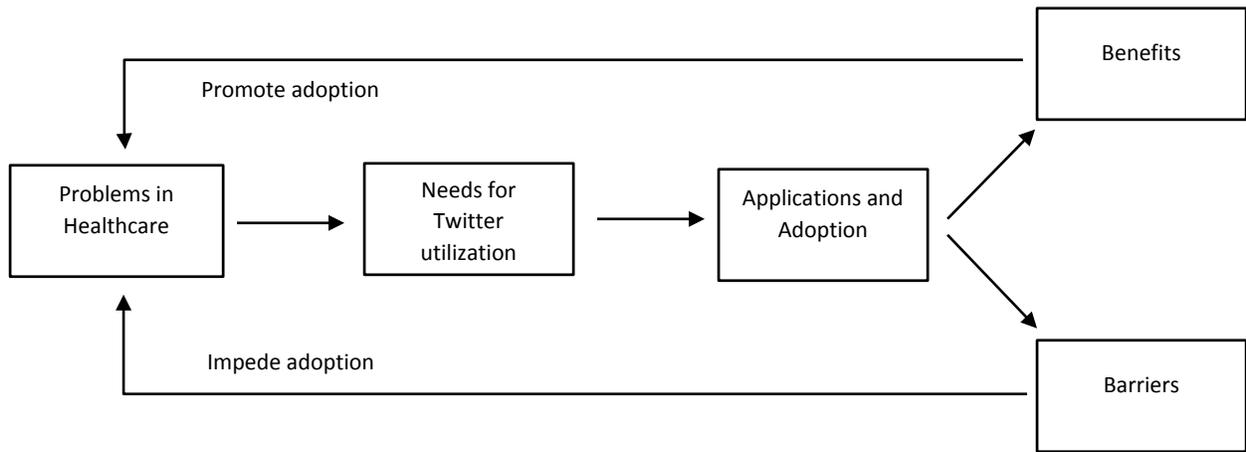


Figure 1: Conceptual Framework

Table 1

Twitter Accounts and Followers of the U.S. News & World Report Honor Roll Hospitals

Rank	Hospital	City, State	Twitter Handle	Followers
1	Johns Hopkins Hospital	Baltimore, MD	@HopkinsMedicine	219,000
2	Massachusetts General Hospital	Boston, MA	@MassGeneralNews	14,800
3	Mayo Clinic	Rochester, MN	@MayoClinic	722,000
4	Cleveland Clinic	Cleveland, OH	@ClevelandClinic	189,000
5	UCLA Medical Center	Los Angeles, CA	@UCLAHealth	12,600
6	Northwestern Memorial Hospital	Chicago, IL	@NMHNews	6,030
7	New York-Presbyterian University Hospital of Columbia and Cornell	New York, NY	@nyphospital	11,100
8	UCSF Medical Center	San Francisco, CA	@UCSFHospitals	4,863
9	Brigham and Women's Hospital	Boston, MA	@BrighamWomens	12,600
10	UPMC-University of Pittsburgh Medical Center	Pittsburgh, PA	@UPMCnews	4,252
11	Hospital of the University of Pennsylvania	Philadelphia, PA	@PennMedicine	4,437
12	Duke University Medical Center	Durham, NC	@Duke_Medicine	22,900
13	Cedars-Sinai Medical Center	Los Angeles, CA	@CedarsSinai	4,542
14	NYU Langone Medical Center	New York, NY	@NYULMC	2,775
15	Barnes-Jewish Hospital/Washington University	St. Louis, MO	@BarnesJewish	5,103
16	IU Health Academic Health Center	Indianapolis, IN	@IU_Health	11,200
17	Thomas Jefferson University Hospital	Philadelphia, PA	@TJUHospital	4,498
18	University Hospitals Case Medical Center	Cleveland, OH	@Uhhospitals	6,681
	TOTAL			1,258,381

Sources: Leonard (2013); hospitals' Twitter websites.¹⁴

Table 2

Benefits and Barriers of the Utilization of Twitter by Hospitals

Author(s), Year	Study Design	Findings
Benefits		
Adamson & Bachman, 2010²⁸	Evaluation of data collected from 2,531 patients who made online visits with their primary care physicians using the online portal of the Department of Family Medicine at Mayo Clinic	<ul style="list-style-type: none"> • 62 (2%) uploaded photographs of condition • 411 (16%) interactions replaced non-billable telephone protocols with billable encounters • 1012 (40%) interactions made office visits unnecessary • 325 (13%) patients were asked to schedule face-to-face appointment after interaction
AHA, 2010²⁹	Chartbook developed to be used as a companion resource to the AHA's report, <i>Workforce 2015: Strategy Trumps Shortage</i> .	<ul style="list-style-type: none"> • 87.3% of population aged 18-19 years use social networking websites several times per week • 76.9% of population aged 20-24 years use social networking websites several times per week • 47.2% of population aged 25-29 years use social networking websites several times per week • 15.9% of population aged 30 years and older use social networking websites several times per week
Rozental et al., 2010²¹	Anonymous questionnaire of a sample of 450 upper-extremity patients concerning demographic characteristics, computer ownership, and frequency of social networking use	<ul style="list-style-type: none"> • 349 (77.6%) patients owned computer • 170 (37.8%) used social networking sites • Social networking users were younger, more educated, and more likely to be employed
Squazzo, 2011³⁰	Interview of representatives from three hospitals across the country concerning their use of social media in their organizations	<ul style="list-style-type: none"> • The Methodist Hospital (Houston, TX) <ul style="list-style-type: none"> ○ Hospital marketing and communications staff send tweets two to three times per day ○ Two-thirds of tweets contain health news ○ One-third of tweets contain hospital promotions • Innovis Health (Fargo, ND) <ul style="list-style-type: none"> ○ During the state of emergency during the 2009 Fargo-Moorhead Flood, hospital used Twitter to connect with patients' families, staff, emergency authorities, media, volunteers, and the general public ○ Regularly use Twitter for recruitment, employee relations, marketing of the hospital's brand and services, and patient relations
Thaker et al., 2011¹⁹	Structured review of web sites of 1,800 hospitals in a search for indications of institutionally maintained Facebook, Twitter, or YouTube accounts	<ul style="list-style-type: none"> • 21% use social media • 16% use Twitter • Hospitals' uses of social media <ul style="list-style-type: none"> ○ Target general audience (97%) ○ Provide content about organization (93%) ○ Announce news and events (91%) ○ Further public relations (89%) ○ Promote health (90%)

Hoppszallern & Weinstock, 2012¹⁶	Survey of 1,570 hospitals and health systems nationwide regarding their IT initiatives including social media use	<ul style="list-style-type: none"> • 80% use social media for community engagement • 68% use social media for health care tips • 48% use social media for patient education • 32% use social media for crisis communication • 23% use social media for care management messages • 14% use social media for chats with physicians
PwC HRI, 2012²²	Survey of 1,060 consumers representing the demographics of the US population and 124 health industry executives	<ul style="list-style-type: none"> • 1/3 of consumers use social media sites for health-related material such as medical information, tracking and sharing symptoms, and providing feedback about doctors, treatments, and health plans • 1/4 consumers use social media to post about healthcare experience • 41% of consumers would use information from social media to choose specific physician or medical facility • 82% of HCOs social media accounts managed by marketing or communications professionals • Half of surveyed executives concerned about how to incorporate data from social media into HCO strategic planning and practices
Jobvite, 2013³¹	Survey of 1,600 recruiting and human resources professionals addressing their use of social media as a recruiting tool	<ul style="list-style-type: none"> • 94% of recruiters used or planned to use social media as a recruiting tool, a 16% increase from 78% in 2008 • 78% of recruiters have made a hire using social media • 73% planned to increase investment in social networking as a recruiting tool • 55% used Twitter as a recruiting tool in 2013 <ul style="list-style-type: none"> ○ 47% used Twitter to showcase employer brand ○ 43% used Twitter to post jobs • 93% of recruiters are likely to look at a job candidate's social profile • Social recruiting has improved time to hire (33%), quality of candidates (49%), and quantity of candidates (43%)
Barriers		
Thompson et al., 2008³²	Evaluation of online social network profiles of 501 medical students and 312 residents at the University of Florida, Gainesville	<ul style="list-style-type: none"> • 44.5% had social network account, including 64.3% of medical students and 12.8% of residents • 83.3% of accounts listed at least one form of personally identifiable information • 37.5% of accounts were private • Some accounts exhibited improper material
Chretien et al., 2011³³	Examination of 5,156 tweets from 260 self-identified physicians' public Twitter profile pages	<ul style="list-style-type: none"> • 144 (3%) unprofessional tweets • 38 (0.7%) patient privacy violations • 33 (0.6%) profane tweets • 14 (0.3%) sexually explicit tweets • 4 (0.1%) discriminatory tweets • 55 (1%) "other unprofessional" tweets which included conflicts of interest, unsupported claims, and unsubstantiated medical therapies

<p>NCSBN, 2011²⁴</p>	<p>Online paper aimed at informing nurses about how to use social media appropriately. The paper contains illustrative cases reported to various Boards of Nursing that explore scenarios of violations of acceptable social media use in healthcare and the ramifications brought about by each.</p>	<ul style="list-style-type: none"> • Scenario 1 <ul style="list-style-type: none"> ○ Nurse commented on local newspaper’s internet blog about caring for physically disabled child, mentioning child’s age and use of wheelchair ○ Blog reader complained to Board of Nursing that nurse violated “privacy laws” ○ As disciplinary action, Board of Nursing issued warning to nurse • Scenario 2 <ul style="list-style-type: none"> ○ Nurses used email to forward picture of patient in hospital gown with backside exposed ○ Hospital management was made aware and began investigating patient’s rights violation ○ Local law enforcement was made aware and began investigating sexual exploitation ○ Board of Nursing was made aware and began investigating violations of confidentiality of health records regulations ○ As disciplinary action, nurses were placed on administrative leave • Scenario 3 <ul style="list-style-type: none"> ○ Student nurse posted photo of 3-year-old pediatric chemotherapy patient with his room number visible in background on Facebook page claiming how brave the patient was ○ Despite having proper privacy settings in place, supervisor discovered photo on student nurse’s Facebook page ○ Because there was clear violation of program’s confidentiality policy and HIPAA, student nurse was expelled from program ○ Program was no longer allowed to participate in pediatric clinicals at that children’s hospital ○ Hospital faced potential legal ramifications from HIPAA violations
--	---	--

Appendix A

Questions asked in semi-structured interview of expert in hospital marketing

1. For what purposes does your hospital use Twitter?
2. Who is responsible for managing your hospital's sponsored Twitter account?
3. How has Twitter benefited your hospital?
4. How do you think the utilization of Twitter has affected patient care?
5. How do you think the utilization of Twitter has affected the cost of hospital care?
6. How has your hospital implemented social media use guidelines or policies?
7. How have patients, staff, and the community reacted to the utilization of Twitter by your organization?
8. Are there any other significant advantages or disadvantages to Twitter utilization in hospitals that we have not covered?