Social Media for Healthcare: A Content Analysis of M.D. Anderson's Facebook Presence and its Contribution to Cancer Support Systems

Carissa Hilliard[*]

Communications Science & Pre-Medicine

Abstract

Though telemedicine has been primarily concentrated in clinical care, a new component of the field has evolved through the past decade with the popularization of social media. Telemedicine has been prevalent for years, but social media has made the term more recognizable. This study examined the common themes of the official Facebook group of the University of Texas M.D. Anderson Cancer Center over a 15-day period and analyzed its contents to evaluate the following variables: poster type, type of content, gender, age range, location, and activity on the post. The data collected provided a comprehensive overview of how M.D. Anderson interacted with their patients through Facebook and how this method enhanced a patient's cancer experience, particularly those who live in rural locations.

I. Introduction

Throughout the past decade, social media has become a practical vehicle for the exchange of ideas and information, and the reach of sites, such as Facebook, Twitter, and YouTube, has extended into the modern medical field. Most notably, there has been a proliferation of social media catered to oncology, demonstrating a rise in home-based cancer care. Patients are more easily able to connect to others like themselves for camaraderie and support, as well as gain access to doctors at any time of day from any location. Additionally, healthcare providers are able to extend information about specific services and care in real time to an ever-increasing audience. Medicine's transition to a social media platform exhibits a novel shift into the expanding field of telemedicine and a positive transition into a viral-powered world.

Several top-ranked medical centers have begun to gravitate towards Facebook as a means of explicitly connecting to patients and other associated parties. Facebook has been a leader in social media for the past decade, and allows for the most interactive, extensive use of pictures, video, messaging, and network connectivity. The University of Texas M.D. Anderson Cancer Center, located in Houston, Texas, has utilized Facebook as a medium for the transmission of news, events, and information to any who choose to connect to their official Facebook website. This study aims to analyze the most prominent constituents of M.D. Anderson's Facebook group, according to a series of predetermined metrics in order to ascertain how a top cancer center employs social media tactics to better serve its patients. By using these methods, this study can examine the efficacy of social media in relation to oncological services, providing for a better understanding of telemedicine and how it can provide for improved cancer care.

* **Keywords**: cancer, telemedicine, social media, rural health care, oncology

Email: chilliard4@elon.edu

II. Literature Review

The Background of Telemedicine

Telemedicine, as defined by the American Telemedicine Association, is "the use of medical information exchanged from one site to another via electronic communications to improve patients' health status" (Telemedicine Defined, 2011). It primarily concerns the use of satellite-based videoconferencing through which virtual appointments with patients and consultations between other physicians can be performed. Telemedicine has the potential to move the services of a doctor's office into the convenience of one's home, providing instant access to medical assistance at any time, at any location, via a high-definition video screen and specialized medical instruments. Readings from blood pressure monitors, cameras, stethoscopes, and other clinical devices can be transmitted in real time to an on-duty health professional who can then converse directly with a patient and provide treatment. Doctors can also converse with other doctors instantly, perform robotic surgeries from any remote location, and simultaneously monitor several patients at once through a comprehensive audiovisual network. Telemedicine has specific applications to rural areas, connecting regions without sufficient healthcare services to telemedical sites in top metropolitan hospitals.

Several advances in the realm of telemedicine have created a futuristic representation of healthcare technologies that have the potential to revolutionize the medical industry (Geracimos, 2009). Since the 1960s, when Dr. Kenneth Bird used television to transmit images from Boston's Logan airport to Massachusetts General Hospital, telemedicine has evolved to surgical robots and localized healthcare from mobile phones. Remote-controlled robots have been tested in surgery in Europe, and Duke University is currently experimenting with robotic surgery in warfare and in outer space. EnVision eICU, a program being tested in northern Virginia, allows personnel to monitor ICU units from a station 15 miles away from connected hospitals. In April 2009, the FCC allotted $35.6 million to the Rural Health Care Pilot Program, connecting hospitals in remote locations. The Veterans Administration has offered telehealth programs since 1977, and today 32,000 clients participate in the outside monitoring of their vital signs; those utilizing such services have reported a 95 percent satisfaction rate.

In order to investigate the opinions of health professionals in the area of telemedicine, a study in rural Missouri was conducted to seek the best methods for implementing telemedical services in remote locations (Campbell & Harris, 2001). Telemedicine is sought after as a more cost-effective version of medical care in locales that do not have an adequate number of available physicians. Three counties in Missouri were outfitted with computers, medical databases, and videoconferencing facilities. Volunteers from clinical staff were given open-ended questions concerning the disadvantages/advantages of telemedicine, barriers/facilitators of telemedicine, the use of telemedicine in physical practice, and suggestions for the use of telemedicine in the healthcare field. Fifty-seven interviews were collected from physicians of different backgrounds. Those who were already associated with a practice at the university's tertiary center were more likely to use telemedicine than those who were part of a private practice. Turf, efficacy, practice context, apprehension, time to learn, and ownership were all discriminating factors for the responses of the subjects.

Social Media and Healthcare

Though telemedicine has been primarily concentrated in clinical care, a new component of the field has evolved through the past decade with the popularization of social media. Telemedicine has been prevalent for years, but social media has made the term more recognizable (HealthNation, 2011). Recent research at Sidorov Health Solutions has deconstructed the considerations for care management programs in the adoption of social networking (Sidorov, 2010). As of 2010, there were 750 health-related Facebook groups devoted to cardiovascular disease and cancer. The validity of the information presented in these groups was commendable, with only 0.22% of the postings cited as inaccurate information.

An additional study conducted by the National Cancer Institute focused on the sociodemographic and health-related factors associated with current adult social media users in the United States (Chou, 2009). This study identified adults who used the Internet and who used social networking, blogging, and online support groups. Using the Health Information National Trends Study, the author found that personal cancer experiences, age, and health status were the most determining factors in the level of participation in social media use.

The Internet's effect on medical practices has grown exponentially according to research done at the Center of Global eHealth Innovation at the University of Toronto, which specifically cites the likes of Google Health, Microsoft HealthVault, and Dossia (Eysenbach, 2008). A new term, "Medicine 2.0," encompasses an interpretation of the connection between social networking, collaboration, participation, apomediation (a new scholarly socio-technological term that characterizes the process of disintermediation), and openness. An analogous term, "Health 2.0," also appears as a recurring keyword related to healthcare and social media in other references (Hawn, 2009). A Brooklyn-based primary care practice titled "Hello Health" is utilizing Web-based social media to communicate with patients via weblogs, instant messaging, video chat, and social networks. Initially, 300 patients had signed up for $35 per month with additional charges for other services. Such an immediate response exemplifies the power and span such networks have on a connected population.

Coincidentally, the medical world has begun taking advantage of one social media platform in particular: Twitter (Terry, 2009). Physicians can utilize the website to communicate with other physicians, to gather medical information, and to acquire general information about conference updates. As of May 2009, 255 hospitals in the U.S. were members of a social media website and 167 were on Twitter (this number has undoubtedly risen since). TrialX, an online clinical trial service that can connect patients and clinical trial investigators is currently being tested. Patients can tweet the TrialX program with their statistics in order to find a match with a clinical trial program tailored to their needs. The Centers for Disease Control has also taken advantage of Twitter in order to provide followers with quick, up-to-date information concerning outbreaks such as H1N1. This foray into viral media channels, especially by such a healthcare giant, undoubtedly emphasizes the value of social media as a platform for the flow of information.

Social Media and Cancer

An especially remarkable application of healthcare's role in social media is found in the cancer realm. Because the disease imparts such a grave diagnosis to such a large assembly of people, instant and constant access to online support is invaluable. Some of the most popular social media platforms today include Twitter, WordPress, Facebook, Tumblr, YouTube, StumbleUpon, Reddit, Mashable, LinkedIn, and Bebo (Riccobono, 2010). These websites have been used to raise money, build community, and increase awareness, with examples including Lance Armstrong's LIVESTRONG foundation, viral Twitter hashtags ("#BeatCancer," "#BlameDrewsCancer," and "#BlameEthansCancer") and StandUp2Cancer. The Mayo Clinic is also a prime participant in social media ventures, with 2 million views on its YouTube account and over 10,000 Facebook fans. Not only have those diagnosed with cancer been able to form their own online identities, but oncologists have also been able to connect with their patients as well.

One such analysis, performed by the National Cancer Institute, focuses specifically on personal cancer narratives shared through YouTube (Chou, 2011). The common themes of 35 YouTube videos listed by the keywords "cancer survivor" and "cancer stories" were assessed; it was found that 86% of such stories concerned cancer diagnosis. It was concluded that the Internet has promoted a sense of emotional engagement and a more efficient exchange of experience, resulting in a powerful shared sense of community.

Blogs can also be utilized as a form of communication between cancer patients, between patients and their doctors, or as an update for family members of those with cancer (Jeffries, 2011). Benefits of blogging include extending a support network, reducing stress, reducing feelings of isolation, and allowing for long-distance communication. Sites that focus on blogs related to cancer include Blog for a Cure, CaringBridge, and Blogger. Such blogs can also connect with Facebook, as well as mobile devices such as the iPhone and Android, expanding the reach of these services even farther.

An especially prevalent venture has been Lance Armstrong's LIVESTRONG bracelet campaign. Twitter, Facebook, and the LIVESTRONG blog were pivotal features of the campaign's success (Hibbard, 2010). The company raised over $70 million for cancer research due to its viral popularity, with 60% of LIVESTRONG's website traffic coming through social networking sites, primarily Twitter. A strong voice, constructive comments, and the encouragement of community storytelling have all been components of the campaign's achievements.

An even newer application of social media to oncology is the website, *I Had Cancer*, which has been christened the "Facebook for cancer survivors, patients, and their family and friends" (John, 2011). The website is divided into three categories: survivors, fighters, and supporters, with users creating their own custom profiles complete with pictures and a chronological treatment diary. Visitors to the website can also search

for other community members by type of cancer, location, age, and gender; there are circles available for those with analogous traits. This type of social media is especially credible because it goes beyond physical support networks and online forums due to its increasingly customizable format. Since *I Had Cancer* is an entity outside of a traditional social media outlet, such as Facebook or Twitter, it is noteworthy that the same dynamic is still successful even in a smaller online arena.

By assessing those projects that have been successful in connecting cancer patients with support systems, reputable sources, and instant feedback, it can be ascertained that social media is a viable option for cancer care and support. Due to telemedicine's incorporation into mainstream social media outlets, it is now easier than ever for the layperson to access and interact with doctors, nurses, caregivers, and other patients. Such instant communication allows for a more rapid and productive transmission of information, contributing to a heightened sense of awareness, community, and quality of care, all of which are essential variables in the management of a terminal illness.

III. Methods

In order to form a comprehensive overview of how a major cancer center utilizes its official Facebook page, a content analysis was performed. The University of Texas M.D. Anderson Cancer Center (facebook.com/MDAnderson) is the top cancer center in the United States, as defined by *U.S. News & World Report*. This page was chosen for analysis due to the center's prestige, high volume of page traffic, and high degree of page interactivity.

For this content analysis, several variables were defined. A Facebook page is essentially an online community for fans of a business, product, or celebrity, and provides a platform for comments, photos, videos, and other links. The number of "likes" a page receives is the number of users who have added that page to their list of favorites, analogous to the number of fans who favored the page. "Check-ins" are the number of fans who have physically been present at the location of the page (in this case, at M.D. Anderson) and logged this information using a mobile device. Comments are any content that has been posted by a user onto the Facebook page. "Shares" refer to any post that has been reblogged from the Facebook page onto an individual's own Facebook page.

From October 9, 2011, to October 23, 2011, a period of 15 days, the M.D. Anderson Facebook page was checked at 12 a.m. (midnight at the conclusion of the previous day). For M.D. Anderson's overall page, the following were tallied: 1. The total number of likes for the page; 2. The number of shares; 3. The number of check-ins; and 4. The number of posts made.

Posts made by any individual on the M.D. Anderson page (main posts) were assessed through the following variables: 1. The poster type; 2. The type of content; 3. Gender; 4. Age range; 5. Location; 6. Number of likes; 7. Number of comments; and 8. Number of shares (Refer to Appendix for detailed element categories).

For any additional comments made on an individual post (thread posts) the following were assessed: 1. The poster type; 2. The type of content; 3. Gender; Age range; 5. Location; and 6. Number of likes.

To define a post, a set of numerical metrics was used. This data, along with the individual posts being described, was logged into a spreadsheet, with each number a code for a mutually exclusive category. Such data was gathered from the information publicly displayed on an individual's Facebook account. These numbers were assessed to find the most common types of posters, the most common locations, the most common gender, most common age range, most common type of content, and the content with the most activity. More detailed information about the metrics is available in the Appendix.

IV. Findings

Overall Page Statistics

The number of individuals who liked M.D. Anderson's Facebook page increased nearly linearly over time (Figure 1). Over a 15-day period, the total number of likes rose from 23,355 to 23,585, exemplifying a

gain in 230 page fans. However, the number of pages they talk about slowly increased, sharply fell, and then steadily remained the same (Figure 2). Check-ins grew over time, but no inherent pattern was observed. The number of posts made per day ranged from one post to five posts, with most activity detected early in the week, and the least seen on weekends (Figure 3).

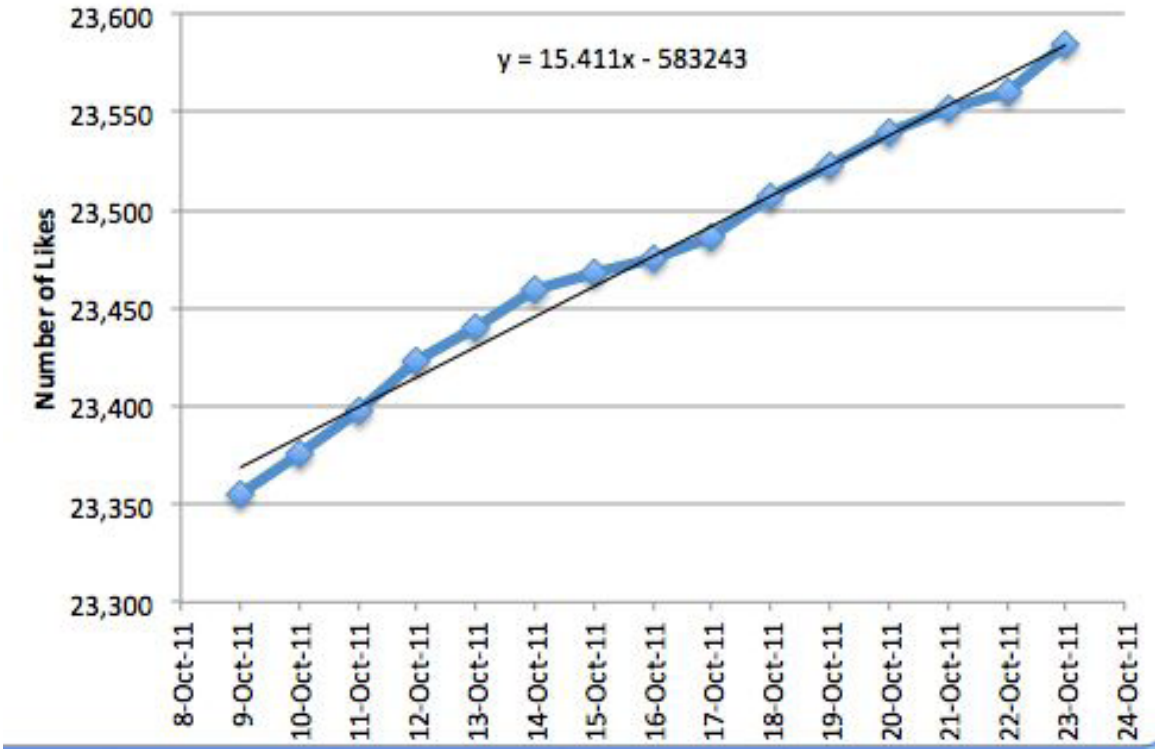

Figure 1. The total number of Likes viewers gave to pages

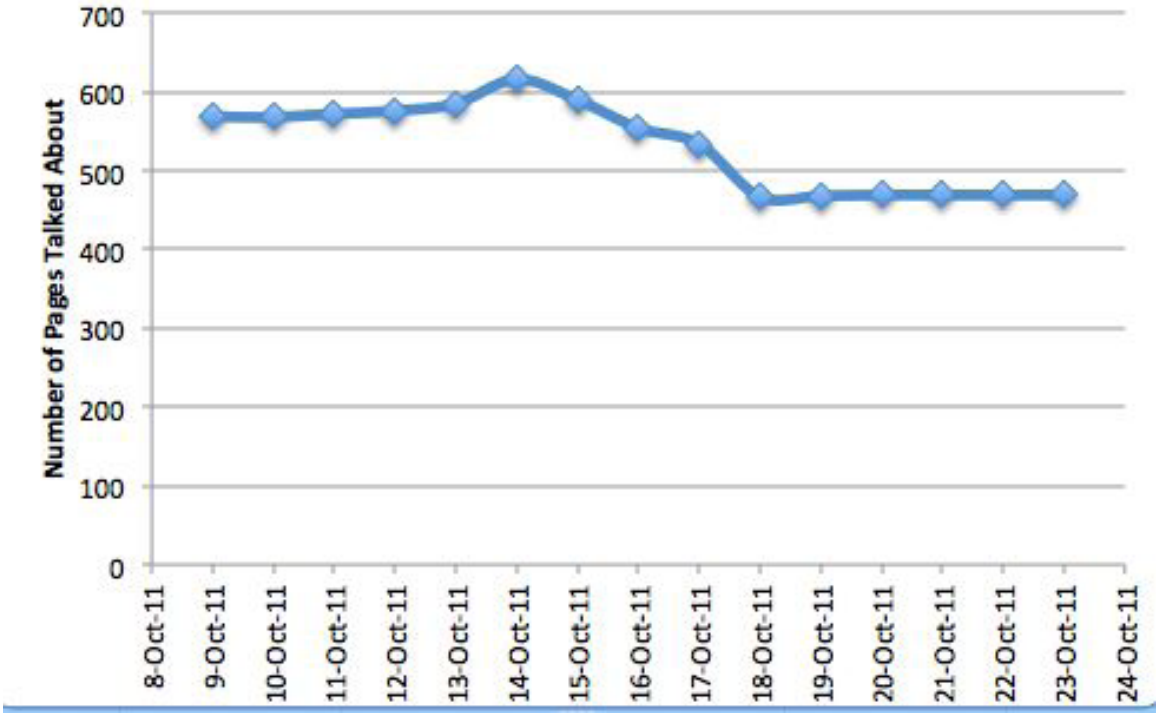

Figure 2. The number of pages viewers talked about

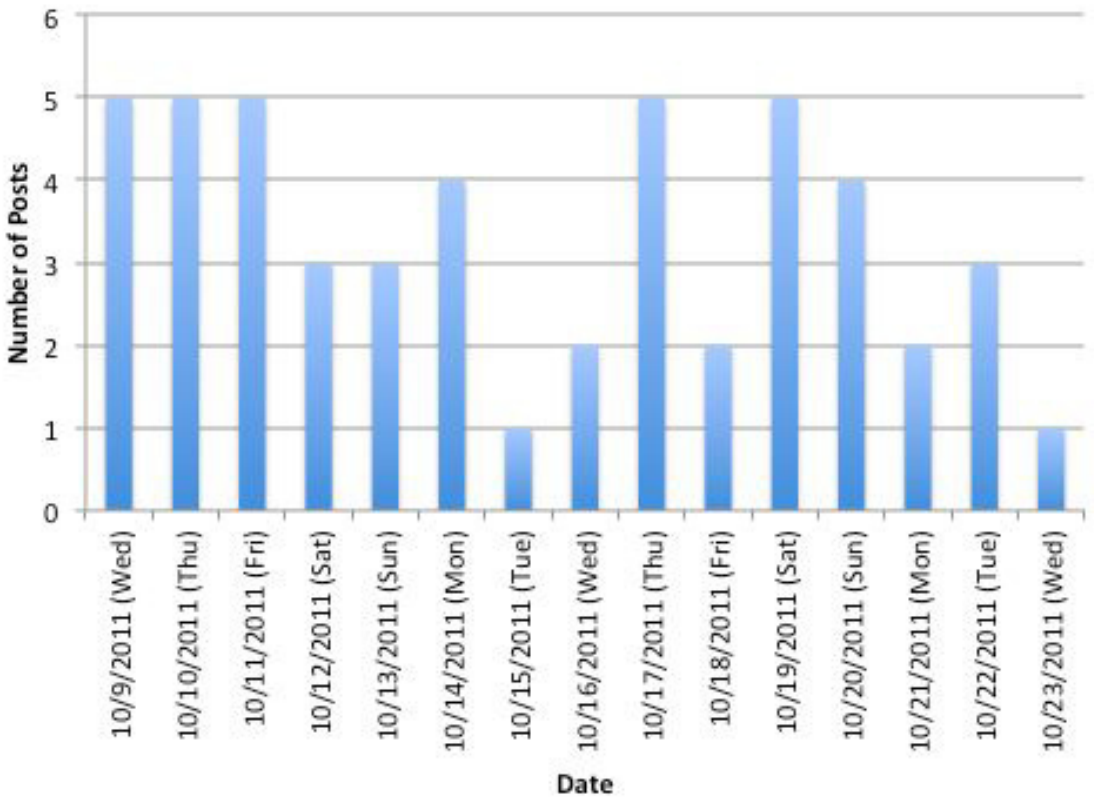

Figure 3. Total number of posts per day

Main Post Statistics

It is evident that M.D. Anderson is the primary contributor to the M.D. Anderson Facebook page, as their activity accounted for 60% (30 posts out of 50) of the poster type. The next highest majority is posters identified as others (16%), followed by friends/family of a patient (12%), patients (6%) and organization (6%) and staff (0%). Content type was heavily skewed towards direct links, which accounted for 38% (19 out of 50) and news (4%) with pictures and videos together (22%) making up nearly a quarter of the contents posted (Figure 4). Nearly five times as many females individually posted on the Facebook page (13 out of 50 posts) in comparison with males (3 posts); 34 posts were classified as "not specified" due to the gender ambiguity of M.D. Anderson and other organizations. The age of most posters was not made public, leading to a large percentage (36 out of 50) of posters with undisclosed ages, followed by 30-to 59-year-olds (18%), over 59-year-olds (6%), 20- to 29-year olds (4%), and no posters under the age of 20. Many posters also did not reveal their location. Those that did were located in areas surrounding Houston, Texas as well as nearby states, such as Kansas, Georgia, Mississippi, and Alabama, with one poster from New York City and one from Aruba.

Additionally, there was an extreme disparity in responses M.D. Anderson's posts and the others received (Figure 5). Likes M.D. Anderson accumulated averaged about 24 per day, with a maximum of 56, while likes general posters got averaged less than one, with most posts receiving no likes at all. The same held true for number of comments and shares; M.D. Anderson collected exponentially a higher number of comments and reblogs.

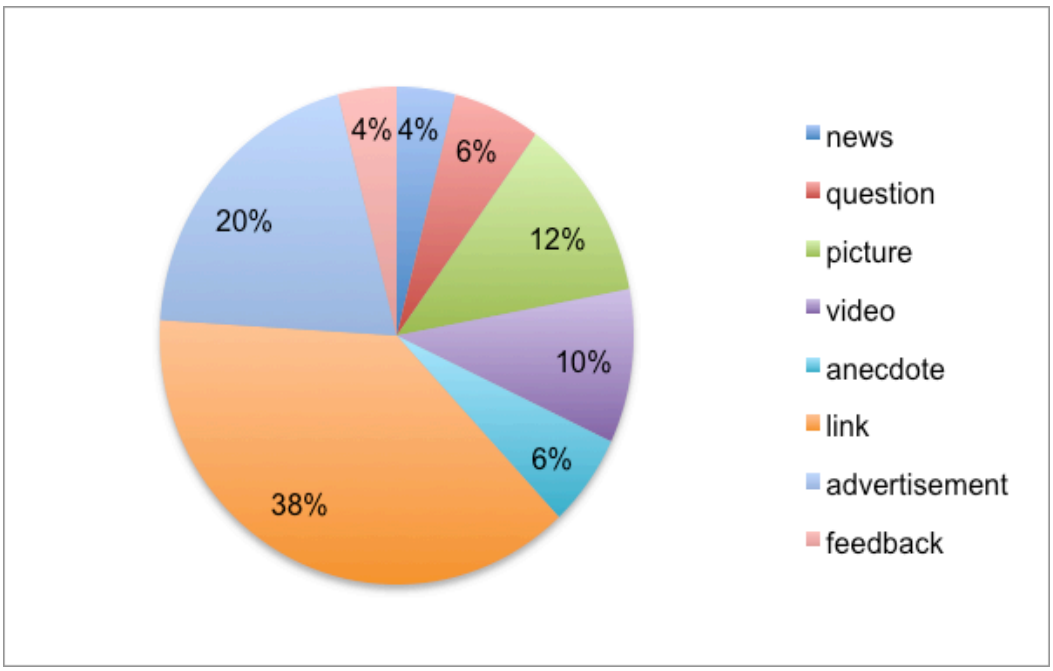

Figure 4. Content types of main posts

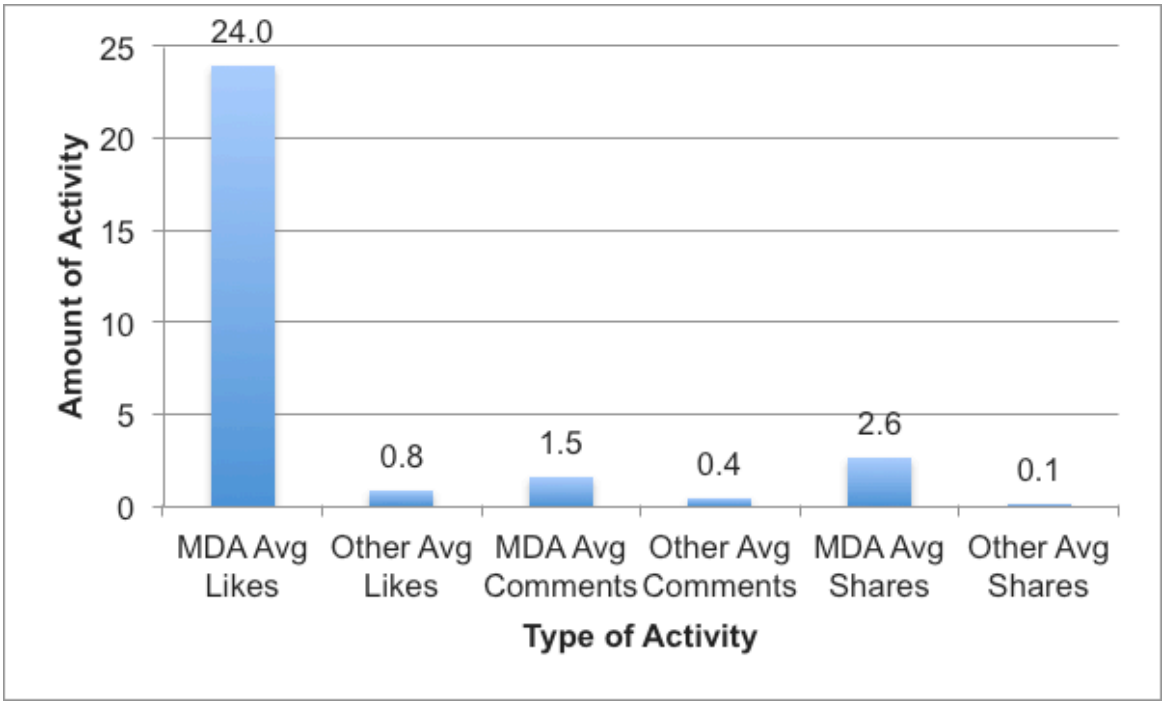

Figure 5. The number of Likes viewers gave to posts that M.D. Anderson and others made

"Child" Post Statistics

After M.D. Anderson and others put up initial posts, on which anybody can make comments, so-called *child* posts. Nearly half of commenters (48%) in this child post category could not be identified. The comments M.D. Anderson made accounts for 25%, followed by 17% by friends/family of an M.D. Anderson patient, 8% by the staff, and 2% by patients. The dominant majority (64%) was once again female, with only 8% by posters being male and the rest by unidentifed commenters. The comments were made up of responses to prior posts (75%), additional links (8%), anecdotal stories (10%), further questions (5%) and others. In terms of

ages, commenters were dominated by 30- to 59-year olds (31%), with a nearly equal number of younger and older adults. Commenters were again located in Texas, with many of them also coming from Louisiana, Kentucky, and Tennessee. Individuals from Aruba, Iowa, and North Carolina were also observed. The number of likes on thread posts, even for M.D. Anderson, were much lower than those of main posts. There is no option on Facebook to share or comment upon a thread post.

V. Discussion and Conclusion

By assessing the content of M.D. Anderson's official Facebook page over 15 days, it is clear that the facility is effectively utilizing their social media platform to interact with online users. It is apparent that M.D. Anderson dominates conversation by posting articles of interest, including videos, pictures of hospital events, relevant case studies, and research inquiries. M.D. Anderson continues to further discussion by responding promptly and thoroughly to any questions or information posted by an online user. Posters are able to interact directly with each other by liking, sharing, and commenting on one another's posts; nonprofits and other organizations can also advertise events and services that may be relevant to patients, hospital staff, or their families and friends. This type of social media vehicle has proved itself a positive community, with ample encouragement and virtual handholding, as patients, families, and doctors alike posted words of support, hope, and understanding.

The study found that most of the posters are uploaded by middle-age people who typically suffer from cancer, rather than younger people whom social media often caters to. This shift in age exemplifies how the Facebook dynamic is changing as its appeal broadens, transitioning from a mere trend among teenagers to a more universal, recognized, and respected form of communication. This shows that older users are becoming increasingly more comfortable with social media and are beginning to take advantage of its accessibility. Additionally, a majority of the posters are women. This can be contributed to this specific gender's predisposition for emotional connectivity, as well as its greater affinity for social support. Most women posted encouragement in response to a specific post whereas men were more likely to initiate a question.

Telemedicine is a remarkable asset to patients living in rural or remote areas; provided an Internet connection is available,and access to medical information is not limited by distance. Telemedicine can be extremely effective through the social media in regions where local medical care is insufficient if patients in these locations are more inclined to interact through social media sites due to lack of high-quality healthcare. In this study, many people made comments from several rural locations, as well as regions well outside the Houston, Texas area, which reveals the importance of an accessible soundboard for patients who may live without direct contact with a major medical center. Several of the locations listed by commenters include sparsely populated areas in Texas and Louisiana, signifying a definite utilization of the M.D. Anderson Facebook page for medical information. Even those living outside the United States, as exemplified by one specific poster from Aruba in the southern Caribbean Sea, can interact and converse with hospital officials and other patients who may be undergoing similar treatments. What is specifically unique about the M.D. Anderson's Facebook page is that it offers posters a place to convene regardless of age, gender, or location. Examination of the diversity of commenters helps to understand how M.D. Anderson is reaching its patients through the Web. M.D. Anderson's implementation of a resourceful, positive, and interactive online forum is a compelling representation of telemedicine, exemplifying a positive shift towards the use of social media to enhance the experience of cancer treatment.

Future Research

Because of the limitations of privacy settings, a larger sample size is recommended in order to gather as much solid information as possible. Additional studies comparing M.D. Anderson's use of Facebook to that of other top cancer centers would be useful in determining the state of social media use in major hospitals in general.

Acknowledgments

The author would primarily like to thank Dr. Matthew Clark, whose counsel, creative insight, and steadfast support were essential to completing this research. The author is additionally thankful for Dr. Connie Book's guidance, flexibility, and leadership as a mentor. Many thanks must be extended to the UNC Lineberger Comprehensive Cancer Center's Telemedicine Department for its invaluable internship experience it offered the author, as well as Dr. Michael Frontani for his submission of the paper and backing of the topic.

Bibliography

Campbell, J., Harris, K., & Hodge, R. (2001). Introducing telemedicine technology to rural physicians and settings. *Journal of Family Practice, 50*(5), 419-424.

Chou, W., Hunt, Y., Folkers, A., & Augustson, E. (2011). Cancer survivorship in the age of YouTube and social media: A narrative analysis. *Journal of Medical Internet Research, 13*(1), 4.

Chou, W., Hunt, Y. M., Hesse, B. W., Beckjord, E., & Moser, R. P. (2009). Social media use in the United States: implications for health communication. *Journal of Medical Internet Research, 11*(4), 9.

Eysenbach, G. (2008). Medicine 2.0: social networking, collaboration, participation, apomediation, and openness. *J Med Internet Research, 10*(22).

Geracimos, A. (2009). Distant early warning: Telemedicine allows doctors to diagnose sick from miles away. *The Washington Times*, p. M4.

Hawn, C. (2009). Take two aspirin and Tweet me in the morning: How Twitter, Facebook, and other social media are reshaping health care. *Health Affairs, 28*(2), 361-368.

HealthNation. (2011). Telemedicine leaders HealthNation turn to social media [Press release]. Retrieved from http://www.free-press-release.com/news-telemedicine-leaders-healthnation-turn-to-social-media-1300092155.html

Hibbard, Casey. (2010). How LIVESTRONG raised millions to fight cancer using social media. *Social Media Examiner*. Retrieved October 20, 2011 from http://www.socialmediaexaminer.com/how-livestrong-raised-millions-to-fight-cancer-using-social-media/

Jeffries, Courtney. (2011). Cancer blogs strike back: How social media educates, supports, and heals one post at a time. *Social Media Club*. Retrieved October 20, 2011 from http://socialmediaclub.org/blogs/from-the-clubhouse/cancerblogs-strike-back-how-social-media-educates-supports-and-heals-one-p

John, Tracey. (2011). New social network connects cancer survivors, patients, and supporters. *Forbes*. Retrieved October 20, 2011 from http://www.forbes.com/ sites/traceyjohn/2011/08/25/new-social-network-connects-cancer-survivors-patients-and-supporters/

Riccobono, Dina. (2010). How the cancer community has benefited from social media. *Know Cancer*. Retrieved October 20, 2011, from http://www.knowcancer.com /blog/cancer-social-media/

Sidorov, J. (2010). Social media and population-based care management. *Population Health Management.* Telemedicine defined. (2011). In *American Telemedicine Association*. Retrieved March 5, 2011 from http://www.americantelemed.org/i4a/pages/index.cfm?pageid= 3333

Terry Mark. (2009). Twittering healthcare: social media and medicine. *Telemed J E Health, 15*(6).

Appendix.
Category items

Poster Type
1 – M.D. Anderson (the moderator of the M.D. Anderson Facebook group)
2 – patient (an individual having undergone, currently undergoing, or about to undergo treatment)
3 – friend/family of patient (an individual related to a patient at M.D. Anderson)
4 – staff (an individual employed by M.D. Anderson)
5 – other (not stated)
6 – organization (a nonprofit or business)

Type of Content
1 – news (current event or article of interest)
2 – question (a question relating to treatment options, symptoms of cancer, general inquiries about the hospital, etc.)
3 – picture (visual graphics)
4 – video (a video coming directly from an individual or YouTube)
5 – anecdote (a story)
6 – link (a direct connection to another website or page)
7 – advertisement of services/events (notification of services/events of interest to those associated with M.D. Anderson)
8 – feedback (a comment in response to already posted material)

Age Range
1 – child/teenager (0-19 years)
2 – young adult (20-29 years)
3 – middle adult (30-59 years)
4 – older adult (60+)
5 – not specified

Gender
1 – female
2 – male
3 – not specified