

Social media best practices in emergency management

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ABSTRACT

Social media platforms have become popular as means of communications in emergency management. Many people use social media sites such as Facebook and Twitter on a daily basis including during disaster events. Emergency management agencies (EMAs) need to recognize the value of not only having a presence on social media but also actively engaging stakeholders and the public on these sites. However, identifying best practices for the use of social media in emergency management is still in its infancy. The objective of this article is to begin to create or further define best practices for emergency managers to use social media sites particularly Facebook and Twitter in four key areas: 1) implementation, 2) education, 3) collaboration, and 4) communication. A list of recommendations of best practices is formulated for each key area and results from a nationwide survey on the use of social media by county EMAs are discussed in this article.

Key words: social media, best practice, emergency management, Facebook, Twitter, EMA

INTRODUCTION

Social media platforms have become a popular source of communications these days. Although there are many social networking sites such as YouTube, Instagram, Pinterest, and LinkedIn, the two most common platforms in the United States are Facebook, with 167 million US users,¹ and Twitter, with 140 million US users.² Many people use Facebook and Twitter on a daily basis including during disaster events. For instance, during Hurricane Sandy in late 2012, Twitter recorded more than 20 million Tweets about the storm in just 5 days.³ In 2014, the Atlanta ice storm resulted in a 50,000-follower, citizen-created Facebook page, “Snowed Out Atlanta,” that helped

match those needing help with those providing help throughout the metro area.⁴ In the past few years, emergency management agencies have begun to embrace these two platforms by creating individualized Facebook and Twitter accounts. Therefore, this study will focus primarily on Facebook and Twitter in terms of the social media best practices in emergency management. As the use of social media in emergency management is still in its infancy,⁵ more research and evaluations of social media best practices are needed in four key areas: 1) the implementation of sites, answering the questions of “why” and “how,” 2) education methods for training staff and volunteers on the operation of the sites, 3) collaboration with other agencies, organizations, and credible sources for broader, more consistent messaging, and, 4) communication between the agency and the public.

The objective of this study is to begin to create or further define best practices for emergency managers using social media sites particularly Facebook and Twitter in the four key areas mentioned earlier. A nationwide survey was conducted to collect baseline information regarding the use of Facebook and Twitter by county emergency management agencies (EMAs) and similar authorities. We focus primarily on the county-level EMAs, as these agencies are mostly responsible for emergency management functions at the local level and work very closely with local communities.

LITERATURE REVIEW

Research involving social media as it relates to emergency management is fairly new. In his recent article, “Social media use in emergency management,” Wukich⁵ provides a content analysis of about 80 related journal articles, research reports, and government documents.

While social media research exists as far back as the September 11 attacks, Facebook and Twitter were not launched at that time. The literature review that follows is in the era of the smart phone, an invention that made social media mobile and instantaneous.

We found four diverse lists that provide recommendations of best practices using social media: 1) National Center for Food Protection and Defense (NCFPD) Social Media Best Practices,⁶ 2) Expanded NCFPD Social Media Best Practices,⁶ 3) Best Practices Recommendations from Emergency 2.0 Wiki Australia,⁷ and 4) Recommended Best Practices from 2011 Joplin Tornado Info Facebook Page Administrators.⁸ Except the last one, which is intended only for Facebook, the remaining lists address best practices for social media platforms in general, such as Facebook, Twitter, YouTube, LinkedIn, and Instagram. One list had as few as four recommendations, while the other three had 10 or more recommendations. A comparison of the four lists was conducted and discussed below using the four key areas of proposed study for best practice recommendations.

Best practices for implementation of social media sites

Best practices in the implementation of social media sites will help to answer the question “why,” then address the “how” of setting up Facebook and Twitter accounts. For agencies needing to understand why, there are plenty of examples. In a 2012 Red Cross survey, 76 percent of the participants said they have the expectation of help to arrive within 3 hours if they posted a plea for help on social media.⁹ A case for the need for best practice recommendations on “how” to implement social media sites can be found by viewing some county EMA Facebook pages. Instead of setting up the site as a fan page, immediately accessible to anyone by clicking “Like,” some agencies have elected to set the page up as an individual requiring a “Friend Request” be sent by another Facebook profile user, which is then contingent upon an administrator’s acceptance of the friend request. During a time of crisis, the public searches for immediate sources of information, and the information could be withheld for indefinite periods of time with this type of page setup.

It is important to note that researchers from several studies address that social media is a complementary tool for emergency managers when explaining its importance in today’s society. According to the Service Assessment Report for April 2011 tornadoes by the National Weather Service (NWS), “Television stations and some emergency managers use these media as an additional way to transmit warnings and relay information to communities.”^{10(p27)} Private founders of the “Joplin Tornado Info” (JTI) Facebook page, agree with this sentiment in their assessment, saying, “We acknowledge that you cannot reach everyone with social media but when it is used together with other types of communication, it can maximize the reach within a community.”^{8(p29)} The NWS study advocates the use of social media because of the immediate-nature of how information is received and forwarded to others. The public does not have to wait for a television station to report breaking news or wait on an agency to issue a press release. The Tornado Recovery Action Council of Alabama also advocates the use of social media in their findings.¹¹ The report states that Facebook and Twitter “could provide conduits for delivering preparedness messages, answering questions interactively, and during actual emergencies spreading warnings and imploring people to take precautions.”^{11(p42)}

In key area 1, “why” and “how” to implement social media sites, the literature is heavily slanted toward data answering “why,” with little research data found in “how” emergency managers should implement the sites. This suggests a large void in best practices in how EMAs should set up Facebook and Twitter pages. Among the four diverse lists, one best practice recommendation was found for the implementation of disaster social media pages. The “Joplin Tornado Info” recommends the advance setup of a disaster page in item 15.⁸ These pages are often referred to as dark sites, in that they are not live, but rather staged and ready to go live for a specific disaster occurrence. In Veil et al.’s research, the authors do not include dark sites in their list of best practices, but they do quote from a 2008 study by Gonzalez-Hernando and Smith in their discussion of best practices: “Other logistics to consider include space for dark sites, hidden Web sites

with pertinent crisis response information, ready to be launched as the link is diffused among important stakeholders through social media.”^{6(p113)}

In the Su et al.’s study,⁹ researchers surveyed emergency managers at the state, county, and local levels. They received more than 500 responses, with 82 percent of the respondents at the state level. The study is underrepresented by county and local officials, which supports the need for more research to be conducted at the county and local levels. When the respondents were asked if they used social media in any capacity, all the state EMAs were currently using social media in some capacity, and 68 and 85 percent of county and local agencies, respectively, were using social media in some capacity. In the same study, even with high usage indicators, 59 percent of state EMAs said they did not trust social media as much as more established forms of media. County and local agencies also responded with lowered trust of social media, coming in at 55 and 41 percent, respectively. Regardless of usage indicators and a lowered trust for social media platforms, more than two thirds rated social media having a “moderate impact” for its role in disasters in the future.⁹

In the administrative postassessment report for the private-citizen effort, “Joplin Tornado Info,” the authors reiterate the point that if official agencies are not going to use social media platforms, then the public will take its place as disseminators of information. Two dangers of allowing private citizens to be the voice during disasters on social media are the heightened chance of misinformation occurrences and the lack of training private citizens have in best practices.⁸

Best practices for education in the operations of social media sites

Once Facebook or Twitter accounts are created by agencies, there is a need for education in how best to use the platforms. Best practice research in educating staff and volunteers in the operational functions of social media would assist those acting as administrators. However, formal guidelines and education is not consistent throughout the emergency management community. Hughes and Palen’s results from surveying 25 Colorado Public Information Officers

(PIOs) found that “PIOs are still unsure how to adopt social media to emergency response structure and procedure.”^{12(p2)} Brian Humphreys and his fellow social media administrators at the Los Angeles Fire Department (LFAD) “stressed being self-taught and largely unsophisticated” in their management of social media technologies, relying heavily on “years of experience and intuition.”^{13(p11)}

Su et al.’s respondents at the state, county, and local levels indicate only a moderate level of familiarity with social media and also indicate more training is needed to learn how to apply and adopt social media. Twenty to 33 percent of the same agencies did not have a defined goal for social media use. “It is clear that issues with insufficient staffing and expertise could ultimately cause the system to break when stressed by larger-scale events.”^{9(p63)} The Tornado Recovery Action Council of Alabama’s report after the April 27 tornadoes says that social media “used without oversight . . . can result in an inequitable distribution of resources and incite chaos and confusion.”^{11(p112)}

Monitoring social media so closely requires multiple administrators. During emergencies, it is impossible for one person to deal with both traditional and social media. The case study of the LAFD also found, based on a single PIO on duty per time period, it is impossible to consistently deliver near-immediate social media responses.¹³ Quickly responding to one Tweet or post sets up unrealistic expectations. Latonero and Shklovski note in their article, “Emergency Management, Twitter, and Social Media Evangelism,” that until higher-ups dedicate more resources to support social media, PIOs will continue to be overwhelmed.¹³

“Joplin Tornado Info” administrators offer a preliminary list as a foundation for educating future administrators of disaster-driven social media sites. Their list mandates that sites should have basic information regarding the event, how the public can connect with loved ones, locations of triage and shelters, evacuation information, volunteer needs (who, what, when, where, and how), a list of resources needed, and a link to the main Web site for more extensive information.⁸

Veil et al.⁶ provided two of the best practice recommendation lists. The first list is borrowed from the

NCFPD's list of best practices and is the foundation of Veil et al.'s research for expanding on a list of best practices for social media. Therefore, the NCFPD and the Expanded NCFPD Social Media Best Practices lists share many common recommendations. In the key area of education, both lists address the need for preplanned operations, specifically when it comes to staffing social media Web sites. They do not, however, specifically mention the use and training of volunteers that are present in the *Emergency 2.0 Wiki Australia* and "Joplin Tornado Info" lists. *Emergency 2.0 Wiki Australia* is the shortest of the lists and is an ongoing collaborative effort from emergency managers, government officials, academia, and other experts in Australia using a digital platform called *Emergency 2.0 Wiki Australia*, to share and compare expertise.⁷ Recommended Best Practices from 2011 Joplin Tornado Info Facebook Page Administrators, the fourth list, is the foundation for the Federal Emergency Management Agency (FEMA)-certified course *PER-300: Social Media for Natural Disaster Response and Recovery* offered through the National Disaster Preparedness Training Center at the University of Hawaii.⁸

All but the *Emergency 2.0 Wiki Australia* reinforce recommendations for planning all aspects of operating social media sites ahead of time.⁷⁻⁹ The Snohomish County, WA, did not have a "set strategy" in place for social media use during an emergency at the time of the mudslide, but they were operating like many other agencies using social media to communicate with the community.¹⁴ The NCFPD and Veil et al.'s lists address the need for advance policies to be in place, as well as recommend that administrators of social media sites "accept uncertainty and ambiguity," meaning they will not always have the information or answers to every question or request on social media.^{6(p112,119)} Finally, all lists except the *Emergency 2.0 Wiki Australia* recommend the need to verify all information before taking action, such as dispersion of rescue or dissemination of supplies.

Best practices for collaboration

Collaboration best practice research and recommendations, like the three other key areas, is a quickly evolving area. With agencies, organizations,

and credible sources formally entering the world of social media at any given point in time, collaboration is only going to expand. Administrators must ensure that as many stakeholders as possible are represented within their social media followers and that consistent messaging among the stakeholders is clearly defined ahead of time. Jonathan Gaddy, EMA Director for Calhoun County, AL, expressed the need of consistent messaging for warnings on social media as during tornado warnings, some agencies repost the original NWS announcements, while others recreate and reword the NWS warning information (personal communication). Best practice recommendations in applying a uniform approach to informing the public would streamline the messaging, creating consistency among the agencies.

Collaboration among agencies and credible sources is found on all but the *Emergency 2.0 Wiki Australia* best practice list. The report on the response efforts from the Tornado Recovery Action Council noted the use of Facebook and Twitter in relief efforts after the April 27, 2011, tornadoes, presented problems. There were at times no centralized communications for needs versus donations.¹¹ The NCFPD and Veil et al. are inclusive of recommendations for collaborating with other stakeholders, credible sources, and the media.⁶ Williams et al.⁸ specify the need for a diverse team of experts to manage disaster sites, so that issues of various types can be addressed by expert sources. Wukich and Mergel's research findings,¹⁵ inclusive of all 50 state EMAs, generally show that state level EMAs are seeking a variety of stakeholder interactions on social media. However, on a closer look, the study revealed "the majority of the messages to which state agencies replied originated from other government agencies,"^{15(p15)} and showed a "limited number of overall private citizens with whom agencies interact."^{15(p17)}

While there is the mention of collaboration in three of the lists, there are no guidelines for *how* agencies should collaborate. At the least, researchers like Wukich and Mergel¹⁵ encourage relationships among stakeholders be developed before disasters occur. Should it be a best practice to repost as opposed to recreating posts from other official sources

(eg, NWS watches and warnings)? During the 2013 Colorado floods, PIOs reported both reposting and recreating posts as part of their strategies.¹⁵ Is one more effective than the other? Should an elected government official answer questions about power outages if a power company representative is part of the stakeholder list? These are all best practice issues that need to be researched and addressed to provide a more streamlined method of social media communications among officials during emergencies.

Best practices for communications

The final key area for best practices is communication between agencies and the public. Engaging organizations and citizens directly in conversations or collective action is one of the key strategies of social media used by emergency managers.⁵ Many of the concepts in this area are the same that would be applicable in face-to-face and other technological communications. One possible recommendation area that was proven useful during Hurricane Sandy is the practice of clarifying information. FEMA used its presence on social media to dispel rumors that FEMA was out of bottled water. FEMA monitored the Tweets and used it as an opportunity to tell people they had water and where the water could be found.¹⁶ Monitoring and responding to Tweets also helped Bronlea Mishler, Deputy Director of Communications for Snohomish County, to control rumors and misinformation during the 2014 Oso, WA, mudslide.¹⁴

Communication is generally addressed by all four best practices lists we examined. They address the need for agencies to not only monitor but also engage the public by participating in and promoting two-way conversations on social media sites. On the state level, Wukich and Mergel found that only 20 (of 50) states and the District of Columbia were replying “to any messages at all and only 15 states replied to messages from private citizens.”^{15(p17)} When the engagement did occur, it was primarily during preparedness and response phases. The three lists also commonly recommend agencies provide the public with information on how they can stay safe or take action (how does the public help themselves, others, and the agency).^{6,7} Wukich and Mergel¹⁵ reveal that one third

of messages follow this content recommendation, but do so using the “push” tactics.

The NCFPD and Veil et al.’s list also encourage agencies to communicate with the public in a timely manner (standards are different in social media vs traditional media) as well as emphasizing the need to listen to the public.⁶ Engaging in this type of “one-on-one communication” with the public is extremely difficult during emergencies due to resource constraints.¹⁵ Wukich⁵ identified crowdsourcing as a useful strategy to engage stakeholders, where agencies can tap into the potential of their constituents via social media and request their direct participation.

In addition, under the National Incident Management System (NIMS) structure, where messages are required to go through a vetting process, successfully communicating with the public in a timely manner using social media is impossible.¹⁷ Again, under the NIMS, there are obstacles for agencies in that NIMS supports a more formal approach to public information like press releases. The Tornado Recovery Action Council of Alabama reinforces the need for better communication using social media by saying, “We must improve the way we alert residents to severe weather, using an integrated system that takes advantage of newer technologies including smartphones, social media and electronic billboards.”^{11(p11)}

METHODOLOGY

Survey design

On the basis of the literature review, we designed a research survey with statements to measure the best practices in the four key areas: implementation, education, collaboration, and communication. The survey consisted of 15 multiple-choice questions and three demographic questions. In key area 1 for implementation, three statements were presented to determine “how” and “why” respondents use Facebook and Twitter. Regarding the key area education, three statements were also presented to respondents to measure the amount of training agencies have provided administrators and whether or not agencies have a formal set of guidelines/best practices in place for Facebook and Twitter use. In terms of collaboration key area, respondents were asked to answer three statements

regarding collaboration practices with stakeholders and outside agencies. Finally, three statements were also used to measure current practices in the final key area of communication. The first statement addresses how much or how little the agency uses social media to engage with the public. The second statement measures how often the agency posts or Tweets on average during a period of time. And, the last statement is intended to measure how engaged the community is with the agency on these social media platforms. The percentages of answers in each category will indicate trends in current practices, as well as identify areas of best practice voids and needs. The survey also gathered baseline information such as FEMA region, job title, population of area served, whether Facebook and Twitter are currently used, and the role of the person responsible for acting as administrator for the accounts.

Unit of analysis and sampling

There are 3,143 counties in the United States and each county is served by an EMA or a similar authority.¹⁸ Using a 5 percent tolerance for error and a 95% confidence level, it was determined that a sample of 343 counties would be needed. However, a much larger sample needs to be drawn to address nonresponse by potential respondents. A total of 2,520 individual e-mails were collected and sent to county emergency management representatives in 43 states. All efforts were made to disperse the e-mails across the 10 FEMA regions. The final sample size for this survey was 370 and responses were received from all 10 FEMA regions, with regions IV and V garnering the highest participation, having 207 of the 370 respondents.

Data collection and limitations

The data collection method was similar to that of Su et al.⁹ in their published research, *Social Media in the Emergency Management Field 2012 Survey Results*. The researchers sent out e-mails with a link to a web-based survey hosted by Survey Monkey.com to county-level emergency management authorities. Depending on the county, the recipients varied among EMAs, Sheriff's departments, fire departments, other county

government agencies, and Local Emergency Planning Committees.

Surveys were sent out in a tiered pattern, primarily due to the lack of access to, or existence of, a national database of county emergency management authorities. All 2,520 e-mails had to be researched on the Internet and compiled into a master list. The process of looking up the e-mails was conducted over a period of 6 months, which explains the tiered dissemination of the surveys over a period of 5 months. All 2,520 were sent an initial survey e-mail, as well as a reminder e-mail to complete the survey. The first wave of survey e-mails was sent in October 2013, with the final wave sent in February 2014. Considering the number of e-mails that was sent out, 370 responses might seem low as the response rate (14.68 percent). However, a large number of e-mails were bounced back and were never received by potential respondents, as listed e-mails were not up-to-date on the Internet. Also, many county EMAs do not have social media or any web presence over the Internet, thus, their e-mail addresses were not available.

RESULTS

Among the total 370 survey participants, 353 of them identified the FEMA region they representing and 17 participants skipped the question. FEMA regions IV (KY, TN, MS, AL, FL, GA, SC, and NC) and V (MN, WI, MI, IL, IN, and OH) have the strongest representation in the survey (30.6 and 28 percent, respectively), making up a total of 207 participants. Regions I (ME, NH, VT, MA, RI, and CT), II (NJ and NY), and IX (CA, NV, AZ, and HI) were the least represented, making up at least 11 of the participants. The remaining 135 participants were from regions III (PA, WV, VA, MD, DE, and DC), VI (NM, TX, OK, AR, and LA), VII (NE, IA, KS, and MO), VIII (MT, ND, SD, WY, UT, and CO), and X (AK, WA, OR, and ID). The same respondents also indicated the size of the population of their districts. Most of the respondents (59.2 percent) serve in population of 50,000 or less, while 24 percent serve in population of 100,000 or more.

All 370 participants responded to the question as to which social media tools the agency uses, and 110 (29.7 percent) indicated their agency does not use

Table 1. Use of Facebook and/or Twitter		
Which social media tool(s) does your agency use?		
Answer options	Response percent	Response count
Facebook	21.9	81
Twitter	3.0	11
Both Facebook and Twitter	44.3	164
We do not use Facebook or Twitter	29.7	110
I do not know	1.1	4
<i>Answered question</i>		370
<i>Skipped question</i>		0

either Facebook or Twitter, while 164 (44.3 percent) use both platforms. Also, 81 participants elect to use Facebook only, and 11 elect to use only Twitter. Table 1 shows the percentage of use and nonuse among the participants.

Participants were then asked to answer if their agency preferred one social media site over the other, or used both equally and 36.6 percent responded that they use Facebook more than Twitter. Only 5 percent of the respondents said that they use Twitter more than Facebook, however, 19.8 percent answered they use both platforms equally.

The survey also asked participants to identify the role of the person responsible for acting as the administrator for their Facebook and/or Twitter accounts. Of the 370 participants, 171 (46.2 percent) of them indicated an emergency management officer other than the PIO acted as the administrator and only 67 (18.1 percent) indicated that a PIO acted as the administrator. Fourteen agencies rely on trained volunteers to run their Facebook and/or Twitter accounts. Table 2 shows the breakdown of those responsible as administrators.

Implementation

In terms of this key area, participants were asked why they either use or do not use Facebook and/or Twitter. Three-hundred sixty-three participants elected to answer the question, and seven opted to skip. Of the

Table 2. Facebook and/or Twitter administrators		
Who is responsible for the daily administration of your Facebook and/or Twitter accounts?		
Answer options	Response percent	Response count
Public Information Officer (PIO)	18.1	67
Trained volunteers outside your agency	3.8	14
I do not know	1.4	5
Not applicable	30.5	113
Another emergency management officer: please provide title in box below	46.2	171
<i>Answered question</i>		370
<i>Skipped question</i>		0

363 participants, 231 (63.6 percent) use Facebook and/or Twitter because the public uses these platforms to send and receive information. An interesting finding is that 22 (6.1 percent) participants responded that they do not use Facebook and/or Twitter because the sites are blocked by administration. Table 3 shows the breakdown of why or why not an agency uses or does not use Facebook and/or Twitter.

Participants were also asked to complete statements regarding how they had set up their Facebook and Twitter pages. Facebook pages can be set up as a Fan Page, accessible to anyone by clicking "Like," or they can be set up as individuals, requiring a "Friend Request" be sent by another Facebook user. Twitter also has privacy settings, allowing the user to set up pages either visible to everyone or by approval only. The majority of participants answered their Facebook (203 respondents) and Twitter (152 respondents) pages were public and accessible to anyone. All 370 participants completed the statements for Facebook and Twitter. Tables 4 and 5 show how agencies have their Facebook and Twitter accounts setup.

Education

The first statement in the key area of education measures whether or not agencies provide training to

Table 3. Why agency does/does not use Facebook and/or Twitter		
Please select the answer that best describes the use (or nonuse) of Facebook and/or Twitter within your agency		
Answer options	Response percent	Response count
We use Facebook and/or Twitter because the public uses these tools to send and receive important information	63.6	231
We use Facebook and/or Twitter because we were directed to do so by superiors	2.2	8
We do not use Facebook and/or Twitter because Internet access to such sites is blocked by administration	6.1	22
We do not use Facebook and/or Twitter due to a lack of staffing	13.5	49
We do not use Facebook and/or Twitter due to low importance placed on social media tools by superiors	1.9	7
We do not use Facebook and/or Twitter because we do not believe it is a helpful or necessary tool in emergency management	2.5	9
Other (please specify)	10.2	37
<i>Answered question</i>		363
<i>Skipped question</i>		7

their employees to act as administrators on Facebook and/or Twitter. Of the 353 responses, a majority of 237 (67.1 percent) indicated they had not been provided training by their agencies. The other two statements address whether or not the agency has formal guidelines or best practices in place. Of the 370 participants, 353 chose to complete the statements and 251 of them (71.1 percent) indicate their agencies do not have a formal set of guidelines in place. Table 6 shows a broadened form of the statement, allowing participants to indicate if their agencies are currently working on a set of formal guidelines and if there is an informal set of guidelines present. The majority of

Table 4. Facebook page setup		
My agency currently has our Facebook page set up as		
Answer options	Response percent	Response count
A Fan Page, where anyone can "Like" our page to access our information	54.9	203
An individual account, where individuals have to send a "Friend Request" to access our information	10.0	37
I do not know	2.7	10
Not applicable	32.4	120
<i>Answered question</i>		370
<i>Skipped question</i>		0

Table 5. Twitter page setup		
My agency currently has our Twitter account setup as		
Answer options	Response percent	Response count
Public, Tweets visible to anyone (no approval of Followers necessary)	41.1	152
Protected, Tweets visible only to those who are approved as Followers	4.6	17
I do not know	4.1	15
Not applicable	50.3	186
<i>Answered question</i>		370
<i>Skipped question</i>		0

participants, 101, indicate that their agencies do not have a formal set of guidelines. Another 88 indicate that they have an informal set of guidelines, and 50 participants indicate that they do have a set of guidelines and continually evaluate them.

Collaboration

Regarding the collaboration key area, participants were first asked to complete a statement

Table 6. Status of formal/informal guidelines		
Please select the answer that best describes your agency as it relates to formal guidelines and best practices for Facebook and/or Twitter		
Answer options	Response percent	Response count
We have a current set of formal guidelines and best practices, and we continually evaluate and update them	14.2	50
We have a current set of formal guidelines and best practices, but I do not know much about them	2.8	10
We have an informal set of guidelines	24.9	88
We do not have a formal set of guidelines, but formal guidelines are currently being developed	7.1	25
We do not have a formal set of guidelines	28.6	101
I do not know	2.5	9
Not applicable	19.8	70
<i>Answered question</i>		353
<i>Skipped question</i>		17

measuring stakeholder participation on their accounts. Stakeholder participation includes other agencies/officials that are Fans, Friends, or Followers of the agency account. Three-hundred sixty-one respondents completed the statement, with nine electing to skip the statement. Of the 361 responses, 136 (37.7 percent) responses indicate agency accounts are inclusive of some stakeholders but not all. Eighty-two respondents (22.7 percent) indicate that all the stakeholders listed in Table 7 are followers of their accounts.

The other area of collaboration that is measured involves how the agency practices reposting and re-Tweeting another agency's information. Of the 361 respondents, 140 (38.8 percent) said they repost and re-Tweet frequently. Fifty-three indicate they only repost or re-Tweet during emergency situations, and 28 do not repost or re-Tweet at all. When asked in another statement how the agency reposts and

Table 7. Stakeholder participation		
My agency's Facebook and/or Twitter followers include key stakeholders such a government officials, fire, rescue, law enforcement, meteorologists, area nonprofits, and utility company representatives		
Answer options	Response percent	Response count
Yes, all of these are represented	22.7	82
Yes, some of these are represented	37.7	136
Yes, one of these is represented	2.2	8
None of these is represented	3.3	12
I do not know	6.4	23
Not applicable	27.7	100
<i>Answered question</i>		361
<i>Skipped question</i>		9

re-Tweets, 362 participants responded. Of the 362, 141 (39 percent) repost or re-Tweet the original message in its entirety, while 66 (18.2 percent) shorten the message prior to reposting or re-Tweeting. Tables 8 and 9 show the survey results regarding reposting and re-Tweeting.

Communication

The final key area for the survey is communication. Three statements were presented to participants for completion, measuring the engagement level the agency has with the public, how many times the agency posts in a given period of time, and how many followers the agency has compared to the district population. The first statement, evaluating engagement practices, was completed by 362 of the 370 respondents. Of the 362 responses, 127 (35.1 percent) said they post or Tweet information in a way that encourages engagement and two-way communication with the public, 73 (20.2 percent) said they tend to engage with the public in emergency situations, and only 13 said they do not monitor feedback at all (Table 10).

Of the 370 participants, 362 also answered how often the agency posts or Tweets in a given amount of time. The most common answer was weekly, with

Table 8. Does your agency repost or re-Tweet?		
My agency collaborates with other key stakeholders (mentioned in the previous question) by reposting or re-Tweeting important public messages they initially post or Tweet		
Answer options	Response percent	Response count
Yes, we do this frequently	38.8	140
Yes, but only in emergency situations	14.7	53
Yes, but only if the stakeholder requests us to repost or re-Tweet	6.4	23
No, we do not repost or re-Tweet messages	7.8	28
I do not know	3.3	12
Not applicable	29.1	105
<i>Answered question</i>		361
<i>Skipped question</i>		9

Table 9. Methods of reposting and re-Tweeting		
When my agency reposts or re-Tweets information from another agency, such as a National Weather Service Watch or Warning, we typically		
Answer options	Response percent	Response count
Repost or re-Tweet the original messaging in its entirety	39.0	141
Repost or re-Tweet with edits to shorten the message	18.2	66
Repost or re-Tweet in our own words (ie, reword the message)	5.2	19
We do not repost or re-Tweet messages	6.6	24
I do not know	2.2	8
Not applicable	28.7	104
<i>Answered question</i>		362
<i>Skipped question</i>		8

Table 10. Engagement and monitoring feedback		
Please select the answer that best describes your agency's practices on Facebook and/or Twitter		
Answer options	Response percent	Response count
We post or Tweet information and do so in a way that encourages engagement and two-way communication with the public	35.1	127
We post or Tweet information but do not consistently monitor the feedback unless it is an emergency situation	20.2	73
We post or Tweet information but do not monitor the feedback unless we have time	7.7	28
We post or Tweet information but do not monitor the feedback	3.6	13
I do not know	1.4	5
Not applicable	32.0	116
<i>Answered question</i>		362
<i>Skipped question</i>		8

63 selecting this option. The second and third choices were three times a week, with 52, and two or more times a day, with 50 responses. The results are presented in Table 11.

The final statement measuring communication relates to the district population and gives insight into the average percentage of followers the agency has compared to the population. Out of the 370 participants, 361 responded to this statement, and a total of 170 respondents have less than 20 percent of the population number as followers, as shown in Table 12. Forty-three responded they did not know, and only 15 indicated they have more than 35 percent of the population represented.

DISCUSSION AND CONCLUSION

The survey reveals that of the total 370 county EMAs participated in this survey, 69 percent of

Table 11. Frequency of posts or tweets		
Please select the answer that best describes your agency's frequency of posts and/or Tweets		
Answer options	Response percent	Response count
Two or more times per day	13.8	50
Once per day	8.0	29
Three times per week	14.4	52
Weekly	17.4	63
Every few weeks	9.1	33
Less than once per month	5.8	21
I do not know	1.4	5
Not applicable	30.1	109
<i>Answered question</i>		362
<i>Skipped question</i>		8

Table 12. Percentage of population represented		
My agency's Facebook and/or Twitter page has the following percentage of followers compared to the local population		
Answer options	Response percent	Response count
Less than 5 percent	28.8	104
5-19 percent	18.3	66
20-34 percent	8.9	32
35-49 percent	2.2	8
More than 50 percent	1.9	7
I do not know	11.9	43
Not applicable	28.0	101
<i>Answered question</i>		361
<i>Skipped question</i>		9

them are using Facebook or Twitter. The majority of this survey's respondents, 44 percent, are using both Facebook and Twitter, and 22 percent are using Facebook only.

Implementation. The majority of users have their Facebook and Twitter accounts easily accessible to the public. However, some of the agency user accounts (10 percent of the Facebook and 5 percent of the Twitter) have been set up with privacy parameters, which seem inconvenient from accessibility perspective. During an emergency, it may not be possible for an administrator to approve Friends and Followers in a timely manner, so the best practice recommendation is for accounts to be set up as public, allowing for the most accessibility.

A positive finding is the understanding of why Facebook and Twitter are used by county agencies. Regardless of the practice of pushing information, posting or Tweeting only during emergencies, or actively engaging the public in two-way communication, almost 64 percent of respondents use Facebook and Twitter because the public uses these tools to communicate. The majority of nonusers do not use due to insufficient staff. Because of the growing popularity of public use of sites such as Facebook and Twitter, it is a best practice recommendation that county agencies use social media platforms as an additional method to communicate with the public. Agencies not participating due to insufficient staff, or other reasons, will at some point find themselves pressured by the public to have a social media presence.

Nearly half of the survey participants, 46 percent, answer that an emergency management officer other than the PIO is responsible for the daily administration of Facebook and Twitter. Only 18 percent have PIOs managing the daily administration of the sites. This suggests that managing social media accounts is an additional responsibility, outside the norm, for the majority of those acting as administrators. Because of the varying roles responsible for the daily administration of the accounts, it is necessary for a blueprint of best practices in how the sites are best setup be established.

Education. Also in line with the low number of PIOs acting as account administrators is the suggestion that more education and training is needed. With so few administrators having a dedicated public information background, best practices for posts, Tweets, and interaction would be helpful to those filling a

needed gap within their agencies. Almost 25 percent of agencies are providing assistance to their administrators and have a formal set of guidelines in place. Another 25 percent operate under the assumption of informal guidelines.

Respondents from district population of 200,000 or more had higher percentage levels indicating they had received training (53 percent) and also had higher percentage levels indicating they had formal guidelines in place (58 percent) than those respondents with district population of 200,000 or less. As district population decreased, the percentage level of training and formal guidelines also decline. District population of 20,000 or less had 15 percent of responders indicate they had received training and 12 percent indicate they had a formal set of guidelines in place. The data suggest that higher populated areas have more trained administrators, and more comprehensive protocol in place than lower populated areas.

Collaboration. Survey data indicate that agencies are generally doing a good job of collaborating with other stakeholders and agencies. Less than 6 percent said that one or none of their stakeholders were represented on their Facebook and Twitter accounts. It is a recommended best practice for agencies to have as many stakeholders as possible represented in their Friend and Follower lists. Almost 40 percent of agencies were proactive by frequently reposting or re-Tweeting information from other agencies. The data also suggest that important information, especially during emergency situations, is being reposted and re-Tweeted. Of those practicing reposting and re-Tweeting, almost 40 percent keep the original message in its entirety. Another 24 percent shorten or reword the messages prior to reposting or re-Tweeting. The debate here is if one is a better practice than the other. Keeping the messaging in its original form lessens the chance of misinformation and errors when passed along. A future study that might determine which method is better is researching if agencies prefer their posts and tweets be kept in their original forms. In any case, it is a best practice recommendation to repost or re-Tweet important information from other stakeholders.

Communication. Does frequency matter? The majority of respondents, 32 percent, only post or

Tweet between one and three times per week. Only 22 percent post one or more times per day. There is no significant correlation between agencies with dedicated PIOs posting or tweeting more frequently. Twenty percent of the participants do not consistently monitor feedback on Facebook and Twitter unless it is an emergency situation. For Facebook and Twitter sites to be used effectively, it is a best practice recommendation to engage with the public as much as possible. As noted several times, this best practice recommendation is one of the more challenging due to a lack of staffing and resources to maintain an engaging environment 24 hours a day.

Do Facebook and Twitter offer a good Return on Investment? Twenty-nine percent of participants have less than 5 percent of their district population represented by their Facebook and Twitter followers. These data beg the question as to whether the time and resources spent managing the accounts is a good business practice with so little of the population being reached, especially with agencies citing insufficient staff as the number one reason for not having Facebook and Twitter accounts. For the LAFD, their PIOs understand only a small number of the population is directly reached on social media, but they still view social media as “extremely useful . . . for disseminating public information rapidly.”^{13(p10)} Just how much importance should be placed on social media sites to reach such a small portion of the population? It can be argued as many agencies are collaborating with key stakeholders, that the information is disseminated far outside the reach of social media accounts. For example, media can pass along information posted or Tweeted via radio and television, reaching a much broader audience. Colorado PIOs participating in Hughes and Palen's study¹² report that social media reduced their number of public and media inquiries. The argument can also be made that as the population cycles through the aging process, more and more citizens will rely on nontraditional forms of communication.

As social media sites have become popular in the emergency management, it is important that the groundwork for guidelines and best practices are established. In this study, an attempt has been made

to begin to create or further define best practices for emergency managers using Facebook and Twitter. However, further study is needed to incorporate other social media platforms. Agencies need to recognize the value of not only having a presence on social media but also actively engaging stakeholders and the public on these sites. Administrators need a road map on implementing the sites in ways that allow for the most accessibility by the public. They also need training and sets of formal guidelines to follow for the daily operation of the sites. By having sites set up in the most efficient manner, along with education and training from agencies, EMAs will be better equipped to collaborate with stakeholders and communicate important messages about prevention, preparedness, response, and recovery.

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