An Exploratory Study of Social Media Use Among Nonprofit Hospitals

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Abstract

Healthcare is a multi-faceted and complex organizational and social issue that affects many stakeholders (e.g., the ill, family, care taker, health institutions, etc.). Little research has examined how healthcare providers engaged with their targeted audiences on various social media. This thesis examined how nonprofit organizations (NPOs) in the healthcare industry use social media as a dialogic means to strategically engage with their stakeholders. This study conducted content analysis of the social media messages by four nonprofit research hospitals: Dana-Farber Cancer Institute, the Mayo Clinic, Memorial Sloan-Kettering Cancer Center, and St. Jude Children’s Research Hospital. The Lovejoy and Saxton’s (2012) “Information, Community, and Action” typology was adopted to probe the function and impact of their online communication. Highlights of the major findings included the following. First, the four hospitals use social media effectively. Dana-Farber Cancer Institute stood-out from their practice of rewording content. Second, Facebook was the preferred social media platform by St. Jude Children’s Research Hospital stakeholders. Third, three hospitals (i.e., Dana-Farber Cancer Institute, the Mayo Clinic, and Memorial Sloan-Kettering Cancer Center) used Twitter to interact with audience during live symposiums and events. This study provided significant findings that can be instrumental to guide healthcare organizations to engage key stakeholders on social media in order to build quality relationships.

Keywords: Engagement, Social Media, Healthcare, Non-profit, Research Hospitals, Message Framing, Content Producers.
AN EXPLORATORY STUDY OF SOCIAL MEDIA USE
AMONG NONPROFIT HOSPITALS

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Introduction

Little is known about social media use by nonprofit hospitals (NPOs). Understanding how social media is used by nonprofit hospitals is important because there is little academic research documenting: a) how healthcare NPOs use social media; b) how the offline reputation is transferred to online stakeholders; c) how new medical breakthroughs are communicated and dispersed within the new media; d) how social media platforms are used to encourage awareness as well as participation in events; and e) how to build an empowered community of patients, families and friends when faced with life-threatening illnesses.

This study thus seeks to examine how nonprofit organizations (NPOs) in the healthcare industry use social media as a dialogic means of various communication strategies with their stakeholders. Because hospitals are the gatekeepers of wellness, it is important to probe their organizational behaviors as they relate to communicative actions of online stakeholders. Wellness is a shared community goal. Ensuring that patients, patient families, clinicians, caretakers, and all stakeholders communicate effectively is important because effective communication decreases the hardship associated with sickness and builds a network of support systems. Understanding how hospitals use social media to communicate with stakeholders is imperative because social media serve as interactive platforms for the concerned parties to build community that can provide adequate support. Specifically, health and healthcare information are distributed and debated via social media within the community. Social media also broaden the spectrum for engaging with external stakeholders from around the world, empowering others in similar situations.

This study focused on four nonprofit hospitals. Three of the carefully chosen NPOs were selected from the top one-hundred ranked cancer hospitals listed on *US News and World*
Report's (2014) "Top-Ranked Hospitals for Cancer" report. The ranking of these hospitals was based on a scale "that measured death rates of patients who represented challenging illnesses," as well as safety, and other performance data (US News and World Report, 2014). The three cancer hospitals selected for this study were: Memorial Sloan-Kettering Cancer Center (MSKCC), The Mayo Clinic (Mayo Clinic), and the Dana-Farber/Brigham and Women’s Cancer Center, for the purpose of the study all affiliations of the Dana-Farber Cancer Institute are included in the study and will be referred to as “Dana-Farber,” unless otherwise noted. The fourth nonprofit hospital, St. Jude Children’s Research Hospital (St. Jude), ranked number one in specialty, as a major children’s hospital whose selection was based on the same criteria outlined for the cancer hospitals (US News and World Report, 2014). These research organizations were selected and monitored during a four-week time period.

This study examines the function and impact of social media usage for these nonprofit organizations and addresses the impact of communication on various social media platforms pertaining to organizational strategies, governance, and environment. A major purpose of examining these concepts is to ascertain the effectiveness and degree of interaction via social media amongst all stakeholders (including internal) and how this type of interaction translates into improved quality of life and prolonged wellness. Additionally, these specific organizations were chosen because of the impact they made as “regional high performers” within their respective locations (US News and World Report, 2014). Because of each NPO’s general reputation, these institutions have established a prominence in the social media environment, thus, bolstering public visibility.

In order to fully assess what drives organizations and their stakeholders to use specific social media platforms, this study utilizes an adaptation of Nah and Saxton’s (2013) determinant
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model of nonprofit utilization of social media in terms of: (1) adoption, (2) frequency of use, and
(3) dialogue (p. 294). In addition to the determinant model, Reber and Kim’s (2006) relationship
theory network model is also utilized in analyzing how content producers use social media to
strategize, impact, govern, as well as build relationships. This study analyzes multiple social
media platforms (e.g., Facebook, Twitter, YouTube, Google+, Pinterest, LinkedIn, and
Instagram) used by these four NPOs. Each specific platform was chosen because of their
uniqueness and has a particular context and related function e.g., the types of audience,
stakeholder needs, ease of accessibility, and credibility of messages).

This thesis, through a content analysis method, highlights how social media are used to
communicate with different publics and to promote economic, organizational, as well as cultural
engagement. By analyzing information on each research hospital’s Website and selected social
media platforms, this study explores how nonprofit healthcare organizations engage with their
respective stakeholders.

This thesis is organized as follows. First, it starts with the literature review that
establishes the study’s theoretical framework, followed by the methodology section overviewing
the means of data collection and analysis. Next, this study reports the major findings from
content analysis on the various social media sites used by the four major research hospitals.
Lastly, this study discusses conclusions, future research directions, and limitation.

Literature Review

The section of the literature review starts by describing the evolution of social media and
provides a working definition of social media. Then it moves to discuss the use of social media
by healthcare organizations and the role of social media in building quality relationships,
promoting engagement, and providing effective content. Additionally, this qualitative study
utilizes an adaptation of Lovejoy and Saxton’s (2012) social media typology, based on three major categories: “Information, Community, and Action” (p. 341).

Social Media

Evolution of Social Media. Kaplan and Haenlein (2010) refer to social media as “a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allowed the creation and exchange of user generated content” (p. 61). From its inception in the mid 1990’s, beginning with “Six Degrees.com,” Social Network Sites (SNSs) emerged as the prototype of social media (Boyd & Ellison, 2008). Specifically, SNSs were developed as a tool for users to connect with others (e.g., colleagues, friends, family, and like-minded individuals/groups). As a result of these web-based services, stakeholders were able to connect with one another in a public or semi-public platform that allowed them to exchange knowledge and share experience from the comfort of a user’s personal computer to anywhere on the globe (Boyd & Ellison, 2008). As the cost of purchasing a home computer continued to become more affordable, the need to develop alternative, easily accessible sites continued, resulting in the creation of sites such as Skyblog, LinkedIn, Flickr, YouTube, and Twitter in the early 2000’s (Boyd & Ellison, 2008, pp. 210-212). As emerging, diversified changes began, the term “social network sites” remained synonymous with Facebook, MySpace, Cyworld, and Bebo, and the term “social media” eventually took mainstream precedence and collectively broadened the scope of the availability of various cyber-services (Ye & Ki, 2012, p. 409).

In order to fully understand the technological phenomenon of social media, it is necessary to discuss the history and revolutionary transformation of cyber-communication from its beginnings in the mid-1990’s, to the online platforms utilized today. The inception of Web 1.0, which consisted mostly of online published websites and blogs, led to the multi-level platforms
of mainstream cyber-communication in a digital age (Hamilton, 2009). The changing needs of users provided the incentive for public relations practitioners as well as computer programmers to develop innovative ways of messaging beyond Web 1.0. This change from one-way communicative initiatives, which included personal websites to blog postings, to blog site collections transitioned to Web 2.0 content managed forums (Taylor & Kent, 1998). These technological advancements precipitated an increase of high volume web-based visibility and stakeholder reach at a significantly lower cost than traditional communicative venues such as telephone, radio, or television (Taylor & Kent, 1998).

The use of the Internet has steadily fostered a highly interactive, dynamic communicative mode. Many public relations scholars have examined this evolving communication pattern. For example, Taylor and Kent’s (1998) study examined the early development of how two-way dialogic communication fosters engagement and trust (as cited in Briones, Kuch, Lui, & Jin, 2010). Common findings of public relation scholars who examine the dialogic mode of communication include the building of trust, the presence of control mutuality, commitment, satisfaction, and fostering communal relationships (as cited in Paine, 2011, pp 224-229). Three basic types of online amenities for stakeholders to employ are: a) community or semi-public communal online profiles within a confined platform; b) a list of connections with other stakeholders; and c) the observance and navigation of their online acquaintances within the platform (Antheunis et al., 2013).

Purpose, expectations, and barriers are instrumental to the types of social media platforms that are used by stakeholders (Lui & Kim, 2011). Additional social media guidelines considered for this thesis were the affect of motives, transparency, the building of trust as it relates to quality of healthcare, engagement of participants, as well as accessibility to vital information (Antheunis
Defining Social Media. To examine the impact of social media use on healthcare organizations, it is important to first define what social media is. There are many definitions for social media. However, for the purposes of this study, Hamilton’s (2009) definition provides the necessary academic insight that is foundational to the ideas discussed in this study:

Social media are the various electronic tools, technologies, and applications that facilitate interactive communication and content exchange, enabling the user to move back and forth easily between the roles of audience and content producers (p. 1).

The importance of this definition is that it is a holistic one that is broadly applicable in a variety of context: it also focuses on the interactive and purposive use of social media.

In order to fully comprehend the reason for choosing Hamilton’s definition, it is necessary to examine other definitions for the purpose of a broader comprehensive scope. Antheunis, Takes, and Nieboer’s (2013) cited Kaplan and Haenlein’s (2010) definition as “a group of Internet-based applications that allow the creation and exchange of user generated content,” thus encompassing a broader meaning of social media that utilizes both application and user-based preferences to include the formulation and transfer of online information via Web platforms (p. 426). Since the emergence of social media, the world has witnessed intensified use in recent years. Additionally, the healthcare industry’s use of social media has also witnessed exponential growth since 2009 fueling the need for users to stay abreast of constant evolution (Antheunis et al., 2013). Katie Paine (2011) notes in her preface that “back in 1996, [social media] was known as ‘consumer-generated media,’” further explaining, “one common denominator has been relationships—lots of different types of relationships with lots of different
constituencies” (p. xix).

**Contexts of Social Media.** Each social media platform targeted specific user needs in terms of type of application and usage. Facebook’s main purpose is to cultivate relationships by encouraging users to engage by following, sharing, or liking posts using a blog that allows them to post information or ask questions of other stakeholders (Waters, Burnett, Lamm, & Lucas, 2009). Twitter is a network of microblogs organized around the key concepts of information, community, and action (Lovejoy & Saxton, 2012, p. 337). User generated posts with 140 characters can be shared or “favorited” by other users. YouTube is a social video network that allows users to upload, view, share, and comment on posted videos. In 2012 YouTube was the second most visited website on the Internet (Huang, 2013, p. 128).

**Social Media Use in Nonprofits**

Nah and Saxton (2013) cite four key factors adopted by NPOs who utilize social media to build relationships as well as foster communicative initiatives that include the sharing of information, advocacy, and the building of relationships. Guidelines commonly used by NPOs include use of authoritative sources, advocacy in order to build relationship, engagement, and an ongoing dialogue of communicative interactions between content producers and stakeholders. Since social media is continually evolving, not all organizations integrate all the available platforms into their repertoire. Currently, not all NPOs are willing to adopt and juggle multiple social media accounts given the limited resources, which need to be considered in this analysis (Nah & Saxton, 2013, pp. 294-295). Nah and Saxton’s study found similarities across NPOs that includes a) whether a social media platform is used; b) frequency of usage; and c) how often the messaging employs dialogic relationship-building messages (audience acceptance) (p. 295).

As cited by Nah and Saxton (2013), there are diversified studies that have theorized why
NPOs choose one social media platform over another. Reasons include “the acceptance and use of new technologies” by individuals and organizations as well as staff preference (p. 295). Additionally, nonprofits are subject to budgetary constraints, which often affects whether the IT department is a) sophisticated enough and b) available to oversee the traffic of each website (p. 296).

Frequency of usage and dialogic relationship-building messaging also falls into the category of budgetary constraints, since manpower is needed to train and oversee others, including volunteers with the transmission, documentation, and daily monitoring of messages. Marchand and Lavoie’s (1998) study analyzed the advertising practices of Canadian NPOs and the perceptions of their targeted stakeholders. The purpose of the study was to analyze how stakeholder perceptions played a key role in understanding varied dialogic relationship-building messages that were generated through authoritative sources (p. 33). However, not all messaging tactics were employed in the same manner since the study included religious, political, public service, and educational NPOs (p. 33). As with Nah and Saxton’s (2013) study, Marchand and Lavoie (1998) noted that effective advertising trajectory of the NPOs who participated in the study were bound to similar budgetary issues. Additionally, Marchand and Lavoie (1998) alluded to the concepts of sharing of information, advocacy, and the building of relationships, in their study about stakeholder perceptions (pp. 33-39). The communicative initiatives that were employed by advertising content producers showed an increase in satisfaction by users. The same advertising concept is translated to NPOs usage of social media as a means of engaging, effectively increasing stakeholder satisfaction, and ultimately increasing revenue, whether it is online donations, or appeals, the outcomes are the same.

Social Media Use in Healthcare Nonprofits
In general, NPOs who adopt the concept of engagement, are promoting two-way communication when stakeholders connect dialogically amongst themselves and to the content producers using social media platforms. Based on current research such as Edgar Huang’s (2013) study, nonprofit organizations have been utilizing social media as a means to build relationships by integrating various levels of communication with their stakeholders. Modes of communication used to promote emotional connections include one-way communication (such as sharing news articles) and two-way communication (such as blogs), where the conversation’s participants form dialogic loops. Such two-way communication is conducive to creating a community for sharing information and providing emotional support (Paine, 2011).

Exchange of information combined with positive affirmations promote the exchange of emotions such as empathy and compassion, and also provide healthcare resources. Peer-led Facebook support groups were found to provide positive emotional encouragement as well as improved emotional well-being among group participants (Zhang, He, & Sang, 2013). For example, Zhang et al.’s, (2013) and Antheunis et al.’s (2013) studies both found close similarities with social networks and health. The “social cognitive theory” posits that behavioral healthiness and lifestyles are promoted by stakeholders who observe and imitate the online performances of others (Zhang, et al., 2013). Healthcare establishments have been utilizing social media to provide healthcare tips as well as additional health-related information to promote communication, support, and financial endowment. By examining the number of views, shares, likes, and comments posted, this study analyzed how patients, donors, practitioners, and other stakeholders engage with posted messages and relationship building.

**Functions of Social Media**

According to Katie Paine (2011), there are five levels of engagement when content
producers try to build relationships with stakeholders. The five levels are as follows: 1) lurking; 2) casual; 3) active; 4) committed; and 5) loyalist (p. 80). These levels of engagement, which have been proven to target nonprofit stakeholders, and could be a determinate factor in the healthcare arena since the healthcare industry and hospitals need to utilize these principles when communicating with potential donors as well as patients and their families (Paine, 2011, pp. 80-84). Simply defined, engagement is the building of mutually beneficial relationship between stakeholders and organizations (Paine, 2011).

Lurking (level 1) is when an online user sees something that s/he appreciates and “likes” it on Facebook, “pins” it in Pinterest, or bookmarks the URL page. This type of behavior forms a relationship with the user and the content producer, thus building an “exchange relationship” where one participant benefits “because the other has provided benefits in the past or is expected to in the future,” thus forming impressions with stakeholders (Paine, 2011, pp. 80-81). Casual engagement (level 2) is defined when an online user expresses the desire for further contact. This type of engagement is formed when a user “click-through,” becomes a “unique visitors,” and “likes” (Paine, 2011, p. 81). An example of this type of engagement is when a user subscribes to a blog post, “follows” a stakeholder on Twitter, or downloads a YouTube video. Level 3 is the active level of engagement where communal relationships are built with other participants. An additional example of this type of active engagement is the sharing of a video post on YouTube, or the sharing a blog post with a users’ respective contact(s) on LinkedIn (Paine, 2011, p. 82). Engagement level 4, also known as the committed level, develops when satisfaction is formed from a relationship, thus establishing trust. A user has formed a trusting bond with the content producer, which allows the user to provide her/his email and identity for registration purposes (Paine, 2011, p. 83). The Loyalist level (level 5)—what Katie Paine (2011) termed as “the
ultimate level”—occurs when users and their respective content producers develop a close relationship that fosters loyalty with on- or offline donations and the enlistment of volunteers (p. 83).

**Efficacy by Social Media in Healthcare**

As cited in Prestin and Nabi (2012) study, the notion of self-efficacy is a “predictor of behavioral performance” in the healthcare sector and is indicative of a motivating factor with the promotion of positive, healthful messages that target stakeholders (p. 520). The study focused on exercise behavior and theorized a correlation between skill level, motivation, attitude, and behavioral intention. The study found that social media can help support stakeholder sense of efficacy in pursuing positive health behaviors (pp. 520-522).

**Social Media's Role Playing and Assessments in Building Reputation and Awareness**

This study analyzes how social media is used by nonprofit hospitals and how its usage impacts how the role of social media is used to build reputation and awareness. Additional aspects of this study examined how social media was integrated into fundraising initiatives by nonprofit healthcare organizations. In searching for typology guidelines, Nah and Saxton's (2013) determinant strategies with stakeholders were considered. These include: a) “adoption,” b) “frequency of use,” and c) “dialogue for nonprofit healthcare facilities.” Nah and Saxton’s study substantiated academia’s theory where “intra-organizational communication” of individual acceptance, adoption and use of new technologies is an important concept (p. 295). According to Nah and Saxton, there is little documentation that explains why nonprofit organizations prefer to use one cyber platform over another (p. 295). Since usage adoption is based on personal preferences within the framework of the determinant model, frequency of usage as well as dialogue also reflected personal preferences (Nah & Saxton, 2013).
In order to understand the significance of these determinant strategies, it is necessary to discuss the opportunities and challenges of social media. Kaplan and Haenlein (2010) addressed some opportunities and challenges through the “Classification of social media by Social Presence/Media Richness and Self-Presentation/Self-Disclosure” model. This model categorizes “Social media presence/media richness” of “self-presentation/self-disclosure” of stakeholders’ online presence into three levels that contain two sub-levels of content communities within each: a) being high and b) being low. They are as follows: (1) low, a) “blogs” and b) “collaborative projects” (e.g., Wikipedia); (2) medium, a) “social networking sites” (e.g., Facebook) and b) “content communities” (e.g., YouTube); and (3) high, a) “virtual social worlds” (e.g., Second Life) and b) “virtual game worlds” (e.g., World of Warcraft) (Kaplan and Haenlein, 2010, p. 62). Kaplan and Haenlein’s user generated content will be used as a guide in classifying organization and stakeholder content in the analysis of this study. This classification informs this study because not all stakeholders have access to one particular level of online access.

**Online Community Behavior: Healthcare Industry**

Zhang, He, and Sang’s (2013) Facebook study of a diabetes group examined how patients, caregivers, and other stakeholders utilized Facebook to cultivate community through the exchange of peer-to-peer information, emotional empowerment, encouragement, and support. However, documentation by Ellison, Steinfield, and Lampe (2007) suggested that reasons for stakeholders who utilize Facebook include the maintenance of “existing off-line relationships” and the solidification of “offline relationships,” thus, inferring to a common “offline” element, such as school or “friend of a friend” thread (as cited in Boyd & Ellison, 2007, p. 221). This suggests that Facebook is useful in fostering both online and offline relationships. Similar to Facebook, other social media sites such as LinkedIn and MySpace allow users to monitor and/or
access “public displays of connection” that may serve as a link to other users (Boyd et al., 2007, p. 217). By comparison, Twitter is “real-time short messaging service” Leonhardt (2015) defined Twitter as “micro-blogging” or “[a] microblog” for its short 140-character content feed, thus allowing stakeholders, also known as followers, to rapidly scan content and follow-up with content that pertains to the needs of each individual (as cited in Biswas, 2013, p. 50). Twitter content behavior similarly parallels Facebook behavior. However, the usage of the means and variations of framed content by organizations and media channels vary in terms of frequency, usage, content, transparency, and organizational framing of content. Themes of message interactions by Twitter followers are categorized as follows: a) “eliciting information;” b) “providing information;” c) “expressing emotions;” d) “seeking information;” e) “providing emotional support;” and f) “community building” (Zhang et al., 2013, pp. 6-9). Zhang et al.’s (2013) findings indicated significant impact of Tweeted content “providing information” (62.6%) as in peer-to-peer groups and individuals; followed by “providing emotional support” (17.2%); followed by “eliciting information” (12.1%); and, with a variance of 0.7%, tweets by stakeholders seeking emotional support held the least significant impact (p. 6). Zhang et al.’s (2013) findings substantiate that authorized medical-based information generated through Twitter-feeds impacts stakeholders’ and healthcare organizations’ social media usage.

Based on the above literature, this study proposes the following research questions to examine how the selected nonprofit hospitals have utilized social media.

**RQ1:** How do the selected nonprofit hospitals use social media to provide information?

**RQ2:** How do the selected nonprofit hospitals use engagement in social media to build Community?

**RQ3:** How do the selected nonprofit hospitals use social media to promote action (i.e.,
Methodology

Choice of Method

In addition to the *Information, Community, and Action* Lovejoy and Saxton (2012) guidelines, the incorporation of a secondary grounded typology was developed. The coding process of the grounded typology will be analyzed in the Discussion section of this thesis. Benchmarking data was based on weekly increments whereby allowing the use of various modes of online access, healthcare organizations are then able to reach a significant number of stakeholders.

Fundamental to all of the concepts discussed in the previous section is the idea of establishing trust between all stakeholders in regards to communicative initiatives with NPOs. According to Hon and Grunig (1999), trust is based on integrity, dependability, and competency (p. 19). Measurements of trust were contingent upon response to inquiries, appropriateness of response and participant satisfaction (if noted) “commitment,” “exchange relationship,” and “satisfaction” of content are also important aspects of building trust. As noted earlier, the basis for the selection of the four NPOs was from *US News and World Report* (2014) listing of top US Hospitals. The rankings were constructed from a scale “that measured death rates of patients who represented challenging illnesses” as well as safety, and other performance data. MSKCC, Mayo Clinic, Dana-Farber, and St. Jude top in the nation, with St. Jude ranking number one in specialty care that specialized in cancer treatment for children (US News and World Report, 2014). The purpose for selecting the collection time periods of two separate, two-week increments in 2014 (that included the end of September/beginning of October and the last week of October and the first week of November) was to analyze not only the types of content disseminated but also the
health awareness initiatives pertaining to these time periods. Based on the demographic and treatment population of each NPO, the content analysis specifically targeted the amount of content generated, as well as specific health awareness calendar initiatives. Breast Cancer Awareness Month (October), National Lung Cancer Awareness Month (November), and National Pancreatic Cancer Awareness Month (November) all occurred during the collection period (American Cancer Society, 2015). Additionally, these timeframes potentially represent high-traffic periods of interaction for NPO social media platforms.

Selection of NPOs

The social media sites of the following four nonprofit research hospitals were selected: Dana-Farber/Brigham and Women’s Cancer Center (Dana-Farber), the Mayo Clinic (Mayo Clinic), St. Jude Children’s Research Hospital (St. Jude’s), and Memorial Sloan-Kettering Cancer Center (MSKCC). Facebook and Twitter were selected for documented observation for seven consecutive days (Monday through Sunday) for a period of four weeks beginning Monday, September 22, 2014 and ending Sunday, November 9, 2014. Varying time increments were noted in a previous preliminary research study, which took into account little activity on weekends (Calivas, 2013). Each social media site was analyzed for frequency of use by each hospital and the types of content displayed (including the announcement of new products or services). Each posting or tweet was categorized according to Lovejoy and Saxton’s (2012) modified typology as previously described. The sites were also analyzed specifically for stakeholder criticism, mobilization of activities such as contests or giveaways, press release announcements, and stakeholder engagement. Additionally, analysis of each media outlet included how stakeholders are allowed to participate. Each day, each organization’s social media site was observed and documented for content into a Microsoft Excel spreadsheet. For Facebook
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(social networking), the number of “likes,” “shares,” “following,” and number of “talking about this” were documented at the beginning of the observation period and continued until the study’s end-date. For Twitter (micro-media or microblogging), the number of “retweets,” “followers,” “following,” “favorites,” and “favorited” were documented throughout the study. Three of the four NPO institutions of the study—St. Jude’s, Mayo Clinic, and Dana-Farber—used Google+ (St. Jude Children’s Research Hospital, 2014; Dana-Farber Cancer Institute, 2014; Mayo Clinic, 2014). Instagram and LinkedIn were used by Dana-Farber (Dana-Farber Cancer Institute, 2014). Lastly, Pinterest was used by Dana-Farber and Mayo Clinic (Dana-Farber, 2014; Mayo Clinic, 2014). However, since Facebook and Twitter were the most active social media platforms across all four NPOs, the focus of this study remained on Facebook and Twitter.

Data Analysis

This type of coding analysis by Zhang, He, and Sang (2013) was helpful for classification guidelines of social media online activities because it assisted in the implementation of the *Grounded* and *Multiple Grounded* typologies, which are addressed in the Discussion section of this analysis. Social media user participation can also be assessed by interactions of the group, themes, information exchanges, and group characteristics such as membership, frequency of exchange, and type of relationship (i.e., 1) lurking, 2) casual, 3) active, 4) committed, and 5) loyalist) (Paine, 2011, p. 80). These components served as guidelines for classification and tabulation of additional content that fell outside of the Lovejoy and Saxton (2012) typology of this study.

Twitter content behavior was analyzed similarly, according to themes of membership, frequency of exchange, and type of information disseminated (Nah & Saxton, 2012). Analysis of means as well as comparison of frequency of Twitter updates, have been compared to social
media updates, and were categorized in the following fashion: a) "Information" includes the organization’s current events; b) "Action" encompasses the engagement of stakeholders as well as the encouragement of philanthropic and financial donors (including on- and off-line communication); and c) "Community" signifies the building of relationships and expansion of stakeholder connections (Auger, 2013, p. 3). In order to maintain simplicity in the coding process, Lovejoy and Saxton’s (2012) typology was adapted with “short-hand” abbreviations. Lovejoy and Saxton’s social media communication typology and abbreviations, which were the foundation for the content analysis, pertain to three primary categories: Information, Community, and Action.

In addition to Lovejoy and Saxton’s (2012) social media typology, the relationship theory network and determinant model were adapted and used as additional guidelines to the coding process (Reber & Kim, 2006; Nah & Saxton, 2013). The advantage of using relationship theory network procedure is that it assists in considering how content producers use social media to strategize, impact, govern, and build relationships. The advantage of using the determinant model is that it assists in considering how content producers use social media to continue engaging (return visits, follows, retweets, and shares) users, thus developing and maintaining a positive, two-way symmetrical relationship.

This Primary Grounded example Twitter tweet from Dana-Farber’s week 4 data collection: “Dana-Farber @DanaFarber; 10h 10 hours ago; This is Dr. Geoffrey Oxnard of Dana-Farber’s Lowe Center for Thoracic Oncology. Happy to be tweeting with you today. #LCSM”.

This example of Lovejoy and Saxton multiple Twitter tweet example is from Mayo Clinic week 3 data collection: “Mayo Clinic @MayoClinic; 8h 8 hours ago; @LimbLab and Mayo Clinic gives back heroes what they lost http://bit.ly/1FZR6HF via @MyFOX9”.
This *multiple grounded* Twitter tweet example is from Dana-Farber’s week 4 data collection: “Dana-Farber retweeted; National Cancer Inst @theNCI; 11h 11 hours ago; Ahead of our 1 pm ET chat, here’s a video of @NCIDrMalik talking about precision medicine & lung cancer: http://bit.ly/1xez8LK #LCSM; YouTube; Play; Embedded image permalink.”

**Target Organizations**

According to *US News and World Report* (2014), the one hundred top cancer hospitals selected for this study ranked in the top 5 nationally, beginning with MSKCC ranking at number one, Mayo Clinic at number three, and Dana-Farber/Brigham and Women’s Cancer Center at number four; St. Jude’s ranked number one for top specialty hospital. As stated in the *US News and World Report*, these rankings were based on survival rate, degree of infection prevention, and nurse to patient ratio. These archetypes are actively engaged in building trust, transparency, and loyalty amongst patients, caretakers, and other stakeholders.

*Information.* Information posts were identified as posts that simply contained informative content that could be easily interpreted and accessed by users. Most often these messages contained scientific and health-related content with the intent to update users of the latest innovations. Posts and tweets directed towards conveying information were placed into one category and labeled “(*Information*)” (Lovejoy & Saxton, 2012, pp. 342-247). All preceding categorizations have been italicized in this section for identification purposes. This *Information* example Facebook post is from Dana-Farber’s week 1 data collection: “Dana-Farber Cancer Institute shared a link. 18 hours ago, Edited; ‘[Palliative care] really is about having a mindset to increase the value of every single day that you have.’ Learn how palliative care is helping a young patient at Dana-Farber/Boston Children's Cancer and Blood Disorders Center. Pediatric Palliative Care: helping children with cancer survive and thrive. The side effects of cancer...”
treatment can be debilitating, especially for children. Palliative care can improve the quality of life of children with cancer – ...

**Community.** Community-based messages contained content that elicited response or engagement from users, with the intent to encourage emotional bonds or relationship-building with stakeholders. These often included acknowledgements or thanks for internal or external stakeholder actions. Posts and tweets directed towards recognizing various community events and promotions to build camaraderie amongst content producers and stakeholders that include: “Giving Recognition and Thanks” (*Community 1*), “Acknowledgement of Current and Local Events” (*Community 2*), “Responses to Reply Messages” (*Community 3*), “Response Solicitation” (*Community 4*) (Lovejoy & Saxton, 2012, pp. 342-247). This *Community 1* example Facebook post is from Mayo Clinic’s week 1 data collection: “Mayo Clinic 5 hours ago; Edited; Today our social media team is in Baltimore “Bringing the Social Media #Revolution to Health Care” for a social media residency hosted by MedStar Health. Here's our great group of “residents” looking to become “social media fellows” at #MCCSM. Learn more about this program at: http://mayocl.in/lshNs86 — with Michelle Ross Kline and 8 others; Photo: Today our social media team is in Baltimore “Bringing the Social Media #Revolution to Health Care” for a social media residency hosted by MedStar Health. Here's our great group of “residents” looking to become “social media fellows” at #MCCSM. Learn more about this program at: http://mayocl.in/lshNs86”.

This *Community 2* example Twitter tweet is from Memorial Sloan Kettering’s week three data collection: “Sloan Kettering retweeted Nadeem R. Abu-Rustum @aburustummd; 11h 11 hours ago; Team MSKCC in Washington DC race to end women's cancer Embedded image permalink; View more photos and videos”.


This *Community 3* example Facebook post is from Mayo Clinic’s week 3 data collection:

“Mayo Clinic about an hour ago; Tuesday Q & A: DEAR MAYO CLINIC: Is there anything that can be done for menopausal symptoms that doesn’t include taking hormones? I’ve had breast cancer in the past so am unable to take hormones, but I wake up nearly every night because of night sweats and have occasional hot flashes during the day. http://mayocl.in/1tFrxrV”.

“Photo: Tuesday Q & A: DEAR MAYO CLINIC: Is there anything that can be done for menopausal symptoms that doesn’t include taking hormones? I’ve had breast cancer in the past so am unable to take hormones, but I wake up nearly every night because of night sweats and have occasional hot flashes during the day. http://mayocl.in/1tFrxrV”.

This *Community 4* coding example Twitter tweet is from Dana-Farber’s week 2 data collection: “Dana-Farber @DanaFarber; lh 1 hour ago; Are you or a loved one being treated at Dana-Farber? Share your experience with us: http://on.fb.me/lj10OKb”.

*Action.* Action generated messages were based on the encouragement of user participation in some capacity. These posts attempted to get users to either attend an event, or donate money or services to a cause. Posts and tweets directed towards recognizing various messages promoting action from target audiences include: “Promoting an Event” (*Action 1*), “Donation Appeal” (*Action 2*), “Selling a Product” (*Action 3*), “Call for Volunteers” (*Action 4*), “Lobbying and Advocacy” (*Action 5*), “Join Another Site or Vote for Organization” (*Action 6*), “Learn How to Help” (*Action 7*) (Lovejoy & Saxton, 2012, pp. 342-247). This *Action 1* example Twitter tweet is from St. Jude’s week 1 data collection: “St. Jude retweeted; EliYoungBand @EliYoungBand, 10h; Tomorrow is a very special night. Want to thank @opry for recognizing 25 yrs of great work for @StJude #CountryCares; https://www.facebook.com/video.php?v=10152666605629336 …”
This *Action 2* example Facebook post is from MSKCC’s week 2 data collection: “MSKCC; 5 hours ago; Memorial Sloan Kettering Cancer Center will further enhance its ability to offer top cancer care to more patients with the establishment of a new outpatient treatment facility in Monmouth County, New Jersey. Scheduled to open in fall 2016, MSK Monmouth will offer comprehensive outpatient services. Learn more: http://bit.ly/1DsS0LH.” “Photo: Memorial Sloan-Kettering Cancer Center will further enhance its ability to offer top cancer care to more patients with the establishment of a new outpatient treatment facility in Monmouth County, New Jersey. Scheduled to open in fall 2016, MSK Monmouth will offer comprehensive outpatient services. Learn more: http://bit.ly/1DsS0LH.”

This *Action 3* example Facebook post is from Mayo Clinic’s week 3 data collection: “Mayo Clinic shared a link; 7 hours ago; Mankato-based Angie’s Artisan Treats is supporting Mayo’s Breast Cancer Genome-Guided Therapy study, known as BEAUTY, through sales of limited-edition, pink-ribbon popcorn bags. “Right now we treat according to the subtypes of how the breas... See More; Angie's Artisan Treats raises money for Mayo BEAUTY study; www.mankatofreepress.com;” “Mayo Clinic researchers are working to individualize breast cancer treatments based on patients' genomes and the genomes of individual tumors, thanks in part to support from a local healthy snack company.”

This *Action 4* example Twitter tweet is from Dana-Farber’s week 2 data collection: “Dana-Farber @DanaFarber; 7h 7 hours ago; We have a dangerous shortage of type O-negative ("universal type") blood. All donors needed ASAP. Contact BloodDonor@partners.org”.

This *Action 5* example Twitter tweet is from Dana-Farber’s week 4 data collection: “Dana-Farber @DanaFarber; 3h 3 hours ago; Did you know that Dana-Farber is a leader in cancer research? Spread awareness to show how you #CareOnCampus. http://bit.ly/Zgpbmk.”
This *Action 6* example Twitter tweet is from Dana-Farber’s week 3 data collection:

"Dana-Farber retweeted; Rachel Freedman, MD @DrRFreedman; 12h 12 hours ago; New on twitter...excited to share #breastcancer news and join the #bcsm community!"

This *Action 7* example Twitter tweet is from Mayo Clinic’s week 4 data collection:

"Mayo Clinic retweeted Mayo Healthy Living @MayoHealthyLife; 9h 9 hours ago; Travelling with a #MayoClinic patient to #rochmn? Consider enrolling in a few of our healthy living courses. http://atjo.es/1OVx."

**Implementation of Intercoders**

Daily collection and monitoring of Facebook posts and Twitter tweets from each of the four NPO sites were recorded into Microsoft Excel files, containing tabs that were labeled by week. Three consultants from Montclair State University’s Center for Excellence in Writing (CWE) acted as intercoders by assisting with the coding of each message. Training for the coding process involved familiarizing each consultant with Lovejoy and Saxton’s (2012) typology. A copy of the guideline sheet from page 342 of Lovejoy and Saxton’s (2012) article was used as reference at each session. During a series of three one-hour sessions a week spanning a four-week period, a consultant from the CWE assisted in the coding process of each message.

The coding process began during the third week of data collection and continued till the end of January, 2015. Lovejoy and Saxton’s (2012) typology, combined with a developed multiple grounded typology, were used as a guide to categorizing the content. Lovejoy and Saxton’s (2012) twelve typology categories were used as the basis for categorizing each message (p. 342). However, a secondary grounded typology was created when generated content did not match any of the twelve categories outlined.
Results

Overview of Results

During the total 4-weeks of observation, NPO content producers generated a total of 1,337 messages\(^1\), which consisted of a combination of Facebook posts and Twitter tweets. The breakdown by social media during the 4-week timeframe tallied to 965 tweets and 318 Facebook posts. A further itemization of NPO generated social media messages is as follows: Dana-Farber Cancer Center generated a combined total of 287 messages (59 Facebook posts and 228 Twitter tweets); Mayo Clinic generated a combined total of 670 messages (160 Facebook posts and 510 Twitter tweets); MSKCC generated a combined total of 228 messages (55 Facebook posts and 173 Twitter tweets); and St. Jude’s generated a total of 98 messages (44 Facebook posts and 54 Twitter tweets). Appendix A (*Hospital Comparison of Facebook Posts and Twitter Tweets*) shows a detailed breakdown of each week’s combined posts and tweets as categorized in Lovejoy and Saxton’s (2012) typology. While Appendix A gives a broad overview of the findings, the following details specific Weekly totals: Week 1 (September 22, 2014 – September 28, 2014) combined total messages by all content producers is 376 (290 Twitter and 86 Facebook); Week 2 (September 29, 2014 – October 5, 2014) combined total messages by all content producers is 285 (213 Twitter and 72 Facebook); Week 3 (October 27, 2014 – November 2, 2014) combined total messages by all content producers is 279 (193 Twitter and 86 Facebook); Week 4 (November 3, 2014 – November 9, 2014) combined total messages by all content producers is 343 (269 Twitter and 74 Facebook).

Of the total of 287 messages generated by Dana-Farber, 127 generated messages were categorized into the *Information* typology, with the remaining 160 messages categorized into

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\(^{1}\) Including grounding typologies (e.g., Live-feed, Collaboration, Stakeholder, Status Update, and Bilingual)
Community (96), Action (52), and Multiple Grounded (12) typologies. However, the most significant attribute of the content generated by Dana-Farber is the continual re-framing and re-wording of content (mostly across social media platforms as well as the same platform occasionally) in order to reach as well as engage a larger target audience. During the collection period (September 22, 2014 through November 9, 2014), Dana-Farber generated a total of 6,873 Facebook likes and 1,600 Twitter followers.

Mayo Clinic’s generated messaging results exceeded all three NPOs (St. Jude by approximately 600%, MSKCC by 300%, and Mayo Clinic by 280%). Additionally, while the number of Twitter-generated tweets (510) exceeded the other three NPOs, the engagement that Mayo Clinic generated with their respective stakeholders exhibited similarities within Facebook Likes at 8,226. However, St. Jude’s, significantly exceeded the other three NPOs with a total of 27,230 Facebook Likes. Furthermore, Mayo Clinic’s use of Twitter, with a total 67,000 Followers, indicated that Twitter was the most preferred means of engaging stakeholders.

MSKCC generated a total of 228 generated total messages that included a total 2,876 Facebook visits, 3,656 Facebook Likes, 1,800 Twitter followers, and 814 Twitter favorites during the 4-week collection period. Compared to the other three NPOs, MSKCC’s Facebook generated messages produced the least amount of engagement. However, MSKCC’s Twitter-generated messages came in second with Mayo Clinic exceeding all three NPOs by approximately 60% in stakeholder engagement.

St. Jude’s produced a total of 98 generated messages (44 Facebook posts and 54 Twitter tweets), with the least amount of NPO-generated content. However, as previously indicated with the comparisons of the other three NPOs, the number of Facebook likes (27,230) suggests that
stakeholder bonding potential is engendered by interactions and emotional connection, given that such contact is more endemic to Facebook than Twitter.

**Focus on Information Dissemination**

Each NPO produced a unique messaging structure following Lovejoy and Saxton’s (2012) typology. The total for Information-based messages during the 4-week collection period was 617 across all NPOs.

**RQ1: How do the selected nonprofit hospitals use social media to provide information?**

During the 4-week collection period, Mayo Clinic had a total of 390 Information typology messages, 91 (57%) were Facebook posts and the remaining 299 (61%) Information-based message transmissions were generated from Twitter feeds. The implication from the data is that Twitter was the preferred method for generating Information type messaging by Mayo Clinic. Additionally, messages that included life-saving information saw a substantial increase in re-tweets compared to Facebook postings. An example of a Twitter-generated Information message from September 27, 2014 produced significant engagement in retweets that gave stakeholders quick-acting information about what to do when having a heart attack: “Mayo Clinic @MayoClinic; Sep 27; #MayoClinicRadio; If you suspect you're having a heart attack, call 911 first and then, take an aspirin; Reply 0 replies; Retweet 53 retweets 53; Favorite 21 favorites 21; More.” While these posts have contrasting themes, they remain similar in the respect that each provides information. By providing life-saving information in the form of a 140 character microblog, Mayo Clinic engages stakeholders by allowing users to duplicate and save authoritatively generated messages.

An example of another Information message generated by Mayo Clinic via Facebook is as follows: “Mayo Clinic shared a link; 14 hours ago; People who report memory problems may
have dementia later, even if cognitive tests don't show it right away. But there are things you can do to prevent it. Read more on CNN. http://bit.ly/lsu258t; Early memory lapses may be sign of dementia; www.cnn.com; "Now we have more evidence that this is something we should watch from appointment to appointment," said Dr. Thomas Loepfe...; 312 Shares; 357 people like this.” What is not clear from this message is why Mayo Clinic chose to disclose a life-saving remedy on Twitter and not on Facebook, as well as, the number of Mayo Clinic’s stakeholders who use both Facebook and Twitter.

A sample of a different Information generated message from November 2, 2014: Mayo Clinic’s posts on both Facebook and Twitter transmitted the same information but with minor variation in wording. The Facebook post was as follows: “Mayo Clinic shared a link; 10 hours ago; Dr. Michael Joyner, professor of Anesthesiology at Mayo Clinic, expects to see a marathon time under 2:02 soon. He provides insight on what it takes to get there faster and maybe even to 2:01 on The Conversation. http://bit.ly/109hjme; How low can marathon times go? theconversation.com; This fall Dennis Kimetto set a new world record in the marathon, clocking 2:02:57 at Berlin. He is the first man to run those 26.2 miles in under 2:03 and his time sparked speculation; 15 Shares; 65 people like this.” The same generated message was formatted for the 140 character generated Twitter tweet: “Mayo Clinic @MayoClinic; 1 lh 11 hours ago; How low can #marathon times go? Insight from @DrMJoyner. http://bit.ly/10GjHln via @USconversation; z#TCSNYCMARATHON; 0 replies; 14 retweets; 3 favorites.”

Out of a total of 287 generated messages, Dana-Farber produced 127 (46%) combined Facebook (21 = 36%) and Twitter (106 = 49%) messages that were categorized into the Information typology. Similar to Mayo Clinic, Dana Farber’s Information generated messages provided life-saving remedies targeting Twitter stakeholders.
An example of a Twitter generated *Information* coded message from week 3 (Monday, October 27, 2014, 6:30 PM) by Dana-Farber is as follows: “Dana-Farber @DanaFarber; 23h 23 hours ago; The transition from pedi to adult health providers is critical for any young adult, especially cancer survivors http://bit.ly/1sFZsNJ; 0 replies, 4 retweets, 3 favorites.” Similar to Mayo Clinic, the urgency of care ensures emotional impact on stakeholders within a 140 character microblog, as indicated by the number of retweets and favorites.

A sample Facebook-generated *Information* coded message from week 2 (Monday, September 29, 2014, 8:00 PM) by Dana-Farber is as follows: “Dana-Farber Cancer Institute shared a link. 14 hours ago; Did you miss our live web-chat on ovarian cancer? Check out a recap of the discussion, which included information on the latest in immunotherapy, PARP inhibitors, genetic profiling, and more. The Latest in Ovarian Cancer Treatment and Research – Insight; http://blog.dana-farber.org/insight/2014/09/the-latest-in-ovarian-cancer-treatment... Although ovarian cancer is often difficult to treat, research continues to yield results that are improving outcomes and quality of life for many patients. ‘Ovarian cancer research and treatment is ex...;' 47 Shares; 239 people like this.” Alternatively, not all *Information*-generated messages promote an emotional impact, but they potentially educate and allow stakeholders the option of exploring additional venues in order to become knowledgeable of a particular topic or agenda. Out of a total of 228 generated total messages, MSKCC produced 89 (39%) combined Facebook (23 = 42%) and Twitter (66 = 38%) messages that were categorized into the *Information* typology.

An example of one of MSKCC’s *Information* coded message generated from Facebook on Tuesday, September 23, 2014, 7:30 PM, is as follows: “Memorial Sloan-Kettering Cancer Center shared a link. 2 hours ago; MSK is helping develop PROMPT: a new online, volunteer
registry for individuals who have been tested for inherited mutations in cancer-causing genes, many of which have not yet been well studied. Experts hope the information collected in PR...

See More; Hereditary Cancer & Genetics: Research Registry for People with Mutations in Genes Other Than... www.mskcc.org; We are collaborating with other academic research institutions and commercial laboratories in building the Prospective Registry of MultiPlex Testing (PROMPT), a... 1 Share; 79 people like this.”

A sample of a Twitter generated Information coded message from week 4, (Wednesday, November 5, 2014; 8:15 PM) by MSKCC is as follows: “Sloan Kettering @sloan_kettering; 3h 3 hours ago; Tiny tumors, big impact. Widespread thyroid cancer screening in healthy people in South Korea is a cautionary tale. http://nyti.ms/1EjKcLI; View summary; 0 replies; 4 retweets; 2 favorites.” Although the message clearly targets stakeholders who are affected directly or indirectly with thyroid cancer, the content also aims a broader, cultural community of stakeholders in an effort to bring awareness through preventative care.

Out of a total of 98 generated total messages, St. Jude's produced 11 (11%) combined Facebook 5 (12%) and Twitter 6 (11%) messages that were categorized into the Information typology. An example of a Twitter generated Information coded message from week 4 (Monday, November 3, 2014, 8:30 PM) by St. Jude is as follows: “St. Jude retweeted; St. Jude Research @StJudeResearch; 6h 6 hours ago; Phone counseling by #nurses dramatically boosts heart screenings by #cancersurvivors. @stjuderesearch in #JCO; http://bit.ly/sj-heart; 0 replies; 20 retweets; 5 favorites.”

An example of a Facebook generated Information coded message from week 4 (Thursday, October 2, 2014, 11:00 PM) by St. Jude’s is as follows: “St. Jude Children's Research Hospital; 11 hours ago; St. Jude houses more than 1,300 medicines, including virtually every
drug approved for clinical use in the U.S. Until now, most of these drugs have never been tested for childhood cancers. Read how St. Jude scientists and helpers like Clifford, 'The Big Red Robot,' have discovered surprising hope in adult cancer drugs for treating deadly brain tumors in children: http://bit.ly/1xFSJI8; Photo: St. Jude houses more than 1,300 medicines, including virtually every drug approved for clinical use in the U.S. Until now, most of these drugs have never been tested for childhood cancers. Read how St. Jude scientists and helpers like Clifford, 'The Big Red Robot,' have discovered surprising hope in adult cancer drugs for treating deadly brain tumors in children: http://bit.ly/1xFSJI8; 661 Shares; 6,567 people like this.”

In framing the content of the message as *Information*, the emotional impact by stakeholders who are seeking hope have become engaged with the possibility of finding a cure, as noted by the number of shares (661) and people like this (6,567). Table 1 details the contrasting *Information* data from each NPO’s combination of Facebook posts and Twitter tweets to each social media platform as outlined in Lovejoy and Saxton’s (2012) *Information* typology by order of content produced:

<table>
<thead>
<tr>
<th>NPO</th>
<th>Combined FB/Twitter %</th>
<th>FB % / Twitter %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayo Clinic</td>
<td>60%</td>
<td>FB = 57% / Twitter = 61%</td>
</tr>
<tr>
<td>Dana-Farber</td>
<td>46%</td>
<td>FB = 36% / Twitter = 49%</td>
</tr>
<tr>
<td>Memorial Sloan-Kettering</td>
<td>39%</td>
<td>FB = 42% / Twitter = 38%</td>
</tr>
<tr>
<td>St. Jude Children's Hospital</td>
<td>11%</td>
<td>FB = 12% / Twitter = 11%</td>
</tr>
<tr>
<td><strong>Combined NPO Median Total</strong></td>
<td><strong>50%</strong></td>
<td><strong>FB = 44% / Twitter = 50%</strong></td>
</tr>
</tbody>
</table>

### Emphasis on Community

During the 4-week collection period a total of 413 messages were generated across all NPOs. By applying Lovejoy and Saxton’s (2012) typology, community events and promotions were identified and broken down into subcategories. *Community*-based typology messages included *Community 1 = Giving Recognition, Community 2 = Acknowledgement of Current and
Local Events, *Community 3* = Responses to Reply Messages, and *Community 4* = Response Solicitation.

**RQ2**: How do the selected nonprofit hospitals use engagement in social media to build Community?

Healthcare NPOs use engagement in their social media content as a means of encouraging users to build emotional bonds through narrative situations, as well as empathize and support others in similar situations. Out of a total of 287 generated messages, Dana-Farber produced 96 (35%) combined Facebook 30 (52%) and Twitter 66 (30%) messages that were categorized into the *Community* typology that consisted of *Community 1*, 37 (13%); *Community 2*, 23 (8%); *Community 3*, 27 (10%); and *Community 4*, 9 (3%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: *Community 1*, Facebook, 21 (36%) and Twitter, 16 (7%); *Community 2*, Facebook, 6 (10%) and Twitter, 17 (8%); *Community 3*, Facebook, 0 (0%) and Twitter, 27 (12%); and *Community 4*, Facebook, 3 (5%) and Twitter, 6 (3%).

Dana-Farber had a Twitter campaign during week 3 (Monday, October 27, 2014, 6:30 PM) titled "#CareOnCampus" that targeted various audiences by the re-wording and re-framing of each message. The following examples clearly outline how similar content produced by Dana-Farber was categorized under different typologies: “Dana-Farber @DanaFarber; 8h 8 hours ago; Did you know becoming a bone marrow donor can help save the life of a leukemia or lymphoma patient? #CareOnCampus http://bit.ly/Zgbpmk.” This was coded into the Lovejoy and Saxton’s (2012) *Information* typology. A significantly different Tweet was generated two hours later that read: “Dana-Farber @DanaFarber; 12h 12 hours ago; ‘Donating is the easiest way you can help
out.' One student shares how she gives back: http://bit.ly/lyFAgr #CareOnCampus.” This was coded as Community 2 (Acknowledgement of Current and Local Events).

A sample of a Facebook-generated Community 1 (Giving Recognition) coded message from week 2 (Tuesday, September 30, 2014, 9:30 PM) by Dana-Farber is as follows: “Dana-Farber Cancer Institute shared a link. 14 hours ago. ‘When I was diagnosed with cancer I lost all my high school friends. Meeting Bernard and Katie was like getting a brother and a sister.’ #ChildCancerAwareness; Survivors of Pediatric Brain Tumors Share a Special Bond www.danafarberbostonchildrens.org; Katie Nickerson, Jack Coates, and Bernard Manning are part of a small but growing group, and a generation ago there were few people like them. In the 1970s, only about 30 percent to 50 percent of... 29 Shares; 265 people like this.”

A sample Twitter-generated Community 2 (Acknowledgement of Current and Local Events) coded message from week 1 (Thursday, September 25, 2014; 6:30 PM) by Dana-Farber is as follows: “Dana-Farber retweeted; New Balance Lace Up @NBLaceUp; 4h; Inspiring afternoon at NB HQ. @DanaFarber's Dr Eric Winer & Magnolia Contreras on the importance of breast health. pic.twitter.com/PsuEIYtZgR; Embedded image permalink; View more photos and videos; Reply Replied to 0 times; Retweeted 4 times 4; Favorite Favorited; 5 times 5; More.”

A type of a Twitter-generated Community 3 (Responses to Reply Messages) coded message from week 4 (Wednesday, November 5, 2014; 7:15 PM) by Dana-Farber is as follows: “Dana-Farber @DanaFarber; 9h 9 hours ago; A8: More information on the ALCHEMIST trial and how it will run: http://bit.ly/loRbSmu #LCSM; 0 replies; 1 retweet; 3 favorites.” It should be noted that all of Dana-Farber’s Community 3 messages were part of a Live Twitter-feed and were assigned a “Grounded Multiple” code. An example of a Facebook-generated Community 4 (Response Solicitation) coded message from week 1 (Sunday, September 28, 2014, 8:00 PM) by
Dana-Farber is as follows: “Dana-Farber Cancer Institute; 13 hours ago; Have you or a loved one been treated at Dana-Farber? Share your story in our gallery - we'd love to hear from you: http://on.fb.me/ljlOOKb; Photo: Have you or a loved one been treated at Dana-Farber? Share your story in our gallery - we'd love to hear from you: http://on.fb.me/ljlOOKb; 21 Shares; 287 people like this.”

Out of a total of 390 generated messages, Mayo Clinic produced 124 (19%) combined Facebook (39 = 24%) and Twitter (85 = 17%) messages that were categorized into the Community typology that consisted of Community 1, 43 (7%); Community 2, 65 (10%); Community 3, 16 (2%); and Community 4, 0 (0%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: Community 1, Facebook 14 (9%) and Twitter 29 (6%); Community 2, Facebook 20 (13%) and Twitter 45 (9%); Community 3, Facebook 5 (3%) and Twitter 11 (2%); and Community 4, Facebook 0 (0%) and Twitter 0 (0%).

A type of Facebook-generated Community 1 (Giving Recognition) coded message from week 2 (Thursday, September 25, 2014, 6:00 PM) by Mayo Clinic is as follows: “Mayo Clinic; 20 hours ago; Edited; Little Jude is one of about 30,000 people who develop an auto-immune blood disorder called idiopathic thrombocytopenic purpura (ITP) each year. The Pediatric Hematology/Oncology Division at Mayo Clinic's Children's Center has been helping him survive it. Watch his story: http://mayocl.in/lqv36Fy [September is ITP Awareness Month.]; Photo: Little Jude is one of about 30,000 people who develop an autoimmune blood disorder called idiopathic thrombocytopenic purpura (ITP) each year. The Pediatric Hematology/Oncology Division at Mayo Clinic's Children's Center has been helping him survive it. Watch his story: http://mayocl.in/lqv36Fy [September is ITP Awareness Month.]; 33 Shares; 240 people like this.”
A sample of a Twitter-generated *Community 2* (Acknowledgement of Current and Local Events) coded message from week 4 (Monday, November 3, 2014; 6:30 PM) by Mayo Clinic is as follows: “Mayo Clinic @MayoClinic; 21h 21 hours ago; Get a glimpse of the @uscapitol Christmas Tree when it passed by #MayoClinicMN en route to its final destination. http://instagram.com/p/vH-Fkhll1N/; 0 replies; 11 retweets; 7 favorites.”

An example of a Twitter-generated *Community 3* (Responses to Reply Messages) coded message from week 1 (Thursday, September 25, 2014, 6:00 PM) by Mayo Clinic is as follows: “Mayo Clinic retweeted: Stephan Thome @StephanThomeMD; 2m; A4 At Mayo second opinion with experts in urology, oncology, radiation, imaging available; http://mayocl.in/1pervlJe #HealthTalk; Reply Replied to 0 times; Retweet Retweeted 2 times 2; Favorite Favorited 0 times; More.” Mayo Clinic had no generated content for the *Community 4* (Response Solicitation) typology. Out of a total of 228 generated messages, MSKCC produced 156 (69%) combined Facebook 17 (31%) and Twitter 50 (29%) messages that were categorized into the *Community* typology that consisted of *Community 1*, 25 (11%); *Community 2*, 40 (18%); *Community 3*, 2 (1%); and *Community 4*, 0 (0%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: *Community 1*, Facebook 6 (11%) and Twitter 19 (11%); *Community 2*, Facebook 11 (20%) and Twitter 29 (17%); *Community 3*, Facebook 0 (0%) and Twitter 2 (1%); and *Community 4*, Facebook 0 (0%) and Twitter 0 (0%).

An example of a Facebook-generated *Community 1* (Giving Recognition) coded message from week 1 (Friday, September 26, 2014, 10:15 PM) MSKCC is as follows: “Memorial Sloan-Kettering Cancer Center; 10 hours ago; MSK clinicians and analysts are partnering with IBM to train Watson Oncology, a cognitive computing system designed to support physicians as they consider treatment options with their patients. Learn more: http://bit.ly/lsiyrCV #changecancer;
Photo: MSK clinicians and analysts are partnering with IBM to train Watson Oncology, a cognitive computing system designed to support physicians as they consider treatment options with their patients. Learn more: http://bit.ly/1siyrCV #changecancer; 18 Shares; 144 people like this.

A sample of a Facebook-generated Community 2 (Acknowledgement of Current and Local Events) coded message from week 2 (Monday, September 29, 2014; 7:45 PM) by MSKCC is as follows: “Memorial Sloan-Kettering Cancer Center; 6 hours ago; Urologic surgeon James Eastham is among those who will be practicing at Memorial Sloan Kettering’s new suburban outpatient treatment center in West Harrison, New York. Learn why Dr. Eastham is excited to be offering his services to the West... See More; Photo: Urologic surgeon James Eastham is among those who will be practicing at Memorial Sloan Kettering’s new suburban outpatient treatment center in West Harrison, New York. Learn why Dr. Eastham is excited to be offering his services to the Westchester community: http://bit.ly/lu6dnyi; And to tour the facility and meet some of the staff, please join us for an open house on October 1. Learn more: http://bit.ly/ZdeNLV #MSKWestHarrison; 3 Shares; 112 people like this.”

An example of a similar 140-character Twitter-generated Community 2 (Acknowledgement of Current and Local Events) coded message from week 2 (Tuesday, September 30, 2014; 7:45 PM) by MSKCC is as follows: “Sloan Kettering @sloan_kettering; 8h 8 hours ago; #MSKthanks @SailtoSable - proceeds from their Scarlett Tunic fund peds cancer research at MSK. http://bit.ly/Zg3KSi; Embedded image permalink; View more photos and videos; reply 0 replies; retweet 1 retweet 1; favorite 5 favorites 5; More.” Although the content generated from Facebook and Twitter differed, both the Twitter and Facebook messages engaged their respective stakeholders as noted by the number of retweets, favorites, shares, and likes. An
example of a Twitter-generated Community 3 (Responses to Reply Messages) coded message from week 4 (Thursday, November 6, 2014, 8:15 PM) by MSKCC is as follows: “Sloan Kettering retweeted; Ogie St. Clare @OgieStClare; 2h 2 hours ago; Q from Craig Thompson, MD: How do we reconcile >800 potential cancer drugs with >300 cancer associated genetic mutations? #morescience; 0 replies; 2 retweets; 1 favorite; reply; retweet 2; favorite 1; More.”

Similar to Mayo Clinic, all of MSKCC’s Community 3 messages were part of a live Twitter-feed and were assigned a “Grounded Multiple” code. Analysis of the data collection indicates that MSKCC’s stakeholders preferred the usage of Twitter (67,000) as a form of engagement compared to Facebook users with 8,226 Likes during the 2014 collection period. MSKCC had no generated content for the Community 4 (Response Solicitation) typology.

Out of a total of 98 generated messages, St. Jude’s produced 37 (38%) combined, Facebook 21 (49%), and Twitter 16 (30%) messages that were categorized into the Community typology that consisted of Community 1, 29 (30%); Community 2, 8 (8%); Community 3, 0 (0%); and Community 4, 0 (0%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: Community 1, Facebook 16 (37%) and Twitter 13 (24%); Community 2, Facebook 5 (12%) and Twitter 3 (6%); Community 3, Facebook 0 (0%) and Twitter 0 (0%); and Community 4, Facebook 0 (0%) and Twitter 0 (0%).

An example of a Twitter-generated Community 1 (Giving Recognition) coded message from week 1 (Tuesday, September 30, 2014, 10:45 PM) St. Jude’s is as follows: “St. Jude retweeted; SoulPancake @soulpancake; 10h 10 hours ago; Gabby has been diagnosed w/ cancer, works at #StJude & her family makes her #Unstoppable #childhoodcancerawareness http://youtu.be/gLpMxzQxpP4; YouTube; Play; Embedded image permalink; View more photos and videos; 1 Reply 0 replies; Retweet 19 retweets 19; Favorite 24 favorites 24; More.”
An example of the same content framed as a Facebook generated Community 1 (Giving Recognition) coded message from week 1 (Tuesday, September 30, 2014, 10:45 PM) St. Jude is as follows: “St. Jude Children's Research Hospital shared a link. 8 hours ago; For St. Jude researcher Gabby, the connection to St. Jude and childhood cancer is personal. Gabby is a former St. Jude patient who is using her talent to help other kids like herself become survivors. Two Cancers and a Horrific Accident Didn't Stop Gabby. Gabriela Salinas was diagnosed with Ewing's Sarcoma, a life-threatening bone cancer at the age of 7. Once a patient, Gabby is now a researcher at the hospita... 253 Shares; 4,021 people like this.”

An example of a Facebook generated Community 2 (Acknowledgement of Current and Local Events) coded message from week 3 (Monday, October 27, 2014; 4:30 PM) by St. Jude is as follows: “St. Jude Children's Research Hospital shared St. Jude Children's Research Hospital - Mid-Atlantic's album; 7 hours ago; Thank you St. Jude Heroes! The Marine Corps Marathon raised $130,000 and counting for the kids of St. Jude! Marine Corps Marathon Weekend 2014 (18 photos) St. Jude Children's Research Hospital - Mid-Atlantic's photo. St. Jude Children's Research Hospital - Mid-Atlantic's photo. St. Jude Children's Research Hospital - Mid-Atlantic's photo. St. Jude Children's Research Hospital - Mid-Atlantic's photo. 2 Shares; 3,384 people like this.”

An example of a Twitter-generated Community 2 (Acknowledgement of Current and Local Events) coded message from week 3 (Friday, October 31, 2014; 10:30 PM) by St. Jude is as follows: “St. Jude @StJude; 12h 12 hours ago; Happy Halloween from the kids of St. Jude! Embedded image permalink; View more photos and videos; 0 replies; 377 retweets; 413 favorites; Reply; Retweet 377; Favorite 413; More.” St. Jude had no generated messages that
exhibited content within *Community 3* (Responses to Reply Messages) or *Community 4* (Response Solicitation) typologies.

By comparison, the total combination of Facebook posts and Twitter tweets targeted by Lovejoy and Saxton’s (2012) *Community 1* (giving recognition) typology is as follows by order of content produced:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>FB/Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Jude Children’s Hospital</td>
<td>Combined = 30% (FB = 37% / Twitter = 30%)</td>
</tr>
<tr>
<td>Memorial Sloan-Kettering</td>
<td>Combined = 11% (FB = 11% / Twitter = 11%)</td>
</tr>
<tr>
<td>Dana-Farber</td>
<td>Combined = 13% (FB = 36% / Twitter = 7%)</td>
</tr>
<tr>
<td>Mayo Clinic</td>
<td>Combined = 7% (FB = 9% / Twitter = 6%)</td>
</tr>
<tr>
<td><strong>Combined NPO Median Total</strong></td>
<td><strong>11%</strong> (FB = 18% / Twitter = 10%)</td>
</tr>
</tbody>
</table>

Lovejoy and Saxton’s (2012) *Community 2* (the acknowledgement of current or local events) typology is as follows by order of content produced:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>FB/Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Sloan-Kettering</td>
<td>Combined = 18% (FB = 20% / Twitter = 9%)</td>
</tr>
<tr>
<td>Mayo Clinic</td>
<td>Combined = 10% (FB = 13% / Twitter = 9%)</td>
</tr>
<tr>
<td>St. Jude Children’s Hospital</td>
<td>Combined = 8% (FB = 12% / Twitter = 8%)</td>
</tr>
<tr>
<td>Dana-Farber</td>
<td>Combined = 8% (FB = 10% / Twitter = 8%)</td>
</tr>
<tr>
<td><strong>Combined NPO Median Total</strong></td>
<td><strong>11%</strong> (FB = 13% / Twitter = 10%)</td>
</tr>
</tbody>
</table>

**Emphasis on Action**

During the 4-week collection period, a total of 305 messages were generated across all NPOs. *Action* is the building of relationships by performing or participating in a deed, resulting in an emotional bond. The total for *Action*-based typology messages that included *Action 1* = Promoting an Event, *Action 2* = Donation Appeal, *Action 3* = Selling a Product, *Action 4* = Call for Volunteers and Employees, *Action 5* = Lobbying and Advocacy, *Action 6* = Join another Site or Vote for Organization, and *Action 7* = Learn How to Help.

**RQ3:** How do the selected nonprofit hospitals use social media to promote Action (i.e., seek help, build relationships, including emotional bonding)?
Out of a total of 287 generated messages, Dana-Farber produced 52 (19%) combined Facebook (7 = 12%) and Twitter (45 = 21%) messages that were categorized into the Action typology that consisted of Action 1, (25 = 9%); Action 2, (11 = 4%); Action 3, (0 = 0%); Action 4, (15 = 5%); Action 5, (1 = 0%); Action 6, (0 = 0%); and Action 7, (0 = 0%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: Action 1, Facebook (3 = 5%) and Twitter (22 = 10%); Action 2, Facebook (2 = 3%) and Twitter (9 = 4%); Action 3, Facebook (0 = 0%) and Twitter (0 = 0%); Action 4, Facebook (2 = 3%) and Twitter (13 = 6%); Action 5, Facebook (0 = 0%) and Twitter (1 = 0%); Action 6, Facebook (0 = 0%) and Twitter (0 = 0%); and Action 7 Facebook (0 = 0%) and Twitter (0 = 0%).

An example of a Twitter generated Action 1 (Promoting an Event) coded message from week 1 (Monday, September 22, 2014, 6:00 PM) Dana-Farber is as follows: “Cindy C @CallahanCindy; 7h; @TheJimmyFund @DanaFarber The @PinkAngelsInc are honored to support 2 walk hero's #bostonmarathonwalk pic.twitter.com/6BmSBzUtTA; Embedded image permalink; Embedded image permalink; Embedded image permalink; View more photos and videos; Reply Replied to 0 times; Retweet Retweeted 1 time 1; Favorite Favorited 2 times 2; More.”

An example of a Facebook generated Action 1 (Promoting an Event) coded message from week 1 (Wednesday, September 24, 2014, 5:30 PM) Dana-Farber is as follows: “Dana-Farber Cancer Institute; 53 minutes ago; We’re partnering with the Metastatic Breast Cancer Network for a live video web-chat on the latest treatment and research for metastatic breast cancer. Dr. Eric Winer, director of the Breast Oncology Program in the Susan F. Smith Center for Women’s Cancers at Dana-Farber, will join us for a live discussion. Do you have a question for Dr. Winer? Email webchats@dfci.harvard.edu; Melanie Graham’s photo; Join Live Web-chat: What’s New
in Metastatic Breast Cancer Treatment and Research; Thursday, October 23 at 1:00pm; Dana-Farber Cancer Institute in Boston, Massachusetts; 11 people are going; 41 people like this.”

An example of a Twitter generated Action 2 (Donation Appeal) coded message from week 1 (Wednesday, September 24, 2014, 5:30 PM) Dana-Farber is as follows: “Dana-Farber @DanaFarber; 11h; Thank you @nursejournal for naming Dana-Farber one of the most social media friendly hospitals of 2014! http://bit.ly/1rk02A5; Reply Replied to 0 times; Retweet Retweeted 5 times 5; Favorite Favorited 5 times 5; More.” Dana-Farber had no generated messages that exhibited content within the Action 3 (Selling a Product) typology. An example of a Twitter generated Action 4 (Call for Volunteers and Employees) coded message from week 1 (Wednesday, September 24, 2014, 5:30 PM) Dana-Farber is as follows: “Dana-Farber @DanaFarber; 45m; Dana-Farber is looking for spring comm. interns! Send resumes, cover letters & samples to student_internships@dfci.harvard.edu by 11/10; Reply Replied to 0 times; Retweet Retweeted 2 times 2; Favorite Favorited 0 times; More.”

An example of a Facebook-generated Action 4 (Call for Volunteers and Employees) coded message from week 2 (Monday, September 29, 2014, 8:00 PM) Dana-Farber is as follows: “Calling all communications students! The Dana-Farber Communications Department is seeking editorial, interactive, photo, video, and media relations student interns for spring 2015. To apply, please send your resume, cover letter, and 2-3 writing samples (or visual samples for photo/video positions) to student_internships@dfci.harvard.edu by Nov. 10. Interns must receive course credit for their internship; 54 Shares; 83 people like this.” An example of content from previous posts that were re-worded and modeled a different typology code from Dana-Farber’s “#CareOnCampus” campaign is the following Twitter generated Action 5 (Lobbying and Advocacy) from week 4 (Tuesday, November 4, 2014, 8:30 PM): “Dana-Farber @DanaFarber;
3h 3 hours ago; Did you know that Dana-Farber is a leader in cancer research? Spread awareness to show how you #CareOnCampus. http://bit.ly/Zgpbmk; 0 replies; 2 retweets; 4 favorites; Reply; Retweet 2; Favorite 4; More.”

Dana-Farber had no generated messages that exhibited content within Action 6 (Join another Site or Vote for Organization) or Action 7 (Learn How to Help) typologies. As noted in the Community section of this analysis, Dana-Farber initiated a Twitter campaign titled “#CareOnCampus”, an additional example message from the same campaign on Monday, October 27, 2014, 6:30 PM was coded as Action 4 (Call for Volunteers and Employees) and reworded the same content as follows: “Dana-Farber @DanaFarber; 14h 14 hours ago; Do your friends know about Dana-Farber? Spread the word to show that you #CareOnCampus. http://bit.ly/Zgpbmk; 0 replies; 4 retweets; 3 favorites.” By engaging stakeholders to participate and act by “spreading the word”, the message was changed from its original format, thus precipitating action from stakeholders.

Out of a total of 287 generated messages, Mayo Clinic produced 133 (21%) combined Facebook 30 (19%) and Twitter 103 (21%) messages that were categorized into the Action typology that consisted of Action 1, 127 (20%); Action 2, 3 (0%); Action 3, 1 (0%); Action 4, 1 (0%); Action 5, 0 (0%); Action 6, 0 (0%); and Action 7, 1 (0%).

An examination of each typology as it relates to Facebook and Twitter messages is as follows: Action 1, Facebook 28 (18%) and Twitter 99 (20%); Action 2, Facebook 1 (1%) and Twitter 2 (0%); Action 3, Facebook 1 (1%) and Twitter 0 (0%); Action 4, Facebook 0 (0%) and Twitter 1 (0%); Action 5, Facebook 0 (0%) and Twitter 0 (0%); Action 6, Facebook 0 (0%) and Twitter 0 (0%); and Action 7, Facebook 0 (0%) and Twitter 1 (0%). An example of a Twitter generated Action 1 (Promoting an Event) coded message from week 1 (Tuesday, September 23,
2014, 7:45 PM) Mayo Clinic is as follows: “Mayo ClinicVerified account @MayoClinic Tuesday Q & A: GI issues that come on quickly not always a concern. #diarrhea #cramps http://mayocl.in/1riLcKi pic.twitter.com/cC9oYh3o6T; Reply; Retweet; Favorite; More; Embedded image permalink; Retweets 13; Favorites 9; Tessa Andrews, Jeffrey Sciarappa, Dimas Seto Prasetyo, Kirby W, K-Jam, Nathalie Abrahams, Michele J Deliberto, Vdaskivich, Wilson Silva; 7:39 PM - 23 Sep 2014.”

An example of a Twitter generated *Action 2* (Donation Appeal) coded message from week 4 (Tuesday, November 4, 2014, 8:30 PM) Mayo Clinic is as follows: “Dana-Farber @DanaFarber; 14h 14 hours ago; Every 2 seconds someone in the U.S. needs blood. #CareOnCampus and donate blood today. http://bit.ly/Zgpbmk; 0 replies; 5 retweets; 3 favorites; Reply; Retweet 5; Favorite 3; More.” An example of a Facebook generated *Action 3* (Selling a Product) coded message from week 3 (Monday, October 27, 2014, 4:30 PM) Mayo Clinic is as follows: “Mayo Clinic shared a link; 7 hours ago; Mankato-based Angie’s Artisan Treats is supporting Mayo’s Breast Cancer Genome-Guided Therapy study, known as BEAUTY, through sales of limited-edition, pink-ribbon popcorn bags. “Right now we treat according to the subtypes of how the breast... See More; Angie's Artisan Treats raises money for Mayo BEAUTY study; www.mankatofreepress.com; Mayo Clinic researchers are working to individualize breast cancer treatments based on patients’ genomes and the genomes of individual tumors, thanks in part to support from a local healthy snack company. 2 SharesLike; 94 people like this.”

An example of a Twitter generated *Action 4* (Call for Volunteers and Employees) coded message from week 4 (Monday, November 3, 2014, 7:45 PM) Mayo Clinic is as follows: “Mayo Clinic @MayoClinic; 12h 12 hours ago; Join @theIOM for the 12/4 Workshop on achieving meaningful #pophealth outcomes http://bit.ly/1v4aQ4j #spreadhealth; 0 replies; 5 retweets; 3
favorites; Reply; Retweet 5; Favorite 3; More.” Mayo Clinic had no generated messages that exhibited content within Action 5 (Lobbying and Advocacy) or Action 6 (Join another Site or Vote for Organization) typologies. An example of a Twitter generated Action 7 (Learn How to Help) coded message from week 4 (Monday, November 3, 2014, 7:45 PM) Mayo Clinic is as follows: “Mayo Clinic retweeted; Mayo Healthy Living @MayoHealthyLife; 9h 9 hours ago; Travelling with a #MayoClinic patient to #rochmn? Consider enrolling in a few of our healthy living courses. http://atjo.es/1OVX; 0 replies; 10 retweets; 3 favorites; Reply; Retweet 10; Favorite 3; More.”

Out of a total of 228 generated messages, MSKCC produced 71 (31%) combined Facebook 15 (27%) and Twitter 56 (33%) messages that were categorized into the Action typology that consisted of Action 1, 65 (29%); Action 2, 2 (1%); Action 3, 2 (1%); Action 4, 2 (1%); Action 5, 0 (0%); Action 6, 0 (0%); and Action 7, 0 (0%).

An examination of each typology as it relates to Facebook and Twitter messages is as follows: Action 1, Facebook 14 (%25) and Twitter 51 (30%); Action 2, Facebook 1 (2%) and Twitter 1 (1%); Action 3, Facebook 0 (0%) and Twitter 2 (1%); Action 4, Facebook 0 (0%) and Twitter 2 (1%); Action 5, Facebook 0 (0%) and Twitter 0 (0%); Action 6, Facebook 0 (0%) and Twitter 0 (0%); and Action 7, Facebook 0 (0%) and Twitter 0 (0%). An example of a Twitter generated Action 1 (Promoting an Event) coded message from week 3 (Monday, October 27, 2014, 4:30 PM) MSKCC is as follows: “Sloan Kettering retweeted; Courier-Journal.com @courierjournal; Oct 24; Could power to destroy cancer come from within? http://cjky.it/1woxMyk @PrimeDarla @sloan_kettering @Norton_Health; Embedded image permalink; View more photos and videos; 0 replies; 5 retweets; 3 favorites; Reply; Retweet 5; Favorite 3; More.” An example of a Facebook generated Action 1 (Promoting an Event) coded
message from week 3 (Thursday, October 30, 2014, 8:30 PM) MSKCC is as follows: “Memorial Sloan-Kettering Cancer Center shared a link; about an hour ago; Join us on November 6 for a free lecture on breast cancer and bone health, a collaborative program from MSK and the Hospital for Special Surgery. MSK endocrinologist Azeez Farooki and Linda A. Russell of HSS will discuss how breast cancer affects bone health and ways to prevent osteoporosis and slow down loss of bone mass. Click on the link to register. For more information, please call 212-606-1613 or email pped@hss.edu; Event Calendar; www.hss.edu; Event Calendar - Hospital for Special Surgery; 2 Shares; 31 people like this.”

An example of a Twitter generated Action 2 (Donation Appeal) coded message from week 3 (Friday, October 31, 2014, 9:15 PM) MSKCC is as follows: “Sloan Kettering @sloan_kettering; 7h 7 hours ago; LAST DAY! Give to support #breastcancer research at MSK before midnight & we'll TRIPLE your gift! Donate here: http://bit.ly/1sew3fX #BCAM; 0 replies; 2 retweets; 0 favorites; Reply; Retweet 2; Favorite; More.” An example of a Twitter generated Action 3 (Selling a Product) coded message from week 3 (Monday, October 27, 2014, 4:30 PM) MSKCC is as follows: “Sloan Kettering @sloan_kettering; 6h 6 hours ago; Don't miss The @SocietyofMSKCC's Pop Up Shop on Wed & Thurs at #MSKWestHarrison, feat. @julie_vos jewelry. http://bit.ly/ZP6aHb; 0 replies; 0 retweets; 1 favorite; Reply; Retweet; Favorite 1; More.”

Generated messages that were coded Action 3 were also coded as “Multiple Coding” (Saxton & Lovejoy) codes.

An example of a Twitter generated Action 4 (Call for Volunteers and Employees) coded message from week 1 (Thursday, September 25, 2014, 7:30 PM) MSKCC is as follows: “Sloan Kettering followed NurseJournal.org, Metro New York, Meredith Engel and Michael Del Moro; User Actions; Follow; NurseJournal.org; @nursejournal; Social community and publishing
platform for nurses worldwide. Join our community and have your work published in a worldwide nursing community. User Actions; Follow; Metro New York; @metronewyork; Metro editors providing relevant New York information and inside info. at NYC's free daily newspaper.” MSKCC had no generated messages that exhibited content within Action 5 (Lobbying and Advocacy), Action 6 (Join another Site or Vote for Organization), or Action 7 (Learn How to Help) typologies.

Out of a total of 98 generated messages, St. Jude produced 49 (51%) combined Facebook 17 (40%) and Twitter 32 (59%) messages that were categorized into the Action typology that consisted of Action 1, 23 (24%); Action 2, 7 (7%); Action 3, 8 (8%); Action 4, 11 (11%); Action 5, 0 (0%); Action 6, 0 (0%); and Action 7, 0 (0%). An examination of each typology as it relates to Facebook and Twitter messages is as follows: Action 1, Facebook 7 (16%) and Twitter 16 (30%); Action 2, Facebook 2 (5%) and Twitter 5 (9%); Action 3, Facebook 3 (7%) and Twitter 5 (9%); Action 4, Facebook 5 (12%) and Twitter 6 (11%); Action 5, Facebook 0 (0%) and Twitter 0 (0%); Action 6, Facebook 0 (0%) and Twitter 0 (0%); and Action 7, Facebook 0 (0%) and Twitter 0 (0%). An example of a Facebook generated Action 1 (Promoting an Event) coded message from week 1 (Thursday, September 25, 2014, 6:00 PM) St. Jude is as follows: “St. Jude Children's Research Hospital; about a minute ago, Edited; We are proud to celebrate 25 years of Country Cares for St. Jude Kids. Thank you to the Grand Ole Opry and our St. Jude friends including Randy Owen, The Charlie Daniels Band, Brad Paisley and Eric Paslay for joining us to celebrate! Photo: We are proud to celebrate 25 years of Country Cares for St. Jude Kids. Thank you to the Grand Ole Opry and our St. Jude friends including Randy Owen, The Charlie Daniels Band, Brad Paisley and Eric Paslay for joining us to celebrate! 3 Shares; 125 people like this.”
An example of a Twitter generated *Action 1* (Promoting an Event) coded message from week 1 (Thursday, September 25, 2014, 6:00 PM) St. Jude is as follows: “St. Jude @StJude; 10h; Join the #StJudeUTD movement during Childhood Cancer Awareness Month and Stay Up for Good this September. Learn more: http://bit.ly/1oi8AE5; Reply Replied to 0 times; Retweet Retweeted 53 times 53; Favorite Favorited 44 times 44; More.” An example of a Facebook generated *Action 2* (Donation Appeal) coded message from week 1 (Monday, September 29, 2014, 10:45 PM) St. Jude is as follows: “St. Jude Children's Research Hospital; September 29 · Edited; Join the fight against childhood cancer! Visit the St. Jude Gift Shop to learn how you can give a special gift to the kids of St. Jude. http://bit.ly/1tc5iDT; Photo: Join the fight against childhood cancer! Visit the St. Jude Gift Shop to learn how you can give a special gift to the kids of St. Jude. http://bit.ly/1tc5iDT; 874 Shares; 15,682 people like this.”

An example of the same message in a re-worded 140-character Twitter *Action 2* (Donation Appeal) coded message from week 1 (Monday, September 29, 2014, 10:45 PM) is as follows: “St. Jude @StJude; 8h 8 hours ago; Help the kids of @StJude celebrate life. Give a gift of donation today! http://bit.ly/YDfGN1; Embedded image permalink; View more photos and videos, Reply 0 replies; Retweet 107 retweets 107; Favorite 90 favorites 90; More.” An example of a Facebook generated *Action 3* (Selling a Product) coded message from week 1 (Thursday, September 25, 2014, 6:00 PM) St. Jude’s is as follows: “St. Jude Children's Research Hospital; 3 hours ago; Edited; St. Jude friends Ashley Tisdale, Camilla Belle and Lily Aldridge have teamed up with Velvet by Graham & Spencer to create the limited edition JOIN THE FIGHT tee collection for Childhood Cancer Awareness Month. Now through 9/30, 50% of the proceeds will benefit St. Jude. Learn more: http://bit.ly/1C6IUn1; Photo: St. Jude friends Ashley Tisdale, Camilla Belle and Lily Aldridge have teamed up with Velvet by Graham & Spencer to
create the limited edition JOIN THE FIGHT tee collection for Childhood Cancer Awareness Month. Now through 9/30, 50% of the proceeds will benefit St. Jude. Learn more: http://bit.ly/1C6IUn1; 165 Shares; 4,799 people like this.”

St. Jude’s generated the same message in a re-worded 140-character Twitter Action 3 (Selling a Product) tweet from week 1 (Thursday, September 25, 2014, 6:00 PM) as follows: “St. Jude @StJude; 4h; Have you seen the @velvet_tees designed by @ashleytisdale to benefit #StJude? http://bit.ly/1C6IUn1pic.twitter.com/7HLfrJj80q; Embedded image permalink; View more photos and videos; Reply Replied to 0 times; Retweet Retweeted 27 times 27; Favorite Favorited 65 times 65; More.” An example of a Twitter generated Action 4 (Call for Volunteers and Employees) coded message from week 1 (Wednesday, September 24, 2014, 4:00 PM) St. Jude Children’s Research Hospital is as follows: “St. Jude @StJude; 54m; Stay Up for Good to save kids’ lives! Learn more about @StJude Up 'Til Dawn and join the #StJudeUTD movement: http://bit.ly/ZMPO1X; Reply Replied to 0 times; Retweet Retweeted 26 times 26; Favorite, Favorited 18 times 18; More.” St. Jude had no generated messages that exhibited content within Action 5 (Lobbying and Advocacy), Action 6 (Join another Site or Vote for Organization), or Action 7 (Learn How to Help) typologies. By comparison, the total combination of Facebook posts and Twitter tweets target by Lovejoy and Saxton’s (2012) Action 1 (the promotion of an event) typology is as follows by the order of content produced:

<table>
<thead>
<tr>
<th>NPO</th>
<th>Combined FB/Twitter</th>
<th>FB (%)</th>
<th>Twitter (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Sloan-Kettering</td>
<td>29%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>St. Jude Children's Hospital</td>
<td>24%</td>
<td>16%</td>
<td>24%</td>
</tr>
<tr>
<td>Mayo Clinic</td>
<td>20%</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>Dana-Farber</td>
<td>9%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Combined NPO Median Total</td>
<td>19%</td>
<td>16%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Statistical Overview
A breakdown of Facebook statistics (available on each organization’s Facebook homepage) by NPO from the beginning of the data collection period from September 22, 2014 are as follows: Dana-Farber Facebook (September 22, 2014): 108,168 Total Page Likes (↑1.1% from last week); 1,589 Visits; 7,028 People Talking about This; 1,190 New Page Likes (↑2.9% from previous week). Mayo Clinic Facebook (September 22, 2014): 540,037 Total Page Likes (↑0.3% from previous week); 27,676 Visits; 14,357 People Talking about this; 1,439 New Page Likes (↑26.7%). MSKCC Facebook (September 22, 2014): 39,198 Total Page Likes (↑1.1% from previous week); 47,674 Visits; 7,820 People Talking about this; 416 New Page Likes (↑55.5%). St. Jude Facebook (September 22, 2014): 1,676,710 Total Page Likes (↑0.3% from previous week); 54,180 Visits; 104,215 People Talking about this; 5,433 New Page Likes (↑12%).

A breakdown of Facebook statistics (available on each organization’s Facebook homepage) by each NPO from the end of the data collection as of November 9, 2014 are as follows: Dana-Farber Facebook (November 9, 2014): 115,041 Total Page Likes (↑0.8% from previous week); 8.7K People Talking About This; 924 New Page Likes (↑4.5%); 17,429 Visits. Mayo Clinic Facebook (November 9, 2014): 548,263 Total Page Likes (↑0.2% from previous week); 0 Visits; 14K People Talking About This; 1.3K New Page Likes (↑24.21%). MSKCC Facebook (November 9, 2014): 42,854 Total Page Likes (↑0.9% from previous week); 50,550 Visits; 9.3K People Talking About this; 363 New Page Likes (↑39.5%). St. Jude Facebook (November 9, 2014): 1,703,940 Total Page Likes (↑0.2% from previous week); 58,059 Visits; 131.3K People Talking About This; 3.4K New Page Likes (↑28.6%).

A breakdown of Twitter statistics (available on each organization’s Twitter homepage) by NPO from the beginning (September 22, 2014) are as follows: Dana-Farber Twitter (September 22, 2014): 8,663 Total Tweets; 361 Photos/Videos; 10K Following; 23.9 K Followers; 2,451 Favorites.
Mayo Clinic Twitter (September 22, 2014): 17.9K Total Tweets; 890 Photos/Videos; 1,782 Following; 873 K Followers; 425 Favorites. Memorial Sloan Kettering Cancer Center Twitter (September 22, 2014): 4,657 Total Tweets; 131 Photos/Videos; 13,063 Retweets. 858 Following; 19.4K Followers.

St. Jude Facebook (September 22, 2014): 4,955 Total Tweets; 297 Photos/Videos; 484 Following; 357K Followers; 4,016 Favorites.

A breakdown of Twitter statistics (available on each organization’s Twitter homepage) by NPO from the end of the data collection (November 9, 2014) is as follows: Dana-Farber Twitter (November 9, 2014): 9,273 Total Tweets; 0 Photos/Videos; 10K Following; 25.5K Followers. 3,303 Favorites. Mayo Clinic Twitter (November 9, 2014): 18.9K Total Tweets; 0 Photos/Videos; 1,782 Following; 940K Followers; 558 Favorites. MSKCC Twitter (November 9, 2014): 5,092 Total Tweets; 0 Photos/Videos; 928 Following; 21.2K Followers; 2,814 Favorites. St. Jude Twitter (November 9, 2014): 5,135 Total Tweets; 0 Photos/Videos; 486 Following; 360K Followers; 4,368 Favorites.

Discussion

Overview

Intercoders assisted in the establishing of newly developed grounded typology codes. The development of new typologies resulted from discussions and research of Lovejoy and Saxton’s (2012) “Information, Community, and Action” categories (p. 341). For the purpose of consolidating this analysis, the following categories were grouped and re-labeled as “Primary Grounded” and “Multiple Grounded”: a) “Live-feed” (content produced during a live Twitter-chat), b) “Collaboration” (where NPO messages acknowledge new collaborative initiatives with other organization(s)), c) “Stakeholder” (where messages target internal stakeholders with the respective content producer), d) “Status Update” (where updated information, including photos...
have changed on the NPO’s landing page of the respective social media site), and e) “Bilingual” (where generated content is posted in a language other than English). These categories were later re-labeled as either “Primary Grounded” or “Multiple Grounded.”

Although St. Jude generated fewer Facebook postings (44) and Twitter tweets (54), with a total 98 messages by comparison to the other three NPOs, stakeholder engagement was significantly higher as indicated with the number of Twitter re-tweets and comments posted in Facebook. The engagement of stakeholder interaction surpassed the other three hospitals. St. Jude tailored their content to specifically fit not only the needs of children who are stricken with potentially life-threatening illnesses, but also their families, in both local and global contexts. St. Jude’s public relations initiatives successfully appealed to the heartstrings of all stakeholders by skillfully treading the line between engendering empathy and excessive sentimentality. A significant amount of stakeholder engagement is suggested by the number of Facebook likes during the collection period (27,230 during the data collection period between September 22 and November 9, 2014). However, there was a stakeholder increase of only 3,000 Twitter followers, which lags significantly behind MSKCC’s 67,000 Twitter followers during the same time span. This suggests that, although St. Jude stakeholders prefer Facebook as the social media platform to engage, Twitter is the preferred platform for MSKCC stakeholders.

Out of all the NPOs, Dana-Farber was the only NPO that generated re-worded and re-framed messages within both social media platforms. Initially, the campaign titled “#CareOnCampus” was advanced through Twitter, but it was later observed in various Facebook postings. The varied re-wording transcended Lovejoy and Saxton’s (2012) “Information,” “Community,” and “Action” guidelines as well as “Multiple Grounded” typology, where the message was changed to target different “Stakeholders.” The following Facebook post example
shows how Dana-Farber re-worded the same 140-character microblog from the same day (Week 3, Wednesday, October 29, 2014, 5:30 PM) as follows: “Dana-Farber Cancer Institute; 10 minutes ago; How do you give back to your school or the community? Send a Tweet to @DanaFarber using #CareOnCampus for a chance to win a $25 gift card. http://bit.ly/Zgpbmk; Photo: How do you give back to your school or the community? Send a Tweet to @DanaFarber using #CareOnCampus for a chance to win a $25 gift card. http://bit.ly/Zgpbmk; Like; 4 people like this.” Although the typology coding was different (Facebook: Community 4, Action 1; and Twitter: Community 2, Action 4), the hashtag remained unchanged and utilized different strategies to engage stakeholders while retaining message continuity.

Mayo Clinic’s use of Twitter, with a total 67,000 followers, indicated that Twitter was the most preferred means of engaging stakeholders. With an approximate addition of 64,000 more followers than any of the other NPOs in this study, Mayo Clinic utilized a live Twitter-chat, titled “#AllergyReady” as a means of engaging stakeholders during the live symposium that was held on Wednesday, November 5, 2014. A new grounded typology category that was not listed by Lovejoy and Saxton (2012) was created and labeled “Live-feed” and was later re-labeled as “Multiple Grounded.” However, their Facebook posts revealed significantly less interactions than with their Twitter account and fell behind St. Jude’s Facebook Likes by approximately 19,000.

Similar to Mayo Clinic, MSKCC engaged stakeholders with a live symposium that was categorized as a “Live-feed” grounded typology, and was later re-classified as “Primary Grounded” or “Multiple Grounded.” This was a 2-hour event that took place on Thursday, November 6, 2015, and was titled “#morescience.” The significance of this event was to promote
community and educational initiatives, as well as engage stakeholders in a live on-line conversation with certified experts of the subject matter.

Focus on Information Dissemination

The analyzed social media platforms of Facebook and Twitter produced by each NPO tabulated varying amounts of generated Information messaging. Of the 617 total Information-based messages generated during the 4-week collection period, Mayo Clinic generated a combined total of 390 Information typology messages (91 Facebook and 299 Twitter); followed by Dana-Farber with a combination total of 127 Information messages (21 Facebook and 106 Twitter); and followed by MSKCC with a combination total of 89 Information messages (23 Facebook and 66 Twitter) and St. Jude with a total of 11 Information generated messages (5 Facebook and 6 Twitter). These data indicate that the majority of NPO content producers utilized social media platforms to generate substantial, authoritative information to stakeholders as well as clinicians, in an effort to promote emotional bonding.

Additionally, the live Twitter-chat and symposium sponsored by Mayo Clinic, MSKCC, and Dana-Farber, harnessed an environment that promoted trust, integrity, dependability, and competency (Hon & Grunig, 1999, p. 19). By utilizing a 140-character microblog in the form of a live Twitter-feed, these NPOs established an additional method of disseminating messages amongst practitioners and other stakeholders. By promoting positive communicative initiatives that included the exchange of information, thoughts, as well as the encouragement of emotional bonding, engagement was promoted on all levels. Obtaining authoritative and easily accessible information assists stakeholders in making informed decisions that will provide a better quality of life for patients, family, and friends. The medical industry is continually evolving, therefore providing wellness information is an essential responsibility of clinicians.
RQ1: How do the selected nonprofit hospitals use social media to provide information?

During the 4-week collection period, Mayo Clinic generated the most Information-based typology messages with a total of 390 (91 [23%] Facebook posts and 299 [76%] Twitter tweets). Twitter was the preferred method for generating Information type messaging by Mayo Clinic, exceeding Dana-Farber’s total of 127 Information-type generated messages, followed by MSKCC with 89, and St. Jude with 11. Mayo Clinic’s overall Facebook Likes of 8,226 compared to 67,000 Twitter Followers during the collection data period also validates that Twitter usage is the preferred social media platform for disseminated information by stakeholders.

Mayo Clinic’s disclosure of life-saving generated information messages on Twitter as opposed to Facebook encouraged stakeholder engagement by an increase in the number of re-tweets compared to Facebook postings. In contrast to St. Jude, whereby emotional bonding was encouraged with other stakeholders who were seeking hope, Mayo Clinic encouraged stakeholder engagement through the dissemination of authoritative information that was transmitted through posts as well as a live Twitter-chat, as is described in the Results section. Similar to Mayo Clinic as well as MSKCC, Dana Farber Cancer Institute engaged stakeholders in a live Twitter-chat. Unlike Mayo Clinic and Memorial Sloan Kettering, which provided information via the live-chat, Dana Farber provided Community 3 (Responses to Messages) based information (to be discussed in the analysis of RQ2).

Dana-Farber preferred Twitter usage to disseminate Information-type messages. Out of 127 (46%) combined posts, Facebook generated 21 (36%) and Twitter 106 (49%) messages that were categorized into the Information typology. Similar to Mayo Clinic, Dana Farber’s Information generated messages provided life-saving remedies targeting Twitter stakeholders.
DF’s generated Information messages educate and allow stakeholders the option of exploring additional venues in order to become knowledgeable of a particular topic or agenda. The dissemination of this type of information validated the authoritative nature of the content, thus engaging stakeholders while establishing credibility and building trust.

Approximately 2.5% of MSKCC’s total messages were categorized into the Information typology. Out of 89 (39%) total messages (Facebook 23 [42%] and Twitter 66 [38%]), the amount of engagement produced from Information-generated content engaged stakeholders slightly more on Facebook (approximately 4%) than with Twitter. A comparison of the Multiple Grounded Twitter Live-feed from Mayo Clinic and MSKCC, the results demonstrated that both institutions were successful in generating engagement from their targeted audiences. Usage of Twitter in providing authoritative content engages a wider target group of stakeholders to bring awareness through new and innovative medical breakthroughs as well as preventative care implementations. Both Mayo Clinic and MSKCC strived to achieve a balance between providing authoritative information about cancer treatment and prevention as well as building emotional bonds with stakeholders.

St. Jude generated a total of 98 messages, whereby a total of 11 messages (5 Facebook posts and 6 Twitter tweets) were coded into the Lovejoy and Saxton’s (2012) Information typology. This means that 10.78% of St. Jude’s Information typology messages were to provide stakeholder’s content that encouraged emotional bonding by providing hope-based content and wellness initiatives that help survivors. By framing a message as Information, the stakeholders who are seeking hope become engaged with others in similar circumstances, uniting in the wish to find a cure. This observation is reflected by the number of shares (661) and likes (6,567) over the course of the data collection period. St. Jude’s usage of building emotional bonds is evident
across all of Lovejoy and Saxton's (2012) typology guidelines (Information, Community, and Action).

**Emphasis on Community**

Each NPO's analyzed Facebook and Twitter platform produced varying tabulated amounts of generated Community messaging. Of the 617 total Community-based messages generated during the 4-week collection period, MSKCC had the highest total with a combination of 156 Community messages (17 Facebook and 50 Twitter), followed by Mayo Clinic with a combined total of 124 Community messages (39 Facebook and 85 Twitter), followed by Dana-Farber with a combined total of 96 Community messages (30 Facebook and 66 Twitter), and St. Jude with a combined total of 37 Community messages (21 Facebook and 16 Twitter. NPO content producers utilized social media platforms as a means to build connections across cultural, social, and medical diversities, as well as solidarity between content producers and stakeholders.

Of the four NPOs, the only institution that generated messages aligned with Lovejoy and Saxton's (2012) Community 4 (Response Solicitation) typology was Dana-Farber, which had a total of nine Community 4 messages during the entire collection period. This indicates that the other three NPOs chose other means of emphasizing community outreach with their respective stakeholders. Additionally, "response solicitation" was either a communicative method that did not align with each respective NPOs calendar events or media goals, or that each institution's policies prohibited such usage and, thus, requires further analysis in future studies.

**RQ2: How do the selected nonprofit hospitals use engagement in social media to build Community?**

MSKCC generated the most Community 2 (Acknowledgement of current and local events) messages at 18%, followed by Mayo Clinic (10%) and then by Dana-Farber and St.
Jude’s at 8% each. The data indicates that MSKCC’s promotion of community with the acknowledgement of current and local events focused on state-of-the-art healthcare initiatives that included scientific DNA and genetic findings. This data also incorporated the enlistment of world renown experts in specialized fields of medicine. MSKCC was ranked number one by *US News and World Report*’s (2014) *Best Hospitals* list, thus increasing the opportunity to engage potential patients and their families through *Community*-based messaging. As evident in an updated Facebook status, MSKCC utilized this publicity as an opportunity to enlist new stakeholders for their online community.

Similar to St. Jude, Mayo Clinic enlisted emotional bonding content through *Community 1* (Giving Recognition) by appealing to the heartstrings of target audiences with stories that spoke of arduous journeys and victories encountered by patients and their families. One particular Facebook post from week 1, Friday, September 26, 2014, which was about a transplant recipient’s healing journey, received 106 Likes within four hours of being posted. The significance of this data indicates that stakeholder responsiveness to this type of communicative tactic elicits favoritism and emotional bonding.

Facebook Likes and Share responses from messages that were categorized under *Community 2* (Acknowledgement of Current and Local Events) saw higher stakeholder engagement than with Mayo Clinic’s *Community 1*-generated messages. An example of how Facebook promotion of current and local events that encouraged emotional stakeholder engagement was found in a week 3 Facebook post, whereby humor and light-hearted banter were utilized in the posting of an elderly patient’s (114 years old) attempt at mastering the art of social media. An excerpt from the October 27, 2014 Facebook post read: “Just before her 114th birthday, Anna Stoehr found a new way to connect with family and friends. There was just one
problem. http://mayocl.in/1z54Vmv Minnesota's Oldest Resident Fudges Age to Make Friends - on Facebook.” Although the content of this message was categorized as Community 2, the light-heartedness and amusing nature of this message precipitated “206 Shares” and “1,055 People Like This” within the first 24-hours of posting. Similarly, Twitter messages that were coded Community 2 received regular retweets and favorites, thus validating the transmission of messaging that promotes positive emotional reaction. Judging by the large and active increase in Twitter following (67,000 from baseline), there is a strong possibility that sentimental messaging correlates with the growth of the Twitter community. Additional future analysis is needed to clearly determine this type of connection.

Dana-Farber utilized a live Twitter-chat “#LCSM” during Week 3 that was categorized with Community 3 (Responses to reply messages) as well as “Multiple Grounded” coding. While this particular Twitter feed was informative, some of the context proliferated towards entertainment. Out of the three other NPOs, Dana Farber Cancer Institute generated 12% messages that were coded into the Community 4 typology, compared to 2% Mayo Clinic, 1% MSKCC, and 0% St. Jude. Similar to the outcomes of Community 3 messaging, the other three NPOs chose different venues of engaging stakeholders in community outreach initiatives. Further analysis of this type of message strategy needs to be addressed in future studies.

Dana-Farber’s Community 1 (Giving Recognition) Facebook post that acknowledges “The Jimmy Fund” (one of Dana-Farber’s specialized cancer fundraising initiative) provides empowerment and encouragement to patients, their families, and friends who are encountering setbacks while living with cancer. Through the promotion of community empathy, emotional support is developed and applied in the healing process. Dana-Farber’s usage of social media exemplifies how community bonding is promoted through stakeholder recognition. Future
research focusing on emotional bonding in Community generated messaging across NPOs might help clarify the connection between these strategies and outcomes.

Overall, St. Jude generated 38% combined Facebook and Twitter Community messages. Of the overall total, 30% (37% Facebook and 24% Twitter) were coded into the Community 1 (Giving Recognition) typology, with 8% combined social media generated for Community 2, leaving 0% for the other two Community (3 and 4) typologies. 59% St. Jude’s combined social media-generated content were categorized as Action-based typology pointing the data results to St. Jude preference of generating Action-based content as opposed to Community-based content. Additionally St. Jude’s stakeholders prefer Facebook engagement as opposed to Twitter. While St. Jude posted 21 messages to Facebook as compared to 16 Tweets, the difference between Facebook response (27,230 Likes) and Twitter response (3,000 Followers) supports the understanding of it. Statistics related to each social media platform warrant additional evaluation, since there is no established comparison between the tabulations (Facebook Likes versus Twitter Followers).

The amount of stakeholder engagement generated from St. Jude’s Community 1 (Giving Recognition) Facebook post from October 31, 2014, (which was one of two Facebook posts that day) had a photo of patients dressed in costumes with smiles on their faces, which promoted emotional bonding with stakeholders. The post read: “Happy Halloween from the kids of St. Jude! Photo: Happy Halloween from the kids of St. Jude!” the generated Share (1,060) and People Like This (23,511). While the second post also had several photos of patients and clinicians engaging in festive activities, despite having to face trying and arduous ordeals while dealing with life-threatening illnesses. On the other hand, while Twitter-generated messages differed in that messages with similar content were consolidated to fit a 140-character microblog,
the amount of re-tweets and favorites were significantly less than their Facebook counterparts, even though the overall tabulated Twitter favorites totaled 27,230. These data validates the outcome that St. Jude’s Facebook platform is the preferred form of social media for engagement by stakeholders.

**Emphasis on Action**

For purposes of this study, *Action* was defined as the building of relationships by the performance or participation in an event or deed. The analysis of each NPO’s Facebook and Twitter platform produced varying degrees of generated *Action* messaging. Of the 305 total *Action*-based messages generated during the 4-week collection period, Mayo Clinic generated a combined total of 133 *Action* typology messages (30 Facebook and 103 Twitter), followed by MSKCC with a combination total of 71 *Action* messages (15 Facebook and 56 Twitter); Dana-Farber with a combination total of 52 *Action* messages (7 Facebook and 45 Twitter); and St. Jude with a total of 49 *Action* generated messages (17 Facebook and 32 Twitter). These data indicate that NPO content producers utilized social media platforms to generate substantial, authoritative information to stakeholders as well as clinicians, in an effort to promote emotional bonding.

During the 4-week collection period, Dana-Farber had a total of 0 generated messages across *Action* 6 (Join Another Site or Vote for Organization) and *Action* 7 (Learn How to Help). The same holds for both MSKCC and St. Jude, which also did not have any *Action* 5 (Lobbying and Advocacy) generated messages. The lack of this type of generated messaging precludes the possibilities that a) hospital policies discourage usage of this type of messaging, b) there is little need for this type of messaging, or c) this type of messaging was not used during the data collection period.
The most notable account of varying *Action* content produced by an NPO was from September 22, 2014, St. Jude’s “Chili’s” campaign that utilized both Facebook and Twitter platforms. An excerpt from a Facebook post read: “Don’t forget that today is Donate Profits Day at your local Chili’s Grill & Bar! Today only, Chili’s locations across the country are donating 100% of their profits (at least $100k) to support the kids of St. Jude. Learn more: http://bit.ly/XX8F9w.” This *Action*-type messaging also inspired internal stakeholder engagement both on Facebook and on Twitter that had message postings about bringing in lunch from Chili’s, or meeting fellow staff after work for dinner at Chili’s. By enlisting internal stakeholder engagement, St. Jude’s was able to target external stakeholders, thereby inspiring action and engagement. Future analysis and comparisons is recommended on how this type of *Action*-type messaging promotes engagement.

**RQ3: How do the selected nonprofit hospitals use social media to promote Action (i.e., seek help, build relationships, including emotional bonding)?**

Dana Farber-Cancer Institute’s implementation of the “jimmyfund.org” campaign (http://www.jimmyfund.org is Dana-Farber’s clinic that specializes in cancer patient treatment) transcends multiple typology codes that enlist engagement, adoption, and varying communicative initiatives in an effort to encourage stakeholder interaction. Although a significant amount of the Jimmyfund messaging targeted *Community*-type engagement amongst stakeholders, it was noted that generated content also fell to the *Action*-type messaging typology. An excerpt from a Facebook post, dated Wednesday, November 5, 2014, which was categorized as *Action* 2 (Donation Appeal) read: “Giving stock is an easy and efficient way to invest in our mission to conquer cancer—and there are many benefits to you! Learn more about the power of giving stock through The Jimmy Fund: http://budurl.com/7weu.” By empowering stakeholders
with the knowledge that giving stock benefits donors and their respective recipients, a two-way asymmetrical bonding is developed that might further build engagement across all types.

When comparing Facebook to Twitter-generated Action-type messages that pertained to The Jimmy Fund, Twitter messages had similar results. An example excerpt from an Action 1 (Promoting an Event) tweet is as follows: “The 1st Annual #EdgeRockGolf Tourney is 2 days away! Enjoy a day of golf & charity, supporting @TheJimmyFund & @DanaFarber #JimmyFundGolf.” The significance of this result is that stakeholders actively sought information in a short, succinct manner that allowed the option to pursue additional information, participate in the event, or dismiss the content.

Out of a total of 647 generated messages, 133 (21%) were coded as Action and was further broken-down by social media platform with Facebook, 30 (19%) and Twitter 103 (21%). The significance of these data is in the suggestion that Twitter is the preferred form of engagement by stakeholders with 67K Twitter Followers. The use of Action 1 (Promoting an Event) typology in Twitter messages was the preferred form of disseminating messages, thus promoting stakeholder engagement by encouraging the seeking of help, building relationships, and enabling emotional bonding. Mayo Clinic’s live Twitter-chat “#MayoClinicRadio” was advertised as an event (Action 1) on Facebook. Further analysis of the data is necessary to evaluated whether content that proliferated the Live-feed (Primary Grounded) typology, actually encouraged stakeholder engagement in the participation of the “#MayoClinicRadio” event. Additionally, it is not clear if Mayo Clinic used additional forms of advertisement (such as mass media, email, or other public relations tools) to encourage participation in this event. Further investigation is warranted.
As was noted previously, MSKCC was ranked number one by *US News and World Report’s* 2014 *Top US Hospitals*. While data clearly favor Memorial Sloan Kettering Cancer Center’s usage of social media platforms to engage stakeholder within the genres of Information, Community, and Action categories it is not clear what other promotional venues (such as mass media) were utilized in order to promote stakeholder engagement. Additionally, data indicate that out of the four NPOs, MSKCC’s generated messages targeted stakeholders outside the scope of this analysis and were categorized into the *Grounded Primary* and *Multiple Grounded* typologies. As a result, posts and tweets that were coded as bi-lingual need further analysis, since translation of text was not available during the coding timeframe of this study.

Contrary to Dana-Farber, there was no evidence of re-framed or re-worded messages (other than the conversion of a Facebook post to a 140-character Twitter microblog) with St. Jude’s “Chili’s” campaign. There were a variety of *Action*-type messages that were generated either via Twitter or Facebook. An excerpt from an *Action 2* and *Multiple Grounded (Action 1)* coded Twitter generated tweet from Monday, September 22, 2014 read: “Chili’s Grill & Bar @Chilis; 16h; Today’s the big day! Come to a participating Chili’s and we'll donate today's profits (at least $100k!) to @StJude! pic.twitter.com/xrUwg5GwSl.” Similar to the Facebook-generated post noted earlier in the Overview of this Discussion section, St. Jude’s 140-character microblog promoted internal as well as external stakeholder engagement that produced 972 retweets and 459 favorites. Although St. Jude’s Facebook generated messages were used as a tool to engage internal and external stakeholders about their Chili’s campaign, the outcome was a successful campaign tactic as evidenced by the number of retweet and favorites. However, closer analysis and comparisons are needed to determine how much, as well as how this type of *Action*-type messaging promotes engagement across stakeholders.
Summary

Clearly, Twitter and Facebook are effective tools for disseminating information through engagement, information exchange, relationship building, and sharing as means to assist stakeholders in navigating the healthcare system. The organizations that reached the most stakeholders via Facebook were St. Jude with 27,230 likes followed by Mayo Clinic with 8,226 likes, Dana-Farber Cancer Research Institute with 6,873 likes, and MSKCC with 3,656 likes. The organization that reached the most stakeholders with Twitter was Dana Farber with 857 favorites and 1,600 followers, followed by MSKCC with 814 favorites and 1,800 followers, St. Jude with 352 favorites and 3,000 followers, and Mayo Clinic with 133 favorites and 67,000 followers. Facebook and Twitter YouTube links from outside sources showed significant usage in how public relations initiatives are applied in reaching targeted stakeholders.

Conclusion

There are a number of limitations with these studies and they fall into three distinct categories. The first category is the overarching missing components from all the NPOs and their respective platforms. When NPOs use Twitter and Facebook as public relations tools, social media significantly impact stakeholder behavior as well as how information is disseminated. Limitations of the study include the absence of a rhetorical approach that would help assess how NPOs establish trust through authoritative written content across social media platforms. Furthermore, stakeholders who do not have access to the hardware and software that is needed for this manner of communication have been omitted as a demographic area for study. Interestingly, other social media platforms were favored by individual users who preferred to maintain their anonymity, and these platforms were not addressed in this study. However, these limitations raise questions as to whether other social media platforms engage in tracking their
users in the same manners as Facebook, Google, or even Yahoo. Future studies need to address these concerns because this content analysis omitted these areas of inquiry.

The second category pertains to actual content and wording as was noted with Dana-Farber. Future investigations should take a closer look at messages from Dana-Farber specifically, since message content was continuously re-worded and re-framed in attempts to reach multiple target audiences and to engage stakeholders within the typologies addressed in this study.

The third category that was not addressed in this study pertains to the usage of broadcast media as it compares to that of social media. While this content analysis did not examine broadcast media usage by NPOs, further studies examining the combined usage of broadcast and social media is recommended. Another limitation to this content analysis is that St. Jude favors usage of mass media to reaffirm brand and reputation amongst its stakeholders, thus requiring further investigation.


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### Hospital Comparison of Facebook Posts and Twitter Tweets

<table>
<thead>
<tr>
<th>TYPOLOGY CATEGORIES</th>
<th>Dana-Faber Combined Facebook &amp; Twitter 4-Week GRAND TOTALS</th>
<th>Mayo Clinic Combined Facebook &amp; Twitter 4-Week GRAND TOTALS</th>
<th>Memorial Sloan-Kettering Cancer Center Combined Facebook &amp; Twitter 4-Week GRAND TOTALS</th>
<th>St. Jude Children's Research Hospital Combined Facebook &amp; Twitter 4-Week GRAND TOTALS</th>
<th>Median GRAND TOTAL of All Four Hospitals Combined Facebook &amp; Twitter (4-Week Totals)</th>
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<tbody>
<tr>
<td>1</td>
<td>Information (%), (%), (%), (%)</td>
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<td>2</td>
<td>Community 1 = Giving Recognition (13%), (7%), (11%), (30%), (11%)</td>
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<td>3</td>
<td>Community 2 = Acknowledgement of current &amp; Local events (8%), (10%), (18%), (8%), (11%)</td>
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<td>4</td>
<td>Community 3 = Responses to reply messages (10%), (2%), (1%), (0%), (4%)</td>
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<td>5</td>
<td>Community 4 = Response solicitation (3%), (0%), (0%), (0%), (1%)</td>
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<td>6</td>
<td>Action 1 = Promoting an Event (9%), (20%), (29%), (24%), (19%)</td>
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<td>7</td>
<td>Action 2 = Donation Appeal (4%), (0%), (1%), (7%), (2%)</td>
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<td>8</td>
<td>Action 3 = Selling a product (0%), (0%), (1%), (8%), (1%)</td>
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<td>9</td>
<td>Action 4 = Call for Volunteers &amp; Employees (5%), (0%), (1%), (11%), (2%)</td>
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<td>10</td>
<td>Action 5 = Lobbying &amp; Advocacy (0%), (0%), (0%), (0%), (0%)</td>
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<td>11</td>
<td>Action 6 = Join another Site or Vote for organization (0%), (0%), (0%), (0%), (0%)</td>
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<td>12</td>
<td>Action 7 = Learn How to Help (0%), (0%), (0%), (0%), (0%)</td>
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- **Primary (Grounded) Coding**: 17%, 18%, 1%, 2%, 11%
- **Multiple (Grounded) Coding**: 44%, 21%, 35%, 9%, 28%
- **Multiple (Saxton & Lovejoy) Coding**: 39%, 61%, 64%, 88%, 61%
Figure B1. Dana-Farber Cancer Institute 4-week combined Facebook and Twitter generated totals utilizing Lovejoy and Saxton (2012) typology comparison.
Figure C1. Mayo Clinic 4-week combined Facebook and Twitter generated totals utilizing Lovejoy and Saxton (2012) typology comparison.
Appendix D

Figure D1.

Figure D1. Memorial Sloan-Kettering Cancer Center 4-week combined Facebook and Twitter generated totals utilizing Lovejoy and Saxton (2012) typology comparison.
Figure E1. St. Jude Children’s Research Hospital 4-Week Grand Total Facebook and Twitter generated Lovejoy and Saxton (2012) typology comparison.