

# Social Media, Public Emergencies, and Disability

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## Abstract

Longitudinal survey research data from two surveys conducted in 2010-2011 and 2012-2013, respectively, on the use of social media and other media and devices during public emergencies by people with disabilities are analyzed. The survey data show that television remains the primary means for receiving and verifying public alerts. In the two years between the two emergency communications surveys the alerting methods used to receive emergency alerts have shifted towards wider use of mobile and Internet based technologies while the methods used to verify alert information have remained relatively stable. Rates of social media use for receiving and verifying alert information on the dominant social networking platforms have more than doubled.

## Keywords

Social Media, Emergency Alerting, Emergency Communications, Disability Access

## Introduction

The number of social media users has doubled from 2008 to 2011 to 59% of Internet users in the United States (Hampton et al 3). This increase in social media use among those over the age of 35 is most prominent, with that age group currently representing more than half of all adult users (Hampton et al 8). This broadening and deepening of social media use beyond younger people and early technology adopters has created new opportunities and challenges for communications during public emergencies.

The extraordinary speed with which social media has become commonplace in emergency situations is recognized by the public authorities on the national, state, and local levels. The Department of Homeland Security Science & Technology Directorate (DHS S&T) and the Federal Emergency Management Agency (FEMA), for instance, jointly run the Integrated Public Alert and Warning System (IPAWS), which includes social media among the messaging systems it is charged with integrating (Department of Homeland Security 1). Numerous state and local safety authorities also have established their presence on some of the most used social media services, particularly Facebook and Twitter (Mitchell, Bennett, and LaForce 55).

The opportunities and possible limitations of social media use during emergencies are of critical import for persons with disabilities, who generally have greater challenges receiving, understanding, and responding to emergency-related communications and other information (Frieden 4-7). Within the emergency management community there is widespread concern and conjecture that the public often turns to social media prior to official directives, thus potentially putting themselves in harmful scenarios.

Little research has been conducted about the social media behavior and attitudes of people with disabilities during public emergencies. Do they seek and get their initial alerts about an impending or ongoing public emergency via social media or from other sources, including traditional broadcast media? Do they verify those alerts at all, and if so, which communications technology do they use? And, finally, do they pass on to others alerts or information they have acquired related to the emergency?

In late 2010-early 2011 the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC) invited people with disabilities to participate in our Survey on *Emergency Communications and People with Disabilities* (2010/2011 Survey). Two years later, in an effort to better understand the use of social media for dissemination of emergency alerts and information, and assess trends in usage by people with disabilities, the Wireless RERC updated and rereleased this survey (2012/2013 Survey). This survey was designed to collect data on the use of traditional (e.g. television, radio) and newer technologies (e.g., text messages, social media) for receiving and reacting to public alerts and warnings, by people with disabilities.

### **Research Methodology and Respondent Profile**

For the more recent survey, data were collected from November 1, 2012 through March 30, 2013 using convenience sampling to draw a sample of adults over age 18 with any type of disability. Participants were recruited through the Wireless RERC's Consumer Advisory Network (CAN), a nationwide network of consumers with disabilities. In addition, the research team conducted recruiting outreach via its Internet and social media assets, including the Wireless RERC website, and its Twitter, Facebook and LinkedIn accounts. Recruiting was also carried out by asking individuals working on disability issues at the national, state and local levels to disseminate the invitation to participate to their networks of people with disabilities.

Respondents represented the full range of disabilities, including sensory (hearing and vision), cognitive, mobility, dexterity, and speech limitations (Table 1). Data were collected via the web, voice phone call, and in-person interviews. The total number of respondents to the first survey was 1384, 1150 of whom reported having at least one of the disabilities listed above. The respondent age range was 18-91, with a mean age of 52. The total number of respondents to the more recent survey was 1772, 1179 of whom indicated that they had at least one of the disabilities listed above. The respondent age range was 19-98, with a mean age of 52. Minors under age 18 were not recruited to participate in either survey due to concerns over conducting research with vulnerable populations. The response data for the 429 respondents to the 2012/2013 survey who reported not having a disability are used here for comparison.

Table 1 Percentage of Respondents by Disability Type – 2010/2011 and 2012/2013

	2010/2011	2012/2013
Seeing (blind or low vision, even when wearing glasses)	36%	21%
- Low vision	19%	14%
- Blind	17%	7%
Hearing (deaf or hard of hearing, even when wearing aids)	40%	43%
- Hard of hearing	22%	23%
- Deaf	18%	19%
Frequent worry, nervousness, or anxiety	--	25%
Concentrating, remembering or making decisions	20%	22%
Speaking so people can understand you	9%	16%
Using your arms	--	13%
Using your hands and fingers	19%	18%
Walking, standing or climbing stairs	45%	44%

*Source: Wireless RERC, Surveys on Emergency Communications and People with Disabilities, 2011 and 2013.*

**Discussion: Public Emergency Alerts--Receiving, Verifying, and Sharing**

In the two years between the two emergency communications surveys the alerting methods used to receive emergency alerts have shifted towards wider use of mobile and Internet based technologies while the methods used to verify alert information have remained relatively stable. In the 2010/2011 survey, traditional broadcast media in the form of television and radio were the most frequently used media (41% and 25% of respondents, respectively) by which respondents with disabilities received emergency alerts. Email (20%), direct observation of surroundings (18%), phone calls (18%), and social media (18%) were all tightly ranked among the next five (Table 2). Text messaging ranked low with 13% of respondents reporting having received alerts via this medium.

In the 2010/2011 survey, social media was not listed as a choice in the general alerting methods question. In the 2012/2013 survey, television remained the most common medium for receiving alerts (55%), but text messages, which previously ranked low at 13% of respondents in the earlier survey, ranked second at 32% (tying with e-mail) and followed by phone call (landline or mobile) and sirens and alarms (23%), radio (21%), and direct observation (20%). The use of social media was tied for eighth most frequently used medium for receiving alerts (19%) and 7<sup>th</sup> for verifying alerts (17%), only slightly higher than in the previous survey.

Table 2 Methods of Receiving and Verifying Alerts (Longitudinal Comparison)\*

	Alerted		Verified	
	2010/2011	2012/2013	2010/2011	2012/2013
Television	41%	55%	27%	57%
Email	20%	32%	7%	16%
Phone call (landline, mobile phone)	18%	23%	12%	16%
Sirens or other alarms	16%	23%	--	20%
Text message	13%	32%	4%	13%
Radio (regular radio)	25%	21%	15%	21%
Direct observation of your surroundings	18%	20%	22%	38%
<b>Social media</b>	<b>18%</b>	<b>19%</b>	<b>16%</b>	<b>17%</b>
Internet news	12%	19%	15%	33%
Direct contact with someone nearby	--	12%	--	26%
NOAA Weather radio	--	14%	--	15%
Emergency app installed on Smartphone	--	10%	--	8%
Instant messaging/chat	1%	2%	1%	5%
TTY	<1%	<1%	<1%	1%

*Source:* Wireless RERC, *Surveys on Emergency Communications and People with Disabilities*, 2011 and 2013.

\* For the 2010/2011 survey, respondents were asked if they *ever* received an alert via any of these media or platforms. For the recent survey, respondents were asked how they received and verified the *most recent* alert. Also, some media included in the recent version of the survey were not included in the corresponding question in the earlier survey. The item for social media used different language in the two surveys.

Table 3 Methods of Receiving Alerts (By Disability Type, 2012/2013 Survey)

	Seeing	Hearing	Anxiety	Thinking	Speaking	Using Arms	Using hands	Walking, standing
Television	53%	44%	59%	51%	55%	57%	61%	56%
Email	29%	31%	23%	25%	26%	28%	32%	24%
Phone call (landline, mobile phone)	26%	13%	24%	24%	24%	31%	28%	26%
Sirens or other alarms	24%	11%	27%	24%	19%	27%	27%	26%
Text message	19%	31%	27%	27%	27%	22%	21%	21%
Radio (regular radio)	26%	9%	22%	22%	17%	27%	24%	24%
Direct observation of your surroundings	18%	16%	23%	20%	22%	26%	23%	21%
Social media posting from public agency or personal network	19%	21%	20%	20%	25%	18%	23%	16%
Internet news	17%	20%	18%	17%	21%	22%	21%	15%
Direct contact with someone nearby	16%	12%	15%	12%	16%	19%	16%	12%
NOAA Weather radio	17%	8%	13%	13%	13%	16%	16%	15%
Emergency app installed on Smartphone	11%	8%	8%	9%	8%	8%	10%	8%
Instant messaging/chat	3%	2%	4%	5%	5%	6%	6%	3%
TTY	1%	<1%	1%	1%	2%	1%	1%	1%

Source: Wireless RERC, *Survey on Emergency Communications and People with Disabilities, 2013*.

Drilling down shows that response rates for most of the listed methods for receiving emergency alerts are consistent across the several disability types, except for respondents with hearing loss (Table 3). As anticipated, people with hearing loss use communications technologies that rely mostly on sound less frequently than others. Across disability types television is the number one medium used, ranging from 44%-61% of respondents with each disability type. Email is in second place for every disability type except respondents with anxiety and those with a mobility disability. For them, sirens and text messages are the second most frequently used medium for receiving alerts. The majority of respondents with disabilities rely on mobile or Internet technologies as their secondary means for receiving emergency alerts.

Social media use for receiving alerts was most frequently reported by respondents with difficulty speaking (25%), and least used by people with difficulty walking and standing (16%). For this latter group, higher average age might be contributing to this result. Despite the relatively low ranking, these results show that social media are used to receive emergency alerts by a substantial percentage of people with all types of disability.

#### *Social Media Platforms and Emergency Alerting*

Substantial percentages of respondents with disabilities in the 2012/2013 survey said they used social media on a daily basis (Table 4). Indeed, the daily usage of social media on desktop computers, laptop computers, and tablet computers by respondents with disabilities is slightly higher than the daily usage of non-disabled respondents. Cellphones are the only device type used less by respondents with disabilities than respondents without disabilities to access social media. Notably, in the 2012/2013 survey, cellphones were the device most often used to access social media. This is in stark contrast to the results of the 2010/2011 survey which found cellphones to be the least likely device used.

Table 4 Daily Use of Social Media Across Hardware Platforms (2012/2013 Survey)

	Disability	No-Disability
Desktop computer	36%	33%
Laptop computer	35%	27%
Tablet computer	19%	18%
Cellphone	41%	46%
Other (gaming console, etc.)	5%	4%

*Source: Wireless RERC, Survey on Emergency Communications and People with Disabilities, 2013.*

Table 5 shows a comparison between the 2010/2011 survey data and the 2012/2013 survey data with regard to specific social media platforms used by social media users for receiving and verifying alerts. Though other social networks such as Google+ were included as a choice for respondents on the more recent survey, the only networks on both the 2010/2011 survey and the 2012/2013 survey were Facebook, Twitter and YouTube. In the two years since the first survey, social media users more than doubled their use of each of these three platforms for receiving and verifying alerts. Since these are currently the dominant social media platforms, these results suggest a substantial increase in general in the use of social media for receiving and verifying alerts.

Table 5 Social Media Sites Used to Receive and Verify Emergency Alerts

	Received alert (2010-11)	Received alert (2012-13)	Verified alert (2010-11)	Verified alert (2012-13)
Facebook	12%	32%	9%	24%
Twitter	5%	10%	3%	7%
YouTube	1%	5%	1%	3%

*Source: Wireless RERC, Surveys on Emergency Communications and People with Disabilities, 2011 and 2013.*

Facebook and Twitter remain the most commonly used platforms among respondents with disabilities. Forty nine out of the 50 states (98%) and 74% of the top 100 cities (based on population according to the U.S. Census Bureau) also use Facebook and Twitter to disseminate emergency information. However, Twitter is used more frequently by authorities than Facebook. There is a disconnect between the platform most used by emergency managers to *disseminate* emergency information and the platform most used by the population with disabilities to *receive* emergency information. This disconnect *potentially* impacts the effectiveness of social media as an emergency information source by people with disabilities.

## Conclusions

Two main conclusions about the use of social media during public emergencies can be drawn from the survey response data presented here. First, social media represent important channels for communication for people with disabilities during emergencies. Moderate percentages of people with disabilities have used social media to receive and verify emergency information (19% and 17% respectively). Second, these data show the importance of mobile platforms for accessing social media for respondents with disabilities and respondents who reported having no disability. Pluralities of both groups (41% and 46%, respectively) reported

accessing social media on cellphones, with additional numbers who access social media on tablets. Continued research on social media use by people with disabilities and by alerting authorities could improve social media communication between the two groups, thereby potentially increasing the effectiveness of emergency alerting via social media.

**Note**

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