Journal of Public Interest Communications

ISSN (online): 2573-4342
Journal homepage: http://journals.fcla.edu/jpic/

Coming Together Around Hashtags: Exploring the Formation of Digital Emergent Citizen Groups

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Article Information

Received: September 13, 2017

Accepted: February 20, 2018

Published online: May 31, 2018

Keywords

Crisis
Disaster
Twitter
Emergent Groups
Social Media

Abstract

It has been well established that during and after crisis or emergency events, groups of citizens come together to help one another, solve problems, and manage recovery or cleanup. These groups are called emergent citizen groups. They form organically and often disband when the emergency is managed. This study proposes that similar types of groups now form in digital spaces during and after crises. The authors studied conversation on Twitter that used the hashtag "#PrayforUSC" after the murder-suicide that took place at the University of South Carolina in 2015. Initial results indicate that hashtags can function as focal points or catalysts for digital emergent citizen groups. More research should be done to determine whether and how these groups form, function, and disperse.

Introduction

At 12:56 p.m. on February 5, 2015, Sunghee Kwon shot and killed her former husband, University of South Carolina professor Dr. Raja Fayad, in his fourth-floor office of the Arnold School of Public Health. Kwon then turned the gun on herself before authorities reached the scene (McLeod, 2015). Fayad was a graduate director, head of the division of applied physiology, and an expert on colon cancer. Shortly after the shooting took place, at 1:28 p.m., an official University of South Carolina Twitter account, @CarolinaAlert, issued the following warning: "SHOOTING AT NEW SCHOOL OF PUBLIC HEALTH. Stay indoors. Obey

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officials" (Carolina Alert, 2015). At 2:15 p.m., officials lifted the lockdown and issued a statement that there was no longer an existing threat on campus.

In the wake of the shooting, faculty, staff, students, and alumni were stunned by the events of the afternoon. Local media flocked to campus as the story began to unfold while others organized vigils in tribute to Fayad. Throughout the afternoon and into the next day, the hashtag "#PrayForUSC" began trending on Twitter. The murder-suicide at the University of South Carolina, while tragic, was fortunately an isolated event. It is also a recent example of the type of crisis that university campuses should be prepared to manage. In 2007, a student shot and killed 32 faculty and students at Virginia Tech before killing himself in what was at that time the deadliest attack by a lone gunman in U.S. history (Shapira & Jackman, 2007). One year later, another student opened fire in a Northern Illinois University classroom with a shotgun, killing five and injuring 21 before committing suicide (Saulny & Davey, 2008).

Emergency situations like these present opportunities for communication scholars to grapple with the challenging task of sensemaking during a crisis. These situations are also the types of context where social media messaging can play a meaningful role in both response efforts and in information seeking and sharing. Wigley and Fontenot (2010), for instance, examined the detrimental role of user-generated content as crisis managers lost the ability to control information during the Virginia Tech massacre. Palen, Vieweg, Liu, and Hughes (2009) analyzed the networking features of computer-mediated-communication (CMC) during the same event. Vicary and Fraley (2010) examined the ways students expressed grief and support through online channels in response to shootings at both Virginia Tech and Northern Illinois University. Indeed, this research underscores the need to further address the intersection of crisis communication with the various functions of technology and social media in an emergency context.

The current study contributes to this body of scholarship by drawing on research related to the concept of emergent citizen groups (Stallings & Quarantelli, 1985; Waldman & Kaminska, 2015) to argue that digital emergent groups are increasingly taking shape online in the wake of emergency events. We contend that these groups organize through hashtags with similar efficiency as offline emergent citizen groups, but with certain distinguishable characteristics that warrant further consideration as future avenues of crisis communication research. We therefore analyze the communication surrounding the #PrayForUSC hashtag to determine whether and how it functioned as a catalyst for emergent organization during and after the shooting at the University of South Carolina.

Emergent citizen groups

Beginning with studies of the emergent response to the Halifax shipping disaster during World War I, emergence and emergent groups have become widely studied topics for disaster sociologists (Drabek & McEntire, 2003; Quarantelli & Dynes, 1977, Waldman & Kaminska, 2015). In the case of the Halifax response, following a devastating explosion from a ship

transporting TNT where much of the city was leveled, people responded to help their neighbors without any formal organization or emergency response entity to direct efforts (Prince, 1920). This type of emergence has been witnessed and chronicled in disaster events for the past 100 years. For example, Drabek and McEntire (2003) present multiple instances in the disaster sociology literature when emergent groups were studied as "the therapeutic community," the "synthetic community," and "the altruistic community" (p. 98). These groups function with no preexisting group membership structure and have no prior history of working together (Tierney, Lindell, & Perry, 2001; Tierney & Trainor, 2004). These groups are distinctly different from groups that have preformed organizational structures and specific disaster response purposes, such as police, fire fighters, or emergency medical personnel (Majchrzak, Jarvenpaa, & Hollingshead, 2007).

Waldman and Kaminska (2015) catalogued prior work on the subject of emergence in disaster response and developed six characteristic features of emergent volunteers, which include convergence, altruism, emergence, networked intelligence, gap-filling, and resilience. Using this system of categorization, Waldman, Yumagulova, Mackwani, Benson, and Stone (2017) described the emergent phenomenon of spontaneous volunteerism. Spontaneous volunteers are individuals who become part of an emergent response to a disaster. These individuals include responders who arrive at a scene and begin working to help as they are able, as was chronicled in the Halifax disaster, as well as individuals who organize online and arrive on-scene for a disaster response having taken time to coordinate. Both groups are examples of emergent, spontaneous volunteerism.

Scholars began studying emergence in digital contexts with the use of digital bulletin boards to help facilitate response coordination after Hurricane Katrina hit New Orleans, LA, in 2005 (Shklovski, Palen, & Sutton, 2008; Waldman & Kaminska, 2015). More recent work has examined the methods spontaneous volunteers have employed to organize responses, including communication boards and response maps developed for responding to wildfires in California in 2007 (Sutton, Palen, & Shklovski, 2008); social media implementation as a gathering point for citizens following the 2011 earthquake in Christchurch, New Zealand (Webster, 2011); and volunteer organizing and task management for responses to flooding in Calgary, Alberta in 2013 (Waldman et al., 2017). In recent years, social networks have expanded from their originally intended purpose as communication and relationship management platforms to digital ecosystems where organizations develop and thrive. This has created space for emergent groups to form in online contexts.

Social networking sites

Social Network Sites (SNSs) as we think of them today began two decades ago with the advent of online platforms such as SixDegrees.com and Classmates.com (boyd & Ellison, 2007). SNSs such as Facebook or Twitter are services that allow users to create personalized profiles, manage

a friends or followers list, and explore the interconnected relationships made by linking with others within the system (boyd & Ellison, 2007). These sites serve a variety of functions from maintaining or reestablishing friendships to discovering new relationships via stated shared interests (boyd & Ellison, 2007). The nature of these sites makes SNSs ideal for the rapid development of loosely connected groups of people who can rally around an idea, share important information, or discuss current events.

Microblogs

One type of platform within the context of SNSs is the microblog (Edwards, Edwards, Spence, & Shelton, 2014; Kaplan & Haenlein, 2011). Microblogs "allow users to exchange small elements of content such as short sentences, individual images, or video links" (Kaplan & Haenlein, 2011, p. 106). Examples of this type of platform are Twitter, which allows users to share their thoughts or ideas in 280 characters or fewer (including images and videos) (Twitter, 2018). Zhao and Rosson (2009) found that people tend to use microblogs to share information they might not otherwise share on existing channels, such as a real-time update on their actions or ideas. The concise nature of Twitter's 280-character restriction allows for the rapid dissemination of information to a wide audience while also maintaining brevity.

Twitter in crisis scenarios

Social media sites like Twitter focus on the open sharing of information. Real time, publicly visible communication across these platforms enables researchers for the first time "to examine the behavior of large populations in response to hazard events" (Sutton, Spiro, Johnson, Fitzhugh, Gibson, & Butts, 2013, p. 766). Indeed, "Social networks play an important role in helping individuals cope with, navigate, and mitigate challenges in their environments, including natural disasters and other crises" (Glasgow & Fink, 2013, p. 311). The proliferation of tweets in a crisis is indicative of the platform's functional capacity as a mechanism for the rapid exchange of up-to-date information.

Effective communication during a crisis requires quick, deliberate, and accurate dissemination of information. Crises often emerge rapidly and leave a narrow window of time for this to occur. Given the near-instantaneous nature of social mediated communication, Twitter is a natural outlet for communication during a crisis. Earle, Bowden, and Guy (2012) examined Twitter's role, for example, in disseminating alerts during earthquakes and found that its messages "are generally available to all followers within seconds of being submitted" (p. 708). While this quality is useful, Twitter's 140-character limit[1] for each post is also its main downfall because it results in difficulty providing detail and actionable information (Earle et al., 2012). Speed of information sharing also carries risks. As the U.S. Centers for Disease Control and

[1] This limit has since been increased to 280 characters, but at the time the limit was still 140.

Prevention learned following the 2001 anthrax scare, it is not always in the best interest of an organization to respond quickly when the information in question could be flawed (Ulmer, Sellnow, & Seeger, 2015).

While accessing information quickly is imperative, speed must not take precedence over accuracy and reliability. Critics of social media platforms have highlighted issues of authenticity and veracity of information because users are free to post information that is at times irrelevant or inaccurate (Guzmán, 2013). However, increased exposure to a message has been linked to increased confidence in its trustworthiness and social capital (Aldrich, 2011; Arkes, Hackett, & Boehm, 1989; Hawkins, Hoch, & Meyers-Levy, 2001). In other words, the more frequently a message is spread, the more likely it is to be believed. For example, Heverin and Zach (2011) surveyed the Twitter usage of 30 city police departments in large U.S. cities and found that, "increasingly, police departments are instituting communication and public information programs aimed at informing the public and involving the public in law enforcement activities" (p. 2). Of the more than 5,000 tweets Heverin and Zach examined, 45% of those were related to reports of criminal activity or incidents. Furthermore, 66% of the posts consisted of retweets that served to validate the original message. Similarly, Sutton et al. (2013) posited that the "serial transmission of warning messages will result in message amplification" (p. 784) and, consequently, the verification of information.

Digital emergent citizen groups

According to a Pew research report from 2015, 90% of 18-25 year olds in the United States use social media (Perrin, 2015). When an emergency or crisis develops, individuals in this age bracket are likely to tap into social media to share and seek information. Disaster sociologists have well established the advent of digital emergence for facilitating disaster response efforts. Although they have thoroughly examined human action in these contexts, they have not explored the communication function of these organizing hubs or of the individuals in those spaces. To begin addressing the need for more research on the intersection of social media platforms and emergent citizen groups, we studied the Twitter conversation around the hashtag "#PrayforUSC," a relevant crisis to individuals who are the most likely to engage with others on social media. This study seeks to answer the questions:

RQ1: Did the interaction around #PrayforUSC constitute the formation of a digital emergent group?

RQ2: How might digital emergent groups support formal emergency response organizations during a crisis?

Method

Data for this study were obtained using Salesforce Radian6 software to collate tweets using the hashtag "#PrayforUSC." It is important here to note that this particular hashtag was chosen because it was the single organizing hashtag for communication during and after the event. We address this further in the limitations section. Tweets using this hashtag were collected from February 5, 2015 (the day of the shooting) through the end of February 6, 2015 (when the volume of tweets drastically tapered). There were 6,511 tweets in that time period. After removing retweets, there were 1,559 novel tweets to analyze.

To analyze the ways #PrayforUSC was employed during and after the event, a thematic analysis was conducted (Corbin & Strauss, 2015). Each tweet was an individual unit of analysis. The authors began the coding process by reading 10% of the tweets (150) to establish categories. Each author read each tweet to determine how the tweet was being used. Each tweet was given a code. The tweets then were coded into emergent categories based on usage functions. Eventually, themes emerged from the coded tweets. The authors built a codebook that was modified and updated throughout the data analysis. Four categories arose from the coding. Although there were a number of tweets that demonstrated characteristics of multiple categories or overlapping subcategories, the authors chose to code and categorize tweets based on best fit. This procedure allowed for a reduction in the complexity of the analysis while preserving the meaning in the data (Sanderson, 2014).

Using the codebook, the authors independently coded an additional 10% of the tweets to test for intercoder reliability, yielding a Cohen's kappa of .83 (k = .83). The authors proceeded to independently code the remainder of the dataset, making notes along the way about tweets that diverged from the coding categories. The authors agreed that an additional category was needed (corrective), which brought the coding category total to five.

Results

After analyzing the data, the authors established five categories of coded tweets: social support, commentary, information sharing/seeking, tribute, and corrective. Social support had four subcategories, which consisted of community, prayer, rival, and gratitude. Tweets are reported here verbatim with errors in spelling or grammar left unedited. Many tweets contained links to images or to other pages on the web. To increase the ease of reading, all links have been replaced with [link], rather than including the actual link (Sanderson, 2014).

Social support

Social support was the most consistent function of tweets using #PrayforUSC, with 50.3% of the total data set arrayed over the four social support subcategories. A tweet was coded as *social support/community* if it consisted of a message such as, "My heart goes out to my home state. #PrayForUSC," or "Sending love & hugs to all my friends who work at #UofSC. So grateful you are safe. #ForeverToThee #PrayForUSC [link]." Tweets coded as *social support/prayer* contained a specific message about prayer or a call to pray beyond the message in the hashtag, such as "Praying for those affected by the #USCShooting. My heart aches for the families of the victims & for the whole student body. #PrayForUSC," or "Pray for the University of South Carolina. Some people in this world are sick #PrayForUSC." The majority of the social support tweets were in these two categories.

Tweets were coded as *social support/rival* any time a representative from a school considered to be a rival in sports, generally football, tweeted a supportive message. The most common rival was Clemson University, with tweets such as "Well done, @ClemsonStudents! Y'all make us proud. #2Schools1State #PrayForUSC [link]" or "The Clemson family has all of you in our prayers #PrayForUSC." As a direct result of support from Clemson University, the hashtag "#2Schools1State" began to be used regularly in conjunction with #PrayForUSC to further indicate social support for the affected campus. Last, a small number of tweets was coded as *social support/gratitude*. This type of tweet was generally an expression of thankfulness for their own safety and for the support they felt from others. An exemplar of this category wrote "Thanks to everyone who checked in on me. It means a lot. #prayforUSC and the gamecock family. #ForeverToThee."

Commentary

Unsurprisingly, a large percentage of individuals using #PrayforUSC (30%) was merely commenting on the event. These tweets ranged from general comments about the tragic nature of the event, "It's hard to believe that people can do such terrible things #PrayForUSC," to dismay that school shootings continue to occur: "it's so sad that we live in a world where school shootings are still a tragedy, but no longer a rarity #PrayForUSC." Another common commentary tweet was to express gratefulness that a particular individual had been successfully contacted and was safe: "Glad @Madz_GReeNe is safe #PrayForUSC." This type of tweet differs from *social support/gratitude* because it is not a personal expression of experienced social support; it is a commentary about the experience or safety of someone else.

Information sharing/seeking

The third most prevalent category for tweets (15.5%) was information sharing/seeking. Tweets coded in this category were focused on sharing information about the shooting, the campus, the victims, and how individuals on and around campus should proceed. For example, "On the scene in the tragic murder-suicide at USC today. Identities are yet to be released. #prayforusc [link]" was coded as information sharing. Other information-sharing users framed the sharing of information with a request for thoughts and prayers: "sends some prayers our way if you can. it's all clear now, but 2 people are dead. #PrayForUSC."

Tribute

Tweets coded as tribute (2.6%) were devoted to honoring the memory of the professor who was killed during the shooting. Tweets in this category were fairly consistent, with exemplars paying their respects to the deceased via Twitter: "RIP to the innocent professor whose life was taken by senseless violence, the Gamecock family is in my prayers tonight #PrayForUSC" and "Rest in peace Dr. Fayad. Completely heartbreaking. #PrayForUSC."

Corrective

A fairly small number of trolls, or people who disrupt conversations in generally crude or inappropriate ways, were present in the #PrayforUSC conversation (less than 10% of the total tweets). However, a trend developed in which a person would correct, criticize, or critique a person who had engaged in troll-like behavior. One exemplar was framed as both a corrective tweet and a counter-insult: "@FightOn2Victory @CNN South Carolina is The USC we were a school before you were a state but now isn't the time. Very classless #PrayForUSC." This tweet was a direct response to a series of tweets from students at the University of Southern California commenting that they were at "the real USC."

Addressing the RQs

The first question driving this study is whether the functional qualities of #PrayforUSC align with those of an emergent group. The authors are interested in determining whether hashtags function as the foundation, catalyst, or focus for digital emergent citizen groups. Analysis of the #PrayforUSC tweets provided evidence that the functional qualities of the conversation around the hashtag do indeed align with those of an emergent group. Individuals utilizing #PrayforUSC

engaged in social support, information sharing, and commentary designed to shape the conversation around the event. These individuals were clearly "private citizens [working] together in pursuit of collective goals relevant to [the USC shooting], but whose organization has not yet become institutionalized" (Stallings & Quarantelli, 1985, p. 84). Altruism, collective intelligence, gap-filling, and resilience appeared as aspects of the communication that was ongoing during the Twitter response. These functions are all typical characteristics of emergent groups (Waldman & Kaminska, 2015). While none of the individuals tweeting was responding to care for the physically injured, more than half were working to assist and care for the emotionally distraught (Drabek & McEntire, 2003; Waldman & Kaminska, 2015).

In response to the second question, examining the functional qualities of digital emergent citizen groups invites consideration for how these groups support traditional response organizations during and after a crisis. Drawing from Castells' (2000) conceptualization of *space of flows*, it stands to reason that these digital emergent citizen groups contribute tangibly to organizations despite the absence of traditional spatial and temporal characteristics of an offline group. Castells offers substantive evidence for this debate. He claims that "the development of these loosely interrelated exurban constellations [conceptualized here by the authors as digital emergent citizen groups] emphasizes the functional interdependence of different units and processes. . .minimizing the role of territorial contiguity, and maximizing the communication networks in all their dimensions" (p. 400). Through this lens we argue that digital emergent citizen groups embody *space of flows* to the extent that organizations experiencing a crisis can receive significant forms of support through actions that extend beyond online conversations to offline interaction and provision.

For example, in an active-shooter event, a person tweeting about hearing shots fired or seeing a person with a weapon could inform the response decisions of law enforcement personnel. Persons on Twitter also can offer context for emergency medical personnel seeking to offer immediate aid to those who may have been injured during a crisis. Stepping outside of the active-shooter context, an ideal example of the potential connection between digital emergent groups and traditional response groups is the response management that took place in the Houston, TX, area following Hurricane Harvey (Stelter, 2017). In the wake of the storm's devastating pass through the Houston area, residents went to Twitter and Facebook to inform emergency responders about individuals in need of immediate assistance (Stelter, 2017). These platforms also served as hubs for emergent groups to organize response efforts. Much more research is needed in this area to determine trends and themes, but this case and other similar cases provide initial support for the concept of digital emergent citizen groups.

Discussion

This study sought to determine whether a Twitter conversation utilizing a hashtag could function with a comparable purpose to an emergent citizen group. After analyzing the data set it became clear that, with certain exceptions related to the microblogging nature of the medium, the conversation surrounding #PrayforUSC did function with similar purposes to those of a traditional emergent citizen group. Twitter users who utilized #PrayforUSC used the hashtag for social support of others, especially those directly affected by the event, and those on campus who were affected by proximity to the event. One implication for the development of digital emergent groups is the potential benefit of additional emotional support for those impacted by crisis and disaster events. Although more research is necessary to determine the effectiveness of this type of online social support, it is possible that support offered by this type of digital group can help alleviate the stress of a crisis or emergency situation, especially for individuals who are more likely to engage with others in an online context than in a face-to-face situation (Vicary & Fraley, 2010; White & Dorman, 2001).

Beyond social and emotional support, information sharing is also imperative in the formation of digital emergent groups. Users relied on #PrayforUSC to gain information about the event, how it was developing, whether it was safe to return to campus, and what had happened after the event was resolved. The authors emphasize that *sharing* is the operative word. Although 15.5% of the tweets were coded as information sharing/seeking, less than 1% of the tweets were actively seeking information. Data from the current study suggest that users are far more likely to actively disseminate information germane to the situation instead of requesting information. One possible explanation for this phenomenon is the basic structure of Twitter itself—terse messages that can be shared rapidly. Twitter users are less inclined to seek information when others they follow are passing it along freely.

Furthermore, as information is shared, it provides a platform for others to comment on the situation. Commentary during a crisis event takes many different forms and varies with the context of the scenario. For example, the current study's analysis of the conversation around a campus shooting generated commentary such as lamenting *another* school shooting or expressing concern over university policy and safety procedures. Commentary using hashtags contributes to the development of digital emergent groups through open expression of opinion, which creates a democratic space in which to express ideas openly. To this end, digital emergent groups fulfill another function of emergent groups described by Stallings and Quarantelli (1985): working to prepare for, manage, and mitigate crises and risks before they fully develop. By engaging in commentary and establishing a digital conversation, users are perhaps helping work toward future management of similar events. More research will be necessary to determine whether this is a pattern across other digital emergent groups.

In taking the form of digital emergent groups, hashtags have the unique capacity to provide social and emotional support in ways traditional, physically proximate groups may otherwise be unable to offer. Although #PrayForUSC lends support to this premise, a cursory look at trending

hashtags during a crisis event further demonstrates the aptitude for Twitter to provide a ubiquitous digital space for groups to gather around emotional support. Events such as the fatal shootings of Trayvon Martin in Sanford, FL, and Michael Brown in Ferguson, MO, as well as the choking death of Eric Garner in New York City have spawned hashtags specifically intended to provide emotional and community support such as #BlackLivesMatter and #ICantBreathe. These hashtags serve to create communities that reach far beyond geographic barriers and yet simultaneously function as rallying points for protests, support groups, and prayer vigils. Social media redefine the idea of community, but only to the extent that individual users derive some semblance of gratification from or identification with the group they foster.

Limitations and next steps

This study marks the authors' first efforts at gaining richer understanding of digital emergent group communication. As with any study, there are some limitations. The most notable limitation is that this study only looks at one hashtag (#PrayforUSC) to explore the research questions. To gain a full picture of the concept, there will need to be multiple future studies of numerous hashtags to determine whether this trend continues and is supported in other digital contexts. Nevertheless, #PrayforUSC was the only event-specific hashtag used during this particular crisis. Despite being a potential limitation, #PrayforUSC presents a unique starting point for future research into digital emergent citizen groups. Although the hashtag used in this study conveys social support in its own right (Pray for USC), its primary function was to organize online conversations during this crisis event. Future research should explore contexts where multiple hashtags are employed during crisis response, particularly to determine whether the subject matter of the hashtag has a relationship to the types of messages that emerge.

The authors also believe that other categories, such as information sharing/seeking, may have been more prominent if this had been a more prolonged or extended event. For example, the 2015 mass shooting in San Bernardino, CA, lasted nearly 10 hours and covered a much wider geographic area than the shooting at the University of South Carolina (Timeline, 2015). In a context covering more time and a broader area it is possible that more social media users would seek and share information about the event. Future research will explore this question.

Another limitation is the capability of the researchers to track the specific network connections of users in this case. Tracking the messages in the study allowed us to understand how content developed in this context and the ways that content served a variety of social functions. However, without tracking specifics in the developments of social networks we cannot determine whether the emergent groups had any sort of lasting or sustained effect on the users who took part in the initial conversation. Future research should attempt to track the specific network changes that occur over the course of an emergent digital crisis response.

Additionally, in terms of future research, the authors tentatively assert that three types of digital emergent groups exist: (1) groups that exist solely online, such as the group that formed

around #PrayforUSC; (2) groups that both function online and influence offline actions, such as a Facebook group formed to provide information during and after a storm, but that also helps distribute resources to those in need; and (3) groups that organize online for predominantly offline action, such as the protestors who have organized marches and sit-ins as part of the #BlackLivesMatter movement. Future research should explore whether there are other categories and how well these three suggested group types hold together. Future studies also should explore digital responses to other types of events, such as natural disasters, earthquakes, fires, and weather emergencies, to determine which type of groups form in other contexts. Additionally, it will be important to study digital crisis conversation as it develops on other platforms, such as the use of a Facebook group to respond to a crisis event.

Emergency situations often arise quickly and without warning. Given the dynamic nature of communication in a crisis scenario, the current study reaffirms the notion that attempts to understand the organization of digital emergent groups offer a foundational approach to how people interact through social media during and after these events. This is a fertile area of future research for crisis and new media scholars, inviting a wide range of approaches and interests. Digital emergent citizen groups could represent a new major resource for organizations and communities for preparation, management, and response to crisis and emergency events.

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