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A Study of the Media’s Portrayal of the Measles Outbreak

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in Communication Arts.

By:
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Under the mentorship of Professor Michelle Groover

ABSTRACT

This thesis project examines how social media was used during the measles outbreak in the United States from February 1, 2015-April 30, 2015. This content analysis research project will examine social media, specifically Twitter and Facebook, on the basis of the Center for Disease Control and Prevention (CDC) and the World Health Organization (WHO). The media outlets will be observed in order to determine the context of the measles outbreak, and the responses from the public (positive and negative) about how they felt or reacted to the information. In order to examine the social media outlets, research from the CDC and WHO websites, and evaluation of specific hashtags appearing in “tweets” and “statuses” were the methods used. After researching the portrayals from the public, analyzing crisis communication and situational crisis communication theory that correspond to the information found will allow for a better understanding and reasoning behind the different media portrayals of the measles outbreak.

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Introduction to the Study

In early 2015, the United States experienced a large, multi-state measles outbreak linked to an amusement park in California. The outbreak likely started from a traveler who became infected overseas with measles, then visited the amusement park while infectious; however, no source was identified (U.S. Department of Health & Human Services, 2016). This measles outbreak was not the first outbreak in recent time; documented outbreaks began in 2008, however, this outbreak is particularly important to examine via social media (Twitter and Facebook) because of the advancements in media outlets reporting on crises and the different ways in which the public reacts and responds to the information posted. Although breaking news on such crises travels quickly, in recent years with social media evolving, often news is spread through the sharing of pictures, videos, and thoughts via social media outlets such as Twitter and Facebook. The important thing to keep in mind about the spreading of news via social media platforms is the reach. News of the measles outbreak from February 2015 to April 2015 spread on social media outlets worldwide. In comparison to traditional media which takes time since information has to be gathered, reported on, and then published with approval, social media is instant and takes seconds.

According to Magill’s Medical Guide (2015), measles is a highly contagious viral disease characterized by a maculopapular (pimply) rash that develops on the skin and spreads rapidly over much of the cutaneous surface of the body. Measles virus is classified with the paramyxovirus, a class of viruses in which ribonucleic acid (RNA) serves as the genetic material. Additionally, in modern times but before the advent of measles vaccination, measles was a common disease of childhood, usually appearing between the ages of five and ten. The illness is among the most contagious of infections, and the virus was generally spread among children in
Widespread immunization of children, begun in the 1960s, tended to push the age of exposure into the teenage years (Alder, 2015). “Measles vaccine is usually combined with mumps and rubella (MMR), or combined with mumps, rubella, and varicella (MMRV)” (Centers for Disease Control and Prevention, 2014, ¶6).

According to the Centers for Disease Control and Prevention (2015), as of February 11, a total of 125 measles cases with rash occurring from December 28, 2014–February 8, 2015, had been confirmed in U.S. residents connected with this outbreak. Of these, 110 patients were California residents. Thirty-nine (35%) of the California patients visited one or both of the two Disney theme parks during December 17–20, where they are thought to have been exposed to measles, 37 have an unknown exposure source (34%), and 34 (31%) are secondary cases (Zipprich, Winter Hacker, Watt, & Harriman, 2015).

**Statement of the problem**

The measles outbreak is a subject that is constantly appearing and reappearing as outbreaks occur around the world at different times. However, this thesis research will only include information regarding the measles from February 1, 2015, to April 30, 2015. Research shows the first confirmed cases in the United States occurred in California at two Disneyland theme parks. As far as the pre-vaccine era and the first appearance of the measles outbreak the Centers for Disease Control and Prevention (2014) states,

In the 9th century, a Persian doctor published one of the first written accounts of measles disease. Francis Home, a Scottish physician, demonstrated in 1757 that measles is caused by an infectious agent in the blood of patients. In 1912, measles became a nationally notifiable disease in the United States, requiring U.S. healthcare providers and
laboratories to report all diagnosed cases. In the first decade of reporting, an average of 6,000 measles-related deaths were reported each year (¶1-3).

It is important to understand the history of this disease in order to relay accurate information to the public.

The use of social media in the time of a crisis and how organizations prepare for and respond to them is a topic that is still being researched. The measles outbreak and social media use correlate on the basis that social media can intensify and overdramatize the events that actually occurred. Especially with how fast and how far social media can spread/reach, there is no approval or editing involved in posting information via social media platforms. Organizations increasingly have to address the fact that a great deal of information transmitted today during times of crisis is no longer filtered, but rather received directly by various publics through social media networks characterized by their high levels of interactivity (Arceneaux and Weiss, 2010; Jansen et al., 2009). Organizations need to continue to develop strategic plans to implement to both prevent and react with crises as social media and the web are constantly changing and evolving.

Arceneaux and Weiss (2010) remind public relations practitioners, “Twitter can be accessed from any device with internet access” (p. 1263). Social media, including Facebook, Twitter, and YouTube, “provide constant connectivity among people that is previously unparalleled” (Jansen et al., 2009, p.2169). This demonstrates the fact that social media is advancing, and the control of organizations and preparing for crises reported on social media platforms is out of reach. Understanding and implementing crisis management strategies to prevent and evaluate the situational crisis communication theory in response/post-crisis and the
way in which the public reacts to the media’s portrayal of the measles outbreak highlights the research completed within this project.

**Purpose of the study**

By proposing to answer the question/approach to the research topic, examining different media outlets to see context about the measles outbreak. Further, the responses from the public regarding how they feel or react to the information will define the media’s portrayal of the measles, which is in term the overall question of the research topic. In terms of media outlets, information from the Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) via Twitter and Facebook will be examined and analyzed. In order to assess the social media outlets, searching different hashtags and using Twitter’s advanced search tool will yield various topics/views. After finding the different portrayals and views from the general public regarding the crisis issue, the findings will be discussed and analyzed in terms of crisis communication with studies from Benson, 1988; Birch, 1994; Dawar & Pillutla, 2000; Dean 2004 and situational crisis communication theory encompassing research from Coombs, (2007a) and (2007b).

**Significance of the study**

The vaccination process is a main point in researching measles outbreaks because it is key to understand the importance of vaccination in order to prevent cases and outbreaks from further occurring. Specifically, vaccinating children is a subject highlighted in this project in order to explain why parents refrain from getting their children vaccinated.

In the decade before 1963 when a vaccine became available, nearly all children got measles by the time they were 15 years of age. It is estimated 3 to 4 million people in the United States were infected each year. Also each year an estimated 400 to 500 people
dies, 48,000 were hospitalized, and 4,000 suffered encephalitis (swelling of the brain) from measles” (Centers for Disease Control and Prevention, 2014, ¶4).

Knowing this information is helpful when discussing the history of the disease with the public and media. Additionally, developing a vaccine was also important to researchers and doctors.

In addition to the pre-vaccine era and the vaccination process concerning children, the development of the vaccine is crucial to define. “In 1954, John F. Enders and Dr. Thomas C. Peebles collected blood samples from several ill students during a measles outbreak in Boston, Massachusetts. They wanted to isolate the measles virus in the student’s blood and create a measles vaccine. They succeeded in isolating measles in 13-year-old David Edmonston’s blood,” (Centers for Disease Control and Prevention, 2014). “In 1963, John Enders and colleagues transformed their Edmonston-B strain of measles virus into a vaccine and licensed it in the United States. In 1968, an improved an even weaker measles vaccine, developed by Maurice Hilleman and colleagues, began to be distributed. This vaccine, called the Edmonston-Enders (formerly “Moraten”) strain has been the only measles vaccine used in the United States since 1968,” (Centers for Disease Control and Prevention, 2014). The development of the vaccine is important to understand in order to lessen the amount of cases of measles worldwide, and hopefully one day eradicate the disease.

With the development of a vaccine, the CDC set a goal to eliminate measles from the United States by 1982. “Although this goal was not met, widespread use of measles vaccine drastically reduced the disease rates. By 1981, the number of reported measles cases was 80% less compared with the previous year” (Centers for Disease Control and Prevention, 2014, ¶7).
With the failure to eliminate the disease, researching efforts to eliminate measles is a relevant subject to consider. According to WHO (2015), by 2013, the global push to improve vaccine coverage resulted in a 75% reduction in deaths. During 2000-2013, with support from the Measles & Rubella Initiative (M&R Initiative), measles vaccination prevented an estimated 15.6 million (¶46). “During 2013, about 205 million children were vaccinated against measles during mass vaccination campaigns in 34 countries. All WHO (World Health Organization) Regions have now established goals to eliminate this preventable killer disease by 2020” (World Health Organization, 2015, ¶47). Having vaccinations available led to a reduction of those dying from the disease. “During 2000-2013, measles vaccination prevented an estimated 15.6 million deaths. Global measles deaths have decreased by 75% from an estimated 544,200 in 2000 to 145,700 in 2013” (World Health Organization, 2015, ¶26).

When researching measles in the media, a video from Dr. Suzanne Humphries (Health Impact News, 2015), internist/nephrologist concerning the outbreaks in California and her view about opposing vaccines as a medical doctor highlights the overall belief that some feel vaccinating is not necessary or beneficial.

Current measles outbreaks in California are dominating mainstream media stories all across the U.S. at present. Here at Health Impact News we have received requests to interview “parents who are anti-vaccine.” Our response is: “Why? Why don’t you interview medical doctors who are anti-vaccine?” The truth is that medical doctors who are opposed to vaccines do not fit their agenda, or the agenda of their advertisers, which includes the very powerful pharmaceutical industry, (Health Impact News, 2015).

Research shows parents who choose not to vaccinate their children are based on the claim the measles vaccination (MMR) is linked to autism. On February 2, 2015, Cable News Network
(CNN) discussed the topic of the measles outbreak as merely a collision between science and social opinion, whereas people are focusing on the political role in the importance of vaccinating. Because the measles is a preventable disease, we need to be clear about it in terms of science and instead discard social opinion that surrounds the discredited claims and false accusations dealing with the measles vaccination. These claims and accusations yields inability for people to get vaccinated based on the belief that it can cause autism.

In comparison, the *Atlanta Journal Constitution* (AJC) reported on April 22, 2015 the issue involving the measles outbreak not being linked to autism through a study where “researchers analyzed health insurance claims covering 95,727 children who had received either zero, one, or the recommended two doses of MMR vaccine over an 11-year period since 2001.” Additionally, “the study found ‘no harmful association between the receipt of the MMR vaccine and the development of an autism disorder.’” (Thomas, 2015). Additionally, The AJC continued on the controversial topic linked to factual information stating, “California health officials declared the outbreak over on April 17, but not before the issue got the attention of President Barack Obama. ‘The science is pretty indisputable. We’ve looked at this again and again. There is every reason to get vaccinated. There aren’t reasons to not’” (Thomas, 2015). Overall, this study should make a meaningful contribution to scholarship regarding the use of social media during a crisis situation.

**Research Questions**

The assumption of this study is social media is the baseline for the spreading of information specifically during a time of crisis. The way in which the information is spread is done so rapidly and can sometimes be misled and/or misinterpreted. Further, the way in which
the public reacted both negatively and positively to the measles outbreak is the main focus of the research conducted. Further, by assessing the ways in which all parties involved in the situation used social media during the time of the measles outbreak (crisis), these questions were developed:

RQ1: How, if at all, did the Centers for Disease Control and Prevention (CDC) use social media at the time of and following the measles outbreak?

It is important to assess how the Centers for Disease Control and Prevention (CDC) used social media at the time of and following the measles outbreak because they are classified as the leading national public health institute of the United States (CDC, 2016). In order to determine the nature of the CDC at the time of a health related crisis, their Twitter and Facebook accounts were examined at the time of and following the crisis.

RQ2: How, if at all, did the World Health Organization (WHO) use social media at the time of and following the measles outbreak?

The World Health Organization (WHO) is the directing and coordinating authority on international health within the United Nations’ system (WHO, 2016). Because of the important role WHO has, examining the way in which WHO portrayed and reacted the crisis was especially significant. Just as with the CDC, the WHO’s Twitter and Facebook social media accounts were analyzed during and after the measles outbreak.

RQ3: How, if at all, did the general public respond via social media at the time of and following the measles outbreak?

The general public’s reaction to the measles outbreak via social media is crucial to evaluate because their views represent the overall perception based on the crisis as a whole, but also as the above media accounts portray the crisis. The general public not only reacts to the
measles outbreak based on their personal views and opinions concerning the issue, but in response to information organizations such as the CDC and the WHO post. In addition, the measles outbreak and general public’s responses bring about issues related to the crisis and what could be done in the future to prevent this from occurring again based on vaccination and immunization efforts.

**Literature Review**

This section of the thesis project will describe and evaluate social media, public relations, crisis communication, and situational crisis communication theory in order to relate these topics through scholarly research pertaining to the “Media’s Portrayal of the Measles Outbreak.”

**Social Media**

Social media are a broad collection of digital platforms that have radically changed the way people interact and communicate. However, we argue that social media are not simply a technology but actually represent a context that differs in important ways from traditional (face-to-face) and other digital (email) ways of interacting and communicating. As a result, social media is a relatively unexamined type of context that may affect the cognition, affect, and behavior of individuals within organizations. (McFarland & Ployhart, 2015). Assessing the way in which social media (Facebook and Twitter) was used during the February 1, 2015-April 30, 2015 measles outbreak will explore how the general public and the media responded during the crisis. The highlight of social media in this research is the fact that it largely reported on based on the implementation of social media reporting and responding to the outbreak.

Jack Dorsey, Twitter’s co-founder, stated it was his desire for Twitter to become a “multi-purpose tool” (Dijick, 2011, p. 335). Additionally, Dijck (2011) discusses six general
categories of use, which he breaks into three types of practice: two-way communication, one-to-many communication, and many-to-many communication. His research found users range from those using it as an information tool and those using it as an interactive communication tool. During this research, Twitter was used for information purposes by using the advanced search bar in order to find different outlets and personal accounts that portray the measles outbreak in a particular manner. According to ETC: *A Review of General Semantics* (2012), another tool Twitter employs is that of the “hashtag.” A hashtag may be used to form a “trending topic” because others are discussing the same thing and to provide the opportunity to search the hashtag to read others’ use of it (Faina, 2012).

Recent extreme events show that Twitter, a micro-blogging service, is emerging as the dominant social media tool to spread information on social crises. It is elevating the online public community to the status of first responders who can collectively cope with social crises (Oh, Agrawal, & Rao, 2013). On the other hand, social media platforms such as Facebook have increasingly been used by businesses and non-profit organizations to interact with their various publics (Lovejoy, Waters, & Saxton, 2012; Waters, et al., 2009).

**Public Relations**

The profound effect social media has had on the communications industry is arguably even more important to the field of public relations (Luttrell, 2015). Coombs and Holladay (2010) define public relations as “the management function of mutually influential relationships within a web of constituency relationships” (p.4). In their definition Coombs and Holladay (2010) highlight the importance of practitioners to be advocates for their clients. “Public Relations are used purposefully to shape relationships” (Coombs & Holladay, 2012, p. 348). While practitioners generally view establishing relationships with various publics through
communication strategies as part of their job, there are others who envision their responsibilities as being more reactive than proactive when being proactive is critical in many cases (Bruning, 2001; Dincer & Dincer, 2013; Hallahan, 2001; Heath, 2006). Being proactive means using strategies to anticipate concerns and/or problems, while reactivity is when an organization waits to see what might happen (Bach & Kim, 2012; Carden, 2005; Heath & Coombs, 2006). When an organization acts proactively, it also involves its target audience(s) by monitoring their attitudes and opinions via social media, as well as directly asking their opinion (Reitz, 2012).

It is especially important to understand the four quadrants of public relations that PR professionals work in: media, community, business, and government, and particularly focusing on their interrelationship and how social media has an involved and integrated role in this. Public relations practitioners should think of these quadrants as interrelated aspects and should strive to incorporate these aspects of all four quadrants into their daily activities to develop a higher level of strategic implementation. A continual, open line of communication between a public relations practitioner and the publics being served is essential in our digital age of socially driven public relations activities. In addition, the theory behind the Four Quadrants of Public Relations relies heavily on this type of engagement in order to interact with various publics, and since social media is also founded on the open communication concept, this communication model will take on considerable importance (Luttrell, 2015).

The emergence of social media in the public relations arena means practitioners have new communication tools, adding to traditional mass media and Internet media. While traditional mass media management plays an important part in the public relations arena, many public relations experts are now paying attention to social media to supplement traditional media because social media have unique advantages. For example, public relations practitioners can
distribute their message through social media and receive reaction from the public almost simultaneously. In contrast, with traditional mass media, it is possible to mass distribute organizational messages, but not to obtain immediate reaction from consumers. In addition, the new atmosphere surrounding social media is compelling public relations practitioners to communicate by sending their messages directly to their key audience instead of relying on mass media outlets.

General Public

Public relations practitioners aim messages to a targeted group of people their stakeholders whom they communicate with accordingly. In the measles outbreak examined from February 2015-April 2015, many individuals responded through a variety of social media to the crisis and the CDC and WHO and other organizations’ efforts to deal with it. Because the researcher was conducting a retrospective analysis of the social media user’s involvement with the organizations, or with each other through Facebook and Twitter in this case, it was difficult to characterize these individuals specifically. Those that engaged in these accounts and discussed the measles outbreak apart from those representing the media accounts were classified as the general public for the purpose of analyzing their communication. The individuals grouped together as the “general public” may or may not be associated in the actual measles outbreak. They could simply be supporters of vaccination against the disease, or on the other end of the spectrum and be against vaccination due to accusations of it being linked to autism. These individuals because of difficulty in classifying them, represent the overall target audience of the analysis of social media through a retrospective approach to the crisis.
Crisis Communication

Crisis is defined as “a significant threat to operations that can have negative consequences if not handled properly” (Coombs, 2007b). Through the three phases of crisis management (pre-crisis, crisis response, and post-response) crisis can be identified and dealt with effectively and appropriately. The goal is to find the different portrayals both the media and the general public propose about the outbreak, and explain them in terms of theories/strategies that have been created and used by different researchers. This thesis project examines crisis management strategies in association with the measles outbreak. It is important to understand the measles outbreak, a crisis, can be portrayed both positively and negatively through traditional media, as well as social media. How the crisis is portrayed in terms of the media affects the general public, raising different concerns and opinions, also introducing how the public interprets and reacts to the issue.

The topic of crisis communication has been widely studied (Benson, 1988; Birch, 1994; Dawar & Pillutla, 2000; Dean, 2004; Hobbs, 1995). “Not only are corporations becoming aware that crises do happen to firms just like themselves, but the rash of crises which have occurred in recent years has intensified awareness of the many and varied potential causes of crises” (Benson, 1988, p. 49). Crises can occur due to faulty products, human error, natural disaster, misconduct, and a slew of other potential causes (Benson, 1988; Cole & Fellows, 2008; Ellis, 1998; Len-Rios, 2010; Tracy, 2007). During a time of crisis an organization must take the situation seriously and understand if they are facing a major threat that could impact their future profit and existence (Ihlen, 2010; Lerbinger, 1997). At times the public and media view the sharing of anything negative to be distressing (Ahluwalia, Burnkrant, & Unnava, 2000). While it
may appear negative information travels faster than positive information, attitudes held by
dpublics can change this impact.

Situational Crisis Communication Theory

Situational Crisis Communication Theory (SCCT) “provides an evidence-based
framework for understanding how to maximize the reputational protection afforded by post-crisis
communication…it identifies how key facets of the crisis situation influence attributions about
the crisis and the reputations held by the stakeholders…provides a set of guidelines for how
crisis managers can use crisis response strategies to protect a reputation from the ravages of a
crisis” (Coombs, 2007c, p. 163). SCCT suggests each crisis type will create “specific and
predictable levels of crisis responsibility” and includes three crisis clusters, which include victim,
accidental and intentional (Coombs, 2007a, p. 137). SCCT uses attribution theory to create a
relation between crisis situations and crisis response strategies by keeping in mind crisis
responsibility, which ties the two together.

Coombs (2000) also examines crisis response strategies (CRS). With a variety of crisis
situations, there are various ways to respond. First, the crisis situation must be ascertained –
rumor, natural disaster, malevolence, accident, misdeed – followed by selecting a strategy to deal
with the situation – attack accuser, denial, excuse, justification, ingratiation, corrective action,
full apology. Crisis factors must also be considered – evidence, damage, identifiable attacker,
viable scapegoat, factual distortion, resonance of a challenge, privilege/financial interests,
performance history, and/or greater goal. When the crisis has passed, lessons can be learned for
the crisis manager to bring forward and learn from – what to do and not to do in the future.
The Media’s Portrayal of the Measles Outbreak

Methodology

This section serves to rhetorically examine social media messages during the established time frame (February 2015-April 2015) through a close reading of the findings. The researcher connected social media (Twitter and Facebook) specifically on the CDC and WHO accounts in order to access the portrayal of the measles outbreak both by these organizations and the general public. By searching hashtags via these social media outlets, what was communicated by the organizations and publics concerned with the crisis was seen. The research represents the practice of crisis communication, public relations, and social media in relation to the audiences’ reaction to the measles outbreak.

In order to evaluate the audience’s reactions and initial thoughts about the measles outbreak, Twitter and Facebook accounts for the CDC and WHO were observed. In order to specifically observe the tweets and posts/statuses that fell in the established time frame this study focuses on, hashtags were searched to more easily find this information. This study set to evaluate the following hashtags: #measles, #outbreak, and #vaccine.” These hashtags were chosen because they closely align with the topic of the study and yield the appropriate amount of relevant information to the topic. The use of keywords such as “measles, outbreak, immunize, and vaccine” added a wider range of tweets. However, with the hashtags being more specific and relevant, it allowed for more useful information from the organizations and publics being examined.

In addition, on Twitter the advanced search tool allows users to enter a specific and detailed search, which was convenient in evaluating the responses of both the organization’s and general public’s reactions. The advanced search tool was used to easily access the keywords the researcher was looking to find, the hashtags that easily link posts to a specific trend, the people
category that specifies if the tweet came from these accounts, to these accounts, or mentioning these accounts, and most importantly the time frame. By using the advanced search tool, users can find information associated with a particular time, place, and account name which saves the time and effort of having to scroll through the entire Twitter feed of a specific account.

This approach was implemented in order to correctly examine and analyze the portrayals via social media on Twitter and Facebook from the CDC, WHO, and the general public. In the social media world, according to the Pew Research Center (2014) the top three ways social media users stay up-to-date on the news are Facebook, YouTube, and Twitter. With this information and based on the platforms the CDC and WHO use on a regular basis, Facebook and Twitter were the two platforms selected to investigate. Released in 2004, Facebook is considered to be the most highly trafficked website on the Internet with over 901 million users worldwide (Facebook Newsroom, Statistics, 2012). According to Facebook (2012), users spend more than 700 billion minutes per month on Facebook scanning and taking in all kinds of information. Facebook allows its users to create a profile with pictures and status updates, connect with millions of people around the world through friend requests and wall posts, and monitor friends and family’s activity thought the newsfeed. On the other spectrum, Twitter is a micro-blogging website that lets users tweet in 140 characters or less, brief messages, which would appear on followers’ Twitter feed. Followers can retweet, favorite, or reply to tweets.

Further, Samantha Collier (2012) from PR Daily shared Twitter has more than 100 million active users, 40% of those users do not create tweets, but rather read others tweets, click on links, and gather news. Collier’s research showed that on average, 750 tweets are retweeted per second. Both Facebook and Twitter are rapidly growing media of communication for personal and professional uses. The Pew Research Center (2013) found 42% of online adults use
multiple social media sites. Other popular sites include Pinterest, a visual discovery tool that you can use to find all your projects and interests displayed in a bulletin board format, Vine, a video sharing website designed to display video trends and remixes, LinkedIn, a networking tool to find connections to recommended job candidates, industry experts, and business partners, and Instagram, an application centered on photography in order to capture and share the world’s moments. Among these, Twitter and Facebook continue to be the platform of choice for most users. Because of this, the researcher chose to study how the CDC, WHO, and general public used social media at the time of and following the measles outbreak.

Lastly, the inclusion of the Situational Crisis Communication Theory (SCCT) will allow for a better understanding of the messages and their audiences. It is important to understand the affect the messages had on the audiences, and how the organizations responded. For this study, SCCT was applied to the social media messages shared by the CDC and WHO in order to see how these organizations dealt with the measles crisis in correlation with the general publics’ views and responses voiced via social media. SCCT was developed from the Attribution Theory, which “posits that people search for the causes of events…a person attributes responsibility for an event and will experience an emotional reaction to the event” (Coombs, 2007c, p.165). Coombs (2007a) explained that SCCT can be used to assess reputational threats in two steps. First, one must “determine the initial crisis responsibility attached to a crisis,” and second one must assess the threat’s consistency and distinctiveness (p. 137). Within the measles outbreak it is important to define the crisis and follow through with crisis response strategies during and post-crisis to unsure another outbreak will not occur. In addition, with the general public’s responses and attitudes towards the crisis, it is necessary for the organizations to address the problem and offer solutions for a future scenario.
Analysis

The purpose of this section is to describe exactly how this study intends to answer the three research questions, as well as justify the research and data analysis methods used. In addition, this section will highlight the trends and hashtags used on the social media outlets Twitter and Facebook.

According to Merriam-Webster (2015), a trend is defined as “a line of general direction of change: a way of behaving, proceeding, etc. that is developing and becoming more common: something that is currently popular or fashionable.” In searching posts and tweets from February 2015 to April 2015, one post was found from the CDC via Facebook during the established timeframe about the measles outbreak. For these posts on Facebook, the trend seen between the two is based on the importance and need for vaccinating.

In searching both the CDC and WHO Facebook page, the researcher was able to narrow down the search by the year tabs. After selecting the year of the timeline established for this study, scrolling through the posts was the way in which to find posts related to the measles outbreak. Because the time period was specific, there was only one post by each organization. Other posts included the measles in terms of vaccination and statistics associated with previous outbreaks, but this was not in the time frame and was therefore not analyzed. The hashtags searched included #measles and #measlesoutbreak” in order to find relevant information to the topic of the study.

The first post by the World Health Organization (Figure 1) on March 27, 2015 highlights the implementation of a mass measles vaccination campaign. This campaign focuses on the importance and need for young children ages six months and five years to be vaccinated in order to limit the number of infectious cases. The post includes a brief explanation of the campaign
and the goal and target, as well as a short video clip that further explains the importance of vaccinating this young age group because of the mortality rates that could result from non-vaccination at an early age. This Facebook post fell within the time requirements for this study, however it did not occur in the United States. Instead, it highlighted the execution of a measles vaccination campaign in Vanuatu. Because this was the only post that fell into the required time period, it was used in the research to represent the WHO and their involvement in the measles outbreak.

Figure 1 (WHO Facebook, 2015)

The second post by the Centers for Disease Control and Prevention (Figure 2) on February 24, 2015 explains the Vaccines for Children Program, which provides vaccines to children whose parents/guardians cannot afford them. The post directs viewers to a link where they can see if they are eligible to receive the free vaccine. This could be especially effective
because it provides parents a way in which to provide the best care possible to their children and not having to worry about the cost, if applicable based on the regulations.

Figure 2 (CDC Facebook, 2015)

For Twitter, trends are more apparent due to the use of hashtags on this social media platform than on Facebook posts regarding the topic of the measles outbreak. The advanced search tool allowed the researcher to specify the organizations, WHO and CDC. Tweets from these accounts were recorded, as well as for the general public tagging the CDC and WHO in a tweet. This allowed for a wide variety of information from all audiences. Trends appearing in these tweets encompassed again the importance of vaccinating, as well as concerns for vaccinating such as it being linked to autism and it causing other conditions. In addition, many tweets were not used in the research based on the tweets being related to other countries. Other tweets were not included for purposes not relating to the vaccination of the measles specifically.
For instance, some tweets recognized the need for vaccinations for Ebola and Polio. For this project, only the United States from February 2015 to April 2015 was examined in relation to the measles outbreak that occurred.

In order to analyze the tweets associated with the general publics’ reactions and initial opinions, and the organizations’ responses to the crisis at hand, the advanced search tool provided a quick search. The hashtags searched for each organization included #measles, #outbreak, and #vaccine. These were used in conjunction with keywords which included “measles, outbreak, immunize, and vaccine.” In order to see a wide range of views, the organizations were analyzed through their tweets to the public, the public’s tweets to them, and the organization’s mention in any tweets. The CDC did not tweet about the measles outbreak from their account at all, while the WHO had 21 tweets on their page about the measles outbreak from February 2015 to April 2015. There were five times people tweeted at the CDC during the time period regarding the measles outbreak, while the WHO had 34 tweets directed at their account. Lastly, the CDC was mentioned in 37 tweets during the time period, while the WHO was mentioned 232 times in various tweets.

Because of the location and relevance to the study, many tweets did not meet the requirements of the study. In order to simplify the research conducted, tweets were chosen based on trends found in tweets to, from, and mentioning the CDC and WHO.

**Discussion**

This portion will discuss the findings of the study and their implications and offers recommendation for future research. The purpose of this study was to examine how the general public, the CDC, and the WHO responded to the measles outbreak from February 1, 2015-April
1, 2015 emphasizing the role social media played in the crisis reaction. In order to investigate the research questions this study poses, data was gathered to show the general public’s, the CDC’s, and the WHO’s response to the measles outbreak on both Facebook and Twitter.

Those who study and practice crisis communication have contended that people increasingly rely on communication through social network platforms during times of crisis. They not only seek information about the crisis, but discuss and debate it (Field & Molesworth, 2006). Due to the public’s desire to find and share information regarding news, especially during a crisis, public relations practitioners and scholars focused in this area of study have gained greater understanding of the role social media platforms play in communicating with organizations’ publics. They recommend not only sharing information with these publics during crises, but also monitoring their own websites and social media sites to determine if and when they should reply to any messages posted by these publics. Smudde (2015) pointed out social media’s uncontrollability, stating, “Users can employ social media as they wish, which makes that content controlled; but on the other hand other users can respond any way they wish, which makes the use of the initial socially mediated messages uncontrolled” (p. 168). How a stakeholder will react via social media to content posted, particularly in a crisis, is something that cannot be predicted. However, not engaging with one’s publics is even more risky than doing so (Duhé, 2007). The relevance social media has on crisis communication in the ever-changing times of the sharing and dissemination of messages was evident through this study of the reactions to the measles outbreak.

In order to guide this study, three research questions related to the purpose were posed to address the three elements evaluated in terms of the measles outbreak from February 1, 2015-
April 30, 2015. Each questions deals with a different medium that was analyzed in terms of their reaction at the time of and following the measles outbreak.

1. CDC’s response via social media:

The first guiding research question asked how the CDC used social media at the time of and following the measles outbreak. During the February-April time period, the CDC posted once via Facebook promoting The Vaccines for Children Program. On Twitter, the CDC tweeted 25 times, was tweeted at 36 times, and was mentioned by others 32 times. All of the 25 times the CDC tweeted were relevant, while only 33 of the 36 tweets were used based on their relevance to the study, and 22 of 32 tweets where the CDC was mentioned were used. Most of CDC’s messages (Figure 3) encompassed the importance of parent’s vaccinating their children.
2. WHO’s response via social media

The second guiding question asked how the WHO used social media at the time of and following the measles outbreak. During the February-April time period, the WHO posted once on Facebook regarding their mass measles vaccination campaign in Vanuatu. On Twitter, the WHO tweeted 21 times (only eight of which were used in analyzing reactions), they were tweeted to 34 times (only 11 of which were used), and were mentioned 232 (almost all of which more not able to be used since they encompassed...
countries other than the United States). Most of WHO’s messages (Figure 4) were directed vaccination efforts to prevent outbreaks. In addition, WHO’s messages shared information worldwide about growing measles cases.

Figure 4 (WHO Facebook, 2015)

3. General public response via social media

The third guiding question posed in this study was concerned with how the general public responded and used social media at the time of and following the measles outbreak. From the two hashtags examined for this study, it was found that the general public was using the same hashtag as the media. In addition, the general public always mentioned the
organization accounts or had a link to a website or had re-tweeted a chart or diagram. Most of the information was factual, and was not necessarily opinion based. With this study focusing on a health crisis, factual information is important to consider and definitely shows after assessing the social media responses. Based on the tweets that met the specific regulations of the study, the general public used the hashtag “measles” 35 times. The hashtag “vaccine” was used 15 times, and the hashtag outbreak was used 12 times.

**Future Research**

There are also many opportunities for scholars to conduct studies that relate to or build on the results of what was found through this research. First, this study of how the CDC and WHO responded to the measles outbreak from February 1, 2015-April 30, 2015 could serve as a starting point for future studies relating to these organizations and the implementation of crisis communication strategies. Second, this study is specific to a timeframe. Further research could compare other past outbreaks to the more current ones to evaluate those responses differing. In addition, the United States was set as a location parameter due to in-depth research. Future research could investigate other countries and how they are dealing with the measles outbreak.

Just as social media will continue to evolve, crisis plans will need to be put in place to avoid issues in the future. By conducting further research on crisis communication and how it relates to organizations facing a crisis, there is a possibility that future crises can be avoided. In addition, by assessing reasons behind organizations not have crisis plans in place could help identify and show the benefits of having one prepared in the instance of a crisis. Lastly, more
information on how to affectively execute a post-crisis plan so that a crisis alike does not occur again could yield helpful results to organizations dealing with the aftermaths of a crisis.

**Limitations**

Limitations within this study include comparisons between traditional media versus social media, the exclusion of social media posts in the research, and the inconsistency in users leaving up initial posts on social media. First, while social media allows users to interact with one another virtually, there is no way to know if the person’s demographics match with their profile’s information. In other words, you do not actually know if the person’s social media posts, pictures, etc. are actually a part of the user. Users can lie about their age, gender, race, etc. With traditional media, audiences can be specifically targeted. Social media is classified as a two-way form of communication system because there are interactions, sharing of information, and engaging in various users messages. Traditional media is considered one-way communication because messages are transmitted and the process ends there. Because of this, this study’s purpose was just focused on social media in order to accurately see the reactions and responses by the general public on a crisis at hand. There is no engagement or activity in response to the initial message created through broadcast, print, or radio. Within this study, social media allowed for the examination of users in response to the measles outbreak. Because these public were only known to us by their account name we do not know if the audience is accurate.

The second limitation deals with the evaluation of the tweets and post in regards to meeting the established requirements for the study. Although there were many results from each organization in the given time period, some posts did not include information that was relevant to
the measles outbreak. Other vaccines, diseases, and initiatives were discussed on these accounts during the same time period, but were not included in the research. In addition, some of the information related to other countries, not the United States. This information was not included as well since there was an established location parameter in the study. However, the advanced search tool aided in eliminating some of the irrelevant information, but because of the specific requirement of the study, some things could not be included.

The third limitation to the study is the inconsistency of the user’s initial post being untouched or edited. With Facebook, users have the ability to edit their post. Therefore, researchers have no way of knowing if they had a previous post that contradicts with their “new” edited post. On Twitter, users do not have the ability to edit their post, but can instead completely delete their post. This causes inaccuracy when discussing the number of posts each organization has during the required time period and location of their post. There could have been more posts that now cannot be seen due to users deleting their posts. In addition, their reactions initially could have been modified by using the edit tool on Facebook.

Conclusion

This study highlights that social media has not only changed the ways in which people connect and discuss, but how organizations view, inform and interact meaningfully with their publics, especially in times of crisis. According to Groover (2015), as more and more individuals and organizations are using social media to connect with their stakeholders, it is important for the organizations to cultivate relationships with these publics through these social media before, during, and after crises that may arise for many reasons and in many forms. Social media as well as the Internet era as a whole is a setting where crises experienced by
organizations are cultivated, intensified, and widely discussed and potentially damaging to these organizations. However, organizations that recognize this atmosphere and have crisis communication strategies in place to both prevent and respond in any crisis in ways that use social media effectively are more likely to flourish or survive.

This study examined how social media were used during a crisis event by those involved, as well as how to improve upon this level of interaction with followers that were not involved. After a crisis, it is crucial that an organization is able to effectively connect with their key public through social media. Interacting with social media users occurs continually. Many people post statuses and wall posts in which they are sharing their thoughts and feelings with the people that follow them on social media. However, it is important that an organization regulates and monitors their social media accounts and web pages so that they know the public they are targeting. Whether the messages are positive or negative, just as with the responses by the publics in regards to the measles outbreak, it is important to establish relationships with the stakeholders so that if a crisis were to arise the organization can appropriately act as a whole unit. In addition, to be prepared for a crisis that may arise at any time, public relations practitioners and crisis managers should work as a team to create crisis management plans for the organization.

Just as the research highlights, the organizations must know their audiences because social media allows individual users to connect with organizations. Social media gives users the right to voice their opinion and present their questions and concerns. In order to effectively deal with these issues that could be negative, the organization must listen and keep track of their audiences’ activity. This study of organization’s and the general publics’ responses to the
measles outbreak that occurred from February 1, 2015-April 30 illustrates these needs and is an important part of the future of crisis communication involving organizations in many ways.
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