Chapter 7
COVID and Cuomo: Using the CERC Model to Evaluate Strategic Uses of Twitter on Pandemic Communications

Aisha Powell

Abstract Social media has presented itself as an essential tool for messaging and communications during health crises, with multiple sources circulating information to the public to steer the masses into a particular direction. The Crisis and Emergency Risk Communication Model (CERC) (Reynolds and Seeger, J Health Commun 10:43–55, 2005) has been used to evaluate messaging on social media platforms for effectiveness, as well as providing guidelines on how to arrange pertinent information online. This study will look at Twitter messaging from NYS Governor, Andrew Cuomo, during the early stages of the COVID-19 pandemic, particularly looking at the different types of information he gave during five different stages of the pandemic. A total of 406 COVID-related tweets from his official Twitter were collected from January 24, 2020, to April 12, 2020, and thematically analyzed. Tweets were evaluated using the CERC guidelines for relevance, pertinence and overall effectiveness, to "prevent further illness, injury, or death; restores or maintain calm; and engender confidence in the operational response" (Reynolds, J Appl Commun Res 34:249–252, 2006, p. 249). Governor Cuomo followed the majority of the CERC guidelines during different stages of the pandemic but fell the shortest during the initial event phase. Other information like content reactions, shares and likes showed that he received the most engagement during the maintenance phase, but especially when the tweet signified "hope" or reassurance to the public. The implications of this study indicate that public officials can use social media sites, like Twitter, to successfully inform the public in the midst of a modern health crisis. Hopeful messaging is especially well received and utilizing celebrities or well-known figures likeliness in health communications can help reach a broader audience. The use of Twitter for pandemic communications must be coupled and guided with strategic objectives throughout different times that help direct and comfort the public to minimize harm.

Keywords COVID-19 · Twitter · Social media · Health communication · Crisis communication · CERC · Pandemic messaging

A. Powell (✉)
Howard University, Washington, USA
e-mail: aisha.powell@bison.howard.edu

D. M. Berube (ed.), *Pandemic Communication and Resilience*, Risk, Systems and Decisions, https://doi.org/10.1007/978-3-030-77344-1_7

7.1 Introduction

And the International Emmy for masterful COVID-19 briefing goes to New York Governor Andrew Cuomo (Aratani 2020; Dwyer 2020). The prestigious Founders Award from the International Academy of Television Arts and Sciences has been given to individual's like Oprah Winfrey, Steven Spielberg, Shonda Rhimes and Al Gore, whose "work is recognized throughout the world, embodying the vision of the founders of The International Academy of Television Arts and Sciences, crossing cultural boundaries to touch our common humanity" (International Academy of Television Arts and Sciences n.d.).

Cuomo marks the first governor to receive the award and, an even more unprecedented, winning on the basis of pandemic-based briefings that he held throughout the COVID-19 pandemic.

The COVID-19 pandemic has taken the world by storm. The virus was first noted in late-December 2019 in Wuhan City, Hubei China (World Health Organization 2020a; b), with doctors reporting cases of pneumonia from an unknown source, marked by patients having a fever and symptoms similar to several respiratory diseases. By January 30, 2020, with over 9,000 cases worldwide and more than 200 people dead in China, the outbreak was declared a public emergency by WHO Director-General Dr. Tedros Adhanom Ghebreyesu (Gayle et al. 2020; WHO 2020a, b). In the next weeks to follow, cases were reported in almost every continent, including countries like Iran, Italy, Brazil, France, Germany, Australia and Nigeria (Taylor 2020). On March 1, 2020, former United States President Donald Trump declared the COVID-19 outbreak a national emergency and alerted the public that there were local and federal precautions being taken to slow down the spread of the virus (Trump 2020). Less than a month later, the United States became the new epicenter of the virus with more than 500,000 cases and almost 20,000 deaths (Hernandez et al. 2020; Taylor 2020)–nearly half of both were from New York.

The outbreak comes at a time when new media technologies are woven in the daily communications of everyday life (Bromley and Bowles 1995; Huang et al. 2009; Klein and Ford 2003) and where social media has emerged as an optimal platform for receiving news (Gil de Zúñiga et al. 2012; Hermida et al. 2012; Lee and Ma 2012). According to Pew Research data, social media outpaces print newspapers as the preferred medium for American adults to get their news (Shearer 2018) and 72% of adult internet users searched online for health information (Fox 2014; Sherer and Greico 2019). One of the sites that have been studied for news purposes is Twitter. With more than 330 million users worldwide, Twitter has been studied as one of the most prevalent platforms for disseminating and discussing breaking news (Bruns and Burgess 2012), getting information to reach a wide range of audiences (Ju et al. 2013; Kwak et al. 2010) and is used by authoritative figures for communication purposes (Herrera and Requejo 2012).

While the majority of Twitter users are between the ages of 18–29 and Democrat-leaning (Wojcik and Hughes 2019), Twitter was utilized by the former highest official in the United States, Donald Trump, to promulgate information about policies, issues

and decisions in real-time. Twitter has also emerged as platform for major health organizations to circulate health-related news, increase public engagement with heath content and to connect to patients (Park et al. 2013, 2015).

Using New York as a single case, this preliminary study examines how Twitter was used by New York Governor Andrew Cuomo to circulate information to New Yorkers and the general public during the different stages of the pandemic. On March 7, 2020, Cuomo announced a state of emergency in New York when there were a total of 76 cases (New York State 2020b).

By March 20, 2020, New York had been declared the United States' outbreak epicenter, with 15,000 people testing positive for COVID (Schumaker 2020). New York was chosen as the area of focus for this study because of its previous epicenter status, and because of Cuomo's record-breaking Emmy win. As defined by Creswell and Poth (2018), a case study is a qualitative research approach that involves thoroughly investigating a contemporary phenomenon by analyzing various forms of data.

Specifically using a critical case rationale, this study will "confirm, challenge or extend" (Yin 2018) the Crisis and Emergency Risk Communication (CERC) model (CDC 2018) as it applies to crisis communication during COVID-19.

7.2 Theoretical Framework

The CERC model was designed by researchers at the United States Center for Disease Control and Prevention (CDC 2018) as a guide for entities looking to spread health-related information on social media (Houston et al. 2014; Reynolds and Seeger 2005). Disaster social media use typically reviews speakers—such as individuals, health authorities, organizations or community leaders—and analyzes the types of information they give during different stages of a disaster (Houston et al. 2014). CERC does the same thing but is specifically designed to analyze and evaluate health communications, with an emphasis on how health authorities use social media (Lwin et al. 2018; Reynolds and Seeger 2005). The CERC model breaks down health communications into five stages: the pre-crisis, initial event, maintenance, revolutions and evaluation. According to the CERC model for best crisis communication practices, stage one criteria should focus on precautions, risk management and overall education to the public; stage two should center information around reduction, reassurance and rapid updates; stage three echoes that of stage two with a particular emphasis on support and positive framing; stage four focuses on updates about the resolutions and new risk; and stage five is an internal reflection where agencies evaluate their responses, what they learned and what can be improved (Reynolds and Seeger 2005). Box 1. shows a working CERC model as guided by Reynolds and Seeger (2005).

Box 1. Working CERC model (Reynolds and Seeger 2005).

I. Precrisis (Risk Messages; Warnings; Preparations) Communication and education campaigns targeted to both the public and the response community to facilitate:

- Monitoring and recognition of emerging risks.
- General public understanding of risk.
- Public preparation for the possibility of an adverse event.
- Changes in behavior to reduce the likelihood of harm (self-efficacy).
- Specific warning messages regarding some eminent threat.
- Alliances and cooperation with agencies, organizations, and groups.
- Development of consensual recommendations by experts and first responders.
- Message development and testing for subsequent stages.

II. Initial Event (Uncertainty Reduction; Self-efficacy; Reassurance) Rapid communication to the general public and to affected groups seeking to establish:

- Empathy, reassurance, and reduction in emotional turmoil.
- Designated crisis/agency spokespersons and formal channels and methods of communication.
- General and broad-based understanding of the crisis circumstances, consequences, and anticipated outcomes based on available information.
- Reduction of crisis-related uncertainty.
- Specific understanding of emergency management and medical community responses.
- Understanding of self-efficacy and personal response activities (how/where to get more information).

III. Maintenance (Ongoing Uncertainty Reduction; Self-efficacy; Reassurance) Communication to the general public and to affected groups seeking to facilitate:

- More accurate public understandings of ongoing risks.
- Understanding of background factors and issues.
- Broad-based support and cooperation with response and recovery efforts.
- Feedback from affected publics and correction of any misunderstandings/rumors.
- Ongoing explanation and reiteration of self-efficacy and personal response activities (how/where to get more information) begun in Stage II.

- Informed decision making by the public based on understanding of risks/benefits.

IV. Resolution (Updates Regarding Resolution; Discussions about Cause and New Risks/New Understandings of Risk) Public communication and campaigns directed toward the general public and affected groups seeking to:

- Inform and persuade about ongoing clean-up, remediation, recovery, and rebuilding efforts.
- Facilitate broad-based, honest, and open discussion and resolution of issues regarding cause, blame, responsibility, and adequacy of response.
- Improve/create public understanding of new risks and new understandings of risk as well as new risk avoidance behaviors and response procedures.
- Promote the activities and capabilities of agencies and organizations to reinforce positive corporate identity and image.

V. Evaluation (Discussions of Adequacy of Response; Consensus About Lessons and New Understandings of Risks) Communication directed toward agencies and the response community to:

- Evaluate and assess responses, including communication effectiveness.
- Document, formalize, and communicate lessons learned.
- Determine specific actions to improve crisis communication and crisis response capability.
- Create linkages to precrisis activities (Stage I).

The goal of the model is to measure if a crisis and risk emergency communication effort achieve the goal to "prevent further illness, injury, or death; restores or maintain calm; and engender confidence in the operational response" (Reynolds 2006, p. 249). The model can help systematically evaluate past and present disaster health communications during its different stages and identify shortcomings or successes, while also helping officials plan their future health communication strategies online.

7.3 Health Crisis and Social Media

There have been many researchers who have looked at social media use during health crises. Walton et al. (2012) looked at the CDC's use of YouTube videos during the 2009 H1N1 epidemic to evaluate if the CDC executed its goal to "reduce transmission and illness severity, and provide information to help health care providers, public

health officials and the public address the challenges posed by the new virus" (CDC 2019). The researchers analyzed impressions on social media, page views and video views as the basis of their argument that in times of crisis, government organizations should make resources available on non-traditional platforms, like YouTube. They concluded that the CDC was effective in their social media campaign and that health communications because it was developed "succinctly, appropriately and timely" (Walton et al. 2012). Guidry et al. (2017) also looked at how government organizations use social media during a health crisis, by exploring the use of Instagram and Twitter by the CDC, WHO and Doctors Without Borders during the Ebola outbreak. They found that social media messaging was most effective when the health organizations are well-known and established, and when they follow risk communications strategies like "solution-based messaging, incorporation of visual imagery, and acknowledgment of public fears and concerns" (Guidry et al. 2017).

In a study comparing traditional and social media in crisis communication, Liu et al. (2011) found that organizations benefit from using both old and new media to relay crisis responses and information. They conducted both in-person interviews and an online experiment to understand the different types of media outlets college students use to get health content. While they did find that participants aligned traditional forms of media as being more credible, they also found that where the information came, regardless of the platform, strongly influenced the students' perception of the credibility of it. Kim and Park (2017) corroborated this idea, in their investigation of crisis response strategies by organizations. They found that when crisis information was given by an established organization, a representative from that organization, or other highly influential people, the audience rated that information as more reliable and allowed it to influence their subsequent behaviors or actions. Contributing to scholarship about social media effectiveness, Graham et al. (2015) empirically investigated the social media use of 300 local government officials during crises in Florida and found a positive relationship between its use and the ability to control the emergency. These studies show us that during times of heightened risk or crisis, the public is not only looking to social media to understand what is happening, but they also look for dependable organizations to get trusted information. A similar premise is applied to the current study's examination of Cuomo's Twitter content.

7.3.1 Twitter and Health Communications

Twitter usage during widespread health crises over the past decade, has quickly made it a frequented tool to increase awareness about risk and rapidly update the public. Consequently, Twitter is used by most major health institutions. In an analysis of tweets from the American Heart Association, American Cancer Society, and American Diabetes Association, Park et al. (2015) found that although all the organization used Twitter, each lacked in different sectors relating to messaging, images and retweeting to engage their audiences more effectively. In particular, Twitter users

were more likely to react to information that was "health action-based," but the organizations did not capitalize or use their action tweets for community building. The researchers recommend that regular use of Twitter can bolster an organizations reputation, but that they should implement strategic messaging to strengthen public receptiveness to their content (Park et al. 2015). Hagen et al. (2017) looked at how Twitter is used by different organizations and authorities by analyzing tweets during the 2015–2016 Zika virus epidemic. In their study, they focused on the quality of tweets related to Zika and how "twitterers" engage with the content by either refuting it, questioning it, or agreeing with it. The researchers found that politicians, public institutions and scientists can "facilitate the flow of accurate and vital information" just by being active on Twitter because they have the furthest reach and engagement on the platform (Hagen et al. 2017). They also concluded that all public-facing organizations benefit from having social media literacy to be able to relay correct information in times of crisis. Hart et al. (2017) also found that public health professionals and agencies have an immense power on Twitter and can use the platform to debunk myths, advocate for marginalized groups and spread the most pertinent health information at the greatest rate by actively using the platform. The current research will examine these underpinnings, but with the modern health crisis COVID-19.

7.3.2 CERC and Pandemics

The CERC model is a theoretical framework and practical crisis communication model that has been used specifically to study messaging during pandemics. Lwin et al. (2018) used the Crisis and Emergency Risk Communication (CERC) model to analyze the strategic uses of Facebook from Singapore-based health agencies during the Zika epidemic. They conducted a content analysis of Facebook posts by three different agencies during different phases of the Zika epidemic and evaluated it using the model's criteria. In this study, they noted that the organizations followed the CERC model and gave more risk, symptoms and warnings during the pre-outbreak phase; during the outbreak phases, updates were posted on disease case reports and cautions towards highly affected areas, which was coupled with calming messages about government support; and during the disease fade out stages, they focused on individuals' personal responsibility and future preventative measures (Lwin et al. 2018). Their study proved the CERC model as an efficient praxis for evaluating social media use during health crises and it subsequently helped to slow down the spread of Zika, while providing relevant and appropriate information to the public. From the understanding of using social media for health communications, Twitters role in health news, the important of the sender and the best practices identified by the literature, this study will answer these questions:

R1: What different types of information did Governor Cuomo post on Twitter throughout the COVID-19 pandemic as it relates to the CERC model?

R2: What kind of information during a crisis do Twitter users engage with the most?

R3: Was Governor Cuomo's use of Twitter effective in ceasing the spread of COVID-19 in New York?

7.4 Methodology and Research Design

To understand how COVID-19-related information was spread by Governor Cuomo on Twitter, a content analysis was conducted using tweets from his official Twitter account.

According to the official account, Cuomo has been on Twitter since December 2010, just one month before he assumed his seat as governor of New York (NYS 2011). Interactions to his original post, including likes, comments and retweets, will also be included in the evaluation. In addition, press releases and conference videos from the New York State website will be used to identify the timeline for the different phases of the crisis and to establish triangulation, corroborating the contents of his tweets.

The study will replicate Lwin et al. (2018) use of the CERC model, however, it will solely be focusing on Twitter posts from one account. Due to the CERC model of strategic communication during the pre-, active, and post- stages of health crises, tweets will be captured and then clustered into its appropriate category. It is important to note that the COVID-19 pandemic has yet to end in the United States. For the purpose of this preliminary study, the revolution and evaluation phase was determined by the first dip in COVID case numbers. The pre-crisis stage will consist of tweets starting from January 24, 2020, which was his first press release related to COVID-19 (NYS 2020a), to March 6, 2020, the day before the state of emergency was declared (NYS 2020b). The initial event will only include tweets from March 7, 2020, the day the state of emergency was declared (NYS 2020b). The maintenance stage will include tweets from March 8, 2020, to April 7, 2020. April 7 was chosen because that was the day before Cuomo announced that "we are flattening the curve" (NYS 2020c), indicating that the crisis was slowing down. The revolution phase will be represented with tweets from April 8, 2020, the day he said the curve was flattening, to April 11, 2020, giving a few days to ensure cases were still decreasing. The evaluation phase will use tweets from April 12, 2020, as it would offer reflexivity. The press release on April 12, 2020, was also analyzed as it would include reports of cases, deaths, policies and an overall summary of the current status of the disease that may have not been tweeted. Tweets were pulled manually by the researcher on November 1, 2020, and then pulled again on November 7, 2020, to ensure that all tweets were captured and to corroborate a final tweet count. Due to the content being pulled at different time frames, which led to different numbers of interactions per each post, the highest recorded number of interactions was used because it was the most recent. Tweets were captured if it is related to COVID-19 by either explicitly stating "COVID-19" or other indication of the virus in the tweet, which was determined at the researcher's discretion. During week two,

the tweets were categorized accordingly into one of the five categories according to the date they were posted.

During week three, an open coding method was used to extract the most prevalent themes and ideas. Open coding helped to establish concepts or phrases that initially emerged from the data (Creswell and Poth 2018; Strauss and Corbin 1994). Next, the researcher utilized second-level coding, pulling concepts together, extracting umbrella themes and condensing the codes. Once the process was done, a final codebook was created for each category and then compared to the CERC model.

7.5 Findings and Discussion

Overall Governor Cuomo sent out a total of 406 COVID-related tweets over the four-month period. A total of 55 tweets were sent out during the pre-crisis phase; eight were sent on the day of the initial event, 305 during the maintenance phase, 32 during the resolution and six on the evaluation day. Cuomo sent out the least number of tweets during the initial event and evolution phase. His tweets accumulated 7,156,597 likes, 1,487,198 retweets and 216,450 comments, most of which were from the maintenance phase. While likes comments and retweets varied per stage, due to the number of tweets that were sent out, the evaluation phase received the largest number of interactions when accounting for tweet proportions, with a ratio of 31,100:1 for likes, 6156:1 for retweets and 726:1 for comments (Table 7.1).

7.5.1 Pre-crisis Stage

During the pre-crisis phase, Governor Cuomo's tweets fell into six categories: risk, precaution, preparedness, COVID-case updates, new policies and health updates, and reassurance. Almost identically following the CERC guidelines, Cuomo's tweets earlier in the year acknowledged the threat of COVID-19 in New York but reassured the public that the state government was prepared to handle the pandemic. Prior to the first case in New York, Cuomo repeatedly mentioned that most people were "low risk," there were no confirmed cases and that citizens should continue taking

Table 7.1 Tweet count and audience response per stage

Stage	Tweet count	Likes	Retweets	Comments
Pre-crisis	55	112.972	35,860	6175
Initial event	8	8888	5,25	1,89
Maintenance	305	6,079,237	1,249,097	180,375
Resolution	32	768,900	152,879	23,429
Evaluation	6	186,600	36,937	4361

precautions as they would for any seasonal cold. However, as time progressed, he introduced more policy and health updates specific to COVID-19, including monetary funds to ensure hospitals were equipped with the necessary tools. After the first case was announced on March 1, 2020, Cuomo's tweets shifted towards updating the public on COVID cases, partnerships with local and national health providers to support the public and best practices to avoid catching the virus. He also announced statewide procedures to reduce risk, including mandatory quarantine for students abroad, reimbursement of planned travel fees and urging for "#PaidSickLeave"—a hashtag he exclusively used several times. More tactics that Cuomo implemented was tweeting several risk precautions translated into Mandarin, with links to the New York coronavirus home page and numbers to the NYS Department of Health. Cuomo tweeted three photos, and one video (unrelated to his daily briefings) showing testing sites, proper elbow bump etiquette and general "happy" looking health workers. Starting on March 1, Cuomo also began his daily COVID-19 briefing in Albany, to which he shared the the link to the Periscope videos on Twitter. Overall engagement with individual tweets stayed in the 100 to 600 range, with likes, comments and retweets combined. The tweet with the most interaction was the March 1, 2020 announcement of the first case and the March 2, 2020 announcement that all health insurers would waive COVID-19 testing fees—both of which accumulated over 100,000 combined interactions. During this time, Cuomo repeatedly used the terms "new yorkers," "update," "coronavirus" and "symptoms" in his tweets (See Fig. 7.1).

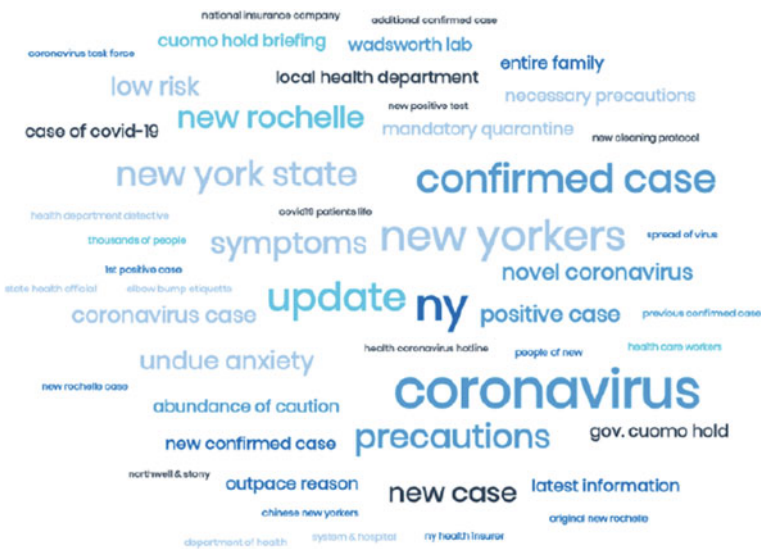

Fig. 7.1 A word cloud of the top 50 words in tweets from Governor Cuomo during the pre-crisis phase. The larger the word, the higher the times it was used

7.5.2 Initial Event

Where Cuomo excelled in the pre-crisis stage by following the CERC guidelines exactly, he fell short in the initial event. With only seven tweets sent out on March 7, 2020, the themes were: COVID case number updates, precaution, reassurance and partnership efforts. Shortly after posting the declaration of the State of Emergency in New York State, three subsequent tweets the link to live press conference; a message about how the aforementioned declaration will better help local agencies "by getting them all the tools they need to contain the virus spread"—slightly falling into the CERC's designated "specific understanding of emergency management and media community responses" section (Reynolds and Seeger 2005); and another specifically stating how the declaration can help "expedited procurement, leasing of lab space, hiring, and more," to help local health departments. Cuomo tweeted two COVID case number updates, including the counties where the outbreaks were. In one of the tweets, Cuomo states that cases will be on the rise but that "we" can deal with the situation better. Cuomo reposted the video on proper elbow bump etiquette, that he sent during the pre-crisis stage. Lastly, he sent out another tweet about price gouging of sanitary items like hand sanitizer. Blatantly missing from his tweets from the CERC guidelines was empathetic tweets to reduce emotional turmoil, anticipated outcomes based on the available information, consequences of the circumstance, specific understanding of the medical community response, and generally designated crisis/agency spokesperson and/or formal method of communication (Reynolds and Seeger 2005). Instead, his tweets were brief with general links to the coronavirus homepage, ambiguous messaging about the broad ways on how the declaration of the public emergency will help and updates about the cases. The most substantial tweet he posted that was specific to the CERC model, was the one about price gouging, where he specifically indicated the problem and contact information for the agency in charge of overseeing the problem. The tweets that received the most engagement during this stage was the declaration of the emergency, which had 3400 retweets and 5000 likes. The second most interactive tweet was one on March 7 about COVID case numbers which received 3000 retweets and 3400 likes.

7.5.3 Maintenance Phase

The maintenance phase covered the longest duration of the sample and had the highest number of tweets. Cuomo heavily utilized certain criteria in the CERC guide during the maintenance phase. The main themes of his tweets during this stage were best practices/safety measures; reassurance and gratitude; public restrictions; medical-related content; public health content and case updates. The majority of information that Cuomo tweeted was medical-related content, that included needs of local health providers, solicitation of medical professionals and equipment, and updating the public on the needs that were fulfilled and by what entity. In this group of tweets,

Cuomo was explicit in the exact items that New York State needed, and even directly stating the entities which could provide relief for the needs. He stated things like "I'm calling on @CDCgov to authorize testing at private labs and automated testing to exponentially increase capacity" and "I'll work in full partnership with @POTUS on this—but I ask him to take it seriously," directly calling on the CDC and the former President to help alleviate the burden on New York. These tweets were followed up with fulfillment tweets when donations or needs were met, he specifically thanked airplane company Jet Blue, singer and entrepreneur Rihanna, beauty company Estee Lauder, the National Basketball League and other government entities as donations were made. He also sent a myriad of tweets towards medical professionals, medical students and retired people in medicine to help the state by working at hospitals and health facilities, along with links to surveys and applications. During this stage, a slew of other terms were regularly used like "social distancing," "ventilator" and "spread" amongst other words (See Fig. 7.2).

The next trio of content is reassurance, best practices and emotional-related tweets. Usually, these were given together in the fashion of a tweet like this one on March 26, 2020: We mourn the 385 New Yorkers we have lost to Coronavirus-related illnesses. Tragically, we expect the number to rise as many patients have been on ventilators for weeks. NY will keep fighting flat out to save lives. Help us save lives by staying home. #NewYorkTough.

These tweets received the most interactions in this stage, with one tweet about the indispensability of human life and a roll-out of a public health plan receiving

Fig. 7.2 A word cloud of the top 50 words in tweets from Governor Cuomo during the maintenance phase. The larger the word, the higher the times it was used

76,100 retweets, more than 277,000 likes and 8500 comments—nearly double the retweets of the second most interacted tweet during this phase and five times the number of likes. In general, sentimental or positive tweets about a hopeful end were highly circulated and liked by Twitter users more than any other category.

Cuomo also sent out a handful of mournful tweets about New Yorkers who died from COVID-19—almost all ending with a reassurance statement or positive outlook. These were also well circulated and received high engagement from Twitter users.

Throughout this phase, Cuomo utilized the same "best practices" messaging he used during phase one. Usually, it was as simple as "stay at home," other times it was more specific, like slowing down regular use of public services in New York like the subways, parks and grocery stores. He often tweeted restriction updates followed by public health content or coupled them together like this March 19 tweet: "NEW: Today we are mandating that 75% of the non-essential workforce MUST work from home. We are taking this action to further reduce density across the state to slow the spread of #Coronavirus." He almost never tweeted restriction tweets without indicating a public health aspect, reassurance, or a time frame for the restriction.

To a lesser degree, Cuomo tweeted some content that fell into the other CERC categories like understanding factors and issues, correcting misunderstandings and rumors, and feedback from the affected public. However, noticeably missing was the direct objection of misinformation. Instead, Cuomo gave general warnings about the harm of misinformation and told the public to be well-informed, without stating what the misinformation was. One of the most interesting aspects of this time was Cuomo's use of the celebrity to reiterate social distancing tactics, best practices and public health information. He utilized a wide array of celebrity talent like comedians Ben Stiller, Danny Devito; host and actress Lala Anthony; actor Alec Baldwin; and Broadway actress Krystal Joy Brown. All of these videos used the same strategy—an iPhone setup at home advocating for New Yorkers to stay at home to prevent the spread of COVID. All the videos were posted during a two-day span of March 22, 2020, to March 24, 2020, and received generally high engagement, in the thousands for likes, shares and comments.

7.5.4 Resolution Phase

The resolution phase tweets had the second-highest overall engagement from Twitter users, and was almost exclusively best practice content, indicating that New Yorkers should continue to take precautions like staying home and social distancing. On April 8, 2020 Governor Cuomo tweeted that New York's "dramatic actions" are "flattening the curve" followed by self-efficacy actions that New Yorkers can take that mirror the CDC guidelines for reducing the spread of COVID. He also tweeted simple and straight-forward post, like this follow-up tweet on April 8:

> We must keep the curve flat. Keep staying home. Keep practicing social distancing. Keep protecting others. Now is not the time to slack off.

Another theme he utilized was community efforts and public health interest, combining the two to connect the individuals gain of being cautios to statewide community benefits. Content like "New Yorkers will do what we have to do" and using the hashtag "#NewYorkStrong," signaled to the public that a collective effort is the only way to overcome the virus with everyone doing their part. These type of tweets was the most well-received and interactive tweets during this stage, with nearly half of the total interactions coming from tweets like this. Cuomo also continued to provide reassurance and policy/case updates throughout, and of course, his daily coronavirus briefings, which also had a high engagement. The most interacted tweet was an April 8, 2020, update on voting absentee due to COVID. This post had a seventh of the total number of likes, almost a fifth of the retweets and half of all the comments of the post during this stage. Due to the ongoing pandemic status, his tweets during this time differed from much of the tenets in the CERC model—which focus on recovery, having open discussions about the crisis and new understanding of risk—and instead, mirrored more of the content of the maintenance phase. This discrepancy can be addressed in a follow up study after the pandemic has ended to more accurately assess his content when the pandemic is in a resolution phase.

7.5.5 Evaluation

The tweets sent out during the evaluation phase had the most public interaction per tweet than any other phase, although this phase had the least number of tweets overall. Three of the six tweets were dedicated to links for the daily COVID-19 briefing and one commemorated the loss of the 758 New Yorkers who died from COVID-19 on April 11, 2020. The other three tweets were stand-alone tweets. One resonated in the thankful category, with Cuomo tweeting:

> This morning we are returning 35 ventilators lent by Pathways Nursing and Rehabilitation Center to fellow New Yorkers downstate. Their compassion is inspiring. We thank them and salute all the better angels among us.

This tweet also projected that a more hopeful future or resolve was near as previously needed equipment was now being returned.

The next tweet was generally positive that stated that even when things are bad, individuals will "be inspired beyond belief by the goodness of others." He ends the tweet by stating "love wins." While the ambiguity of this tweet is present, it was analyzed as a positive outlook tweet or in the hopeful category.

Lastly, the most interacted tweet was an urgent tweet directed towards the federal government for fair stimulus distribution. This tweet received 20,100 retweets, 78,600 likes and 2800 comments. In this tweet, Cuomo compared the federal stimulus money received by the states Montana and Nebraska, both of which received 25 times the amount of money per COVID case than New York and urged that: "we need a fair federal stimulus bill that is distributed by need." This tweet again highlighted

the need for resources for New Yorkers specifically and touched on community cooperation by using "we." In the press release sent out on April 12, 2020, new policies were announced, like an executive order to conduct more antibody tests (NYS 2020d) and statewide efforts to receive more funding. Similar to the revolution phase, these tweets did not follow the CERC guidelines—discussion, consensus, evaluation—because the COVID-19 pandemic is still ongoing in the United States. Furthermore, the press release on this date did not offer any tenets of the evaluation phase either. Further investigation and analysis of the evaluation phase must be determined once the pandemic ends.

7.6 Conclusion

Social media has a multitude of uses in today's modern society, and one of those uses is spreading health-related content. Cuomo's use of Twitter during the COVID-19 pandemic showed that the CERC model can still be implemented in a contemporary health crisis and its criteria are generally well-received by the public. Particularly positive and hopeful reassuring messaging, which is a recommendation in three of the five CERC stages, is the most circulated, shared and interacted types of messaging for Twitter users who interacted with Governor Cuomo's tweets. Cuomo could havegarnered more interactions with the public during the initial phase if he better followed the CERC model and included positive messaging during that period. While Cuomo repeatedly mentioned the preparedness of the state for the pandemic early on, further tweets proved that the need for help was greater than expected. However, his tweets still remained steadfast and optimistic and kept audience reassured, as the model recommends. These preliminary findings indicate that more positive framing and explicitly debunking of false infromation could have been used by Governor Cuomo to better assist New Yorkers, and would have potentially garnered greater engagement. However, his messaging was instrumental and helpful in reducing the spread of COVID-19 and informing the public, as seen in the dip in COVID-19 cases. A subsequent study, focusing on the resolution and evaluation period needs to be conducted to reflect his utilization of Twitter accurately and appropriately.

References

Aratani L (2020, Nov 20) Andrew Cuomo to receive Emmy award for televised covid briefings. The Guardian. https://www.theguardian.com/us-news/2020/nov/20/andrew-cuomo-emmy-award-coronavirus-briefings

Austin L, Fisher Liu B, Jin Y (2012) How audiences seek out crisis information: exploring the social-mediated crisis communication model. Jour of Appl Comm Res 40(2):188–207. https://doi.org/10.1080/00909882.2012.654498

Bromley RV, Bowles D (1995) Impact of internet on use of traditional news media. Newsp Res J 16(2):14–27. https://doi.org/10.1177/073953299501600203

Bruns A, Burgess J (2012) Researching news discussion on twitter. J Stud 13(5–6):801–814. https://doi.org/10.1080/1461670x.2012.664428
CDC (2018) Crisis & emergency risk communication (CERC)|CDC. Cdc.Gov. https://emergency.cdc.gov/cerc/
CDC (2019) CDC 2009 H1N1 Flu. Center for Disease control and prevention. https://www.cdc.gov/h1n1flu/
CDC (2020, Jan 17) Public health screening to begin at 3 U.S. Airports for 2019 novel coronavirus ("2019-nCoV"). Center for Disease Control and Prevention. https://www.cdc.gov/media/releases/2020/p0117-coronavirus-screening.html.
Creswell JW, Poth CN (2018) Qualitative inquiry & research design: choosing among five approaches. Sage, Cop
Dwyer C (2020) Andrew Cuomo to receive international emmy for "Masterful" COVID-19 briefings. NPR.org. https://www.npr.org/sections/coronavirus-live-updates/2020/11/21/937445923/andrew-cu omo-to-receive-international-emmy-for-masterful-covid-19-briefings
Fox S (2014, Jan 15) The social life of health information. Pew Research Center. https://www.pewresearch.org/fact-tank/2014/01/15/the-social-life-of-health-information
Gayle AR, Weaver M, Murray J, Rourke A, Blackall M, Rourke A, Murray J (2020, Jan 31) Virus death toll reaches 213 in China—as it happened. The Guardian. https://www.theguardian.com/world/live/2020/jan/30/coronavirus-live-updates-china-death-toll-wuhan-evacuation-foreign-nationals-citizens-latest-news
Gil de Zúñiga H, Jung N, Valenzuela S (2012) Social media use for news and individuals' social capital, civic engagement and political participation. J Comput-Mediat Commun 17(3):319–336. https://doi.org/10.1111/j.1083-6101.2012.01574.x
Graham MW, Avery EJ, Park S (2015) The role of social media in local government crisis communications. Pub Relat Rev 41(3):386–394. https://doi.org/10.1016/j.pubrev.2015.02.001
Guidry JPD, Jin Y, Orr CA, Messner M, Meganck S (2017) Ebola on Instagram and Twitter: how health organizations address the health crisis in their social media engagement. Pub Relat Rev 43(3):477–486. https://doi.org/10.1016/j.pubrev.2017.04.009
Hagen L, Keller T, Neely S, DePaula N, Robert-Cooperman C (2017) Crisis communications in the age of social media. Soc Sci Comput Rev 36(5):523–541. https://doi.org/10.1177/0894439317721985
Hart M, Stetten N, Islam S, Pizarro K (2017) Twitter and Public Health (Part 2): Qualitative analysis of how individual health professionals outside organizations use microblogging to promote and disseminate health-related information. JMIR Pub Heal and Surv 3(4), e54. https://doi.org/10.2196/publichealth.6796
Hermida A, Fletcher F, Korell D, Logan D (2012) Share, like, recommend. J Stud 13(5–6):815–824. https://doi.org/10.1080/1461670x.2012.664430
Hernandez S, O'Key S, Watts A, Manley B, Pettersson H (2020, Apr 6) Tracking covid-19 cases in the US. CNN. https://www.cnn.com/interactive/2020/health/coronavirus-us-maps-and-cases/
Herrera S, Requejo JL (2012) 10 good practices for news organizations using twitter. J Appl J Media Stud 1(1):79–95. https://doi.org/10.1386/ajms.1.1.79_1
Houston JB, Hawthorne J, Perreault MF, Park EH, Goldstein Hode M, Halliwell MR, Turner McGowen SE, Davis R, Vaid S, McElderry JA, Griffith SA (2014) Social media and disasters: a functional framework for social media use in disaster planning, response, and research. Disasters 39(1):1–22. https://doi.org/10.1111/disa.12092
Huang P, Lurie NH, Mitra S (2009) Searching for experience on the web: An empirical examination of consumer behavior for search and experience goods. J Mark 73(2):55–69. https://doi.org/10.1509/jmkg.73.2.55
International Academy of Television Arts and Sciences. (n.d.). Special awards – international academy of television arts & sciences. *International Academy of Television Arts and Sciences.* https://www.iemmys.tv/international-emmy-awards/special-awards/
Ju A, Jeong SH, Chyi HI (2013) Will social media save newspapers? Journal Pract 8(1):1–17. https://doi.org/10.1080/17512786.2013.794022

Kim Y, Park H (2017) Is there still a PR problem online? Exploring the effects of different sources and crisis response strategies in online crisis communication via social media. Corp Reput Rev 20(1):76–104. https://doi.org/10.1057/s41299-017-0016-5

Klein LR, Ford GT (2003) Consumer search for information in the digital age: an empirical study of prepurchase search for automobiles. J Interact Mark 17(3):29–49. https://doi.org/10.1002/dir.10058

Kwak H, Lee C, Park H, Moon S (2010) What is Twitter, a social network or a news media? In: WWW '10: Proceedings of the 19th international conference on world wide web, pp 591–600. https://doi.org/10.1145/1772690.1772751

Lee CS, Ma L (2012) News sharing in social media: the effect of gratifications and prior experience. Comput Hum Behav 28(2):331–339. https://doi.org/10.1016/j.chb.2011.10.002

Lwin M, Lu J, Sheldenkar A, Schulz P (2018) Strategic uses of Facebook in Zika outbreak communication: implications for the crisis and emergency risk communication model. Int J Environ Res Public Health 15(9):1974. https://doi.org/10.3390/ijerph15091974

NYS (2011) The Official Website of Governor Andrew M. Cuomo. Governor Andrew M. Cuomo. https://www.governor.ny.gov/about

NYS (2020a, Jan 24) Governor Cuomo Outlines State Response to First Two Confirmed Cases of Novel Coronavirus in United States. Governor Andrew M. Cuomo. https://www.governor.ny.gov/news/governor-cuomo-outlines-state-response-first-two-confirmed-cases-novel-coronavirus-united

NYS (2020b, Mar 7) At novel coronavirus briefing, Governor Cuomo Declares State of Emergency to Contain Spread of Virus. Governor Andrew M. Cuomo. https://www.governor.ny.gov/news/novel-coronavirus-briefing-governor-cuomo-declares- state-emergency-contain-spread-virus

NYS (2020c, Apr 8) Amid ongoing COVID-19 pandemic, governor cuomo directs flags to be flown at half-mast in honor of those we have lost to COVID-19. Governor Andrew M. Cuomo. https://www.governor.ny.gov/news/amid-ongoing-covid-19-pandemic-governor-cuomo-directs-flags-be-flown-half-mast-honor-those-we

NYS (2020d, Apr 12) Amid ongoing COVID-19 pandemic, governor cuomo issues executive order directing employers to provide masks to employees who interact with the public. Governor Andrew M. Cuomo. https://www.governor.ny.gov/news/amid-ongoing-covid-19-pandemic-governor-cuomo-issues-executive-order-directing-employers

Park H, Reber BH, Chon M-G (2015) Tweeting as health communication: health organizations' use of twitter for health promotion and public engagement. J Health Commun 21(2):188–198. https://doi.org/10.1080/10810730.2015.1058435

Park H, Rodgers S, Stemmle J (2013) Analyzing health organizations' use of twitter for promoting health literacy. J Health Commun 18(4):410–425. https://doi.org/10.1080/10810730.2012.727956

Reynolds B, Seeger M (2005) Crisis and emergency risk communication as an integrative model. J Health Commun 10(1):43–55. https://doi.org/10.1080/10810730590904571

Reynolds B (2006) Response to best practices. J Appl Commun Res 34(3):249–252. https://doi.org/10.1080/00909880600771593

Schumaker E (2020, Mar 25) Timeline: how coronavirus got started. ABC News. https://abcnews.go.com/Health/timeline-coronavirus-started/story?id=69435165

Shearer E (2018, Dec 10) Social media outpaces print newspapers in the U.S. as a news source. Pew Research Center. https://www.pewresearch.org/fact-tank/2018/12/10/social-media-outpaces-print-newspapers-in-the-u-s-as-a-news-source/

Strauss A, Corbin J (1994) Grounded theory methodology: an overview. In: Denzin NK, Lincoln YS (eds) Handbook of qualitative research. Sage Publications, Inc, pp 273–285

Taylor DB (2020, Mar 4) A timeline of the coronavirus. The New York Times. https://www.nytimes.com/article/coronavirus-timeline.html

Trump DJ (2020, Mar 13) Proclamation on declaring a national emergency concerning the novel coronavirus disease (COVID-19) outbreak. The White House. https://www.whitehouse.gov/pre

sidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/

Walton LR, Seitz HH, Ragsdale K (2012) Strategic use of youtube during a national public health crisis: the CDC's response to the 2009 H1N1 Flu epidemic. Case Stud Stratesg Commun 1:25–37

Wojcik S, Hughes A (2019, Apr 24) Sizing up Twitter Users. Pew Research Center: Internet, Science & Tech. https://www.pewresearch.org/internet/2019/04/24/sizing-up-twitter-users/

WHO (n.d.) Naming the coronavirus disease (COVID-19) and the virus that causes it. https://www.Who.Int. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it

WHO (2020a, Jan 5) Pneumonia of unknown cause—China. Emergencies preparedness, response; World Health Organization. https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/

WHO (2020b, Jan 30) Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). Who.Int; World Health Organization: WHO. https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)

Yin RK (2018) Case study research and applications: design and methods (6th ed). Sage Publications, Inc