The American public’s use of social media and mobile technologies has consistently grown in recent years. According to a May 2013 Pew study, 91% of American adults own cell phones,1 a 9% increase since May 2010.2 Of those cell phone owners, 81% communicate via text message and 60% access the Internet via phone.1 The rising use of cell phones and social media by the American public on a day-to-day basis has led to a corresponding rise in communication through these technologies to share and find information during emergencies.3-5 Subsequently, recent events such as Hurricane Sandy demonstrate their potential benefits for communicating preparedness messages. According to a 2012 American Red Cross survey, mobile applications and social media are now tied as the fourth most popular ways to get information during an emergency, following only by television, radio, and other online news.6 Local health departments’ (LHDs’) ability to more quickly communicate preparedness information to their communities could minimize adverse effects of disasters.

Evidence suggests that LHDs could use cell phones and social media to provide real-time updates,7-9 rapidly exchange information with the public,10-14 and enhance situational awareness during emergencies.15,16 Despite these and other potential uses and benefits, only a small fraction of LHDs have adopted and used such technology effectively. According to one study, as of early 2012, only 24% of LHDs had a Facebook account and only 8% had a Twitter account.17 The use of mobile health (mHealth) at LHDs is even more limited; there is little to no peer-reviewed literature describing its use. However, current efforts at numerous LHDs indicate the increasing interest and use of mHealth. Given the limited use of these promising platforms, the UPMC Center for Health Security and the National Association of County & City Health Officials (NACCHO) conducted a study* to identify organizational factors that LHD staff perceive as influential in hindering or enabling LHDs’ ability to use social media and mobile technologies for preparedness.

**Study Overview**

The UPMC Center for Health Security, the principal investigator for this study, and the NACCHO conducted 65 interviews with LHD staff (n = 65) across the country and analyzed existing data and studies on the use of social media and mobile technologies for disaster preparedness.

*To read the full study that is summarized in this commentary, see review, “Riding the Mobile Wave: What Local Health Departments Need to Adopt Social Media and Mobile Health Technologies for Emergency Preparedness,” available at www.upmchealthsecurity.org and www.naccho.org.

Author Affiliations: National Association of County & City Health Officials, Washington, District of Columbia (Mss Rubin and Jolani); and UPMC Center for Health Security, Baltimore, Maryland (Mss Bouri and Minton).

The authors declare no conflicts of interest.
management. From January to June 2013, the project team conducted phone-based interviews (n = 65) with practitioners at 47 LHDs from 23 states. As shown in the Figure, interviewees held positions in various departments: communications (n = 8), public information and public relations (n = 15), communications and public information with a focus on emergency risk (n = 6), social media or mHealth-specific positions (n = 6), emergency preparedness and response (n = 19), and public health programming and education (n = 11).

Interviewees discussed key capacity issues that influence their ability to engage in social media and mHealth and suggested ways LHDs could improve their work using these technologies. The research team categorized the identified factors into 4 main themes: in-house capacity; leadership support and policies; legal and security concerns; and key audiences. Within each of these thematic areas, the project team identified specific key factors enabling or hindering the use of such programs and included 2 to 4 suggestions or requests from LHDs that could improve uptake and use.

**Main Findings: Factors Influencing LHD Use of Social Media and mHealth**

This section outlines the organizational factors interviewees identified as supporting or impeding the use of social media and mHealth platforms.

**In-house capacity:** The ability of both staff and the LHD as a whole to effectively integrate social media and mHealth programs into their department’s overall communication and emergency preparedness strategy. Primary factors that influence an LHD’s in-house capacity to use and maintain social media and mHealth programs include the knowledge among staff and throughout the health department as a whole; the amount of funding and the number of staff specifically allocated to social media and mHealth efforts; and the availability and accessibility of hard resources and technical support.

**Leadership support and policies:** Implied or expressed support of leadership figures, within the LHD or at other government levels, to encourage the use of social media and mHealth, and the existence of specific rules or policies, whether formal or informal, regulating or encouraging the use of such technologies. Many LHD staff identified factors that influence the type of support they receive to use social media and mHealth, including support specifically from health department leadership; internal policies at LHDs regarding social media and mHealth use; and local, state, and federal government policies encouraging the use of social media and mHealth platforms.

**Legal and security issues:** Concerns around security of information and the application of legal guidance for mHealth and social media programs. Many LHDs identified legal and security issues that often inhibit their use of social media and mHealth, including lack of clarity around the applicability of federal laws to LHDs; concerns about how to manage liability issues that can arise with platform use; and lack of understanding as to how to manage security breaches.

**Audiences:** Intended and targeted audiences at which LHDs aim to direct programs, including those in different geographic locations and those considered vulnerable or at risk. Regarding the use of social media and mHealth to reach specific audiences, interviewees noted that different platforms are sometimes better suited for different purposes, audiences, and types of interaction. Furthermore, interviewees outlined 2 primary factors that may inhibit use: (1) many LHDs lack the coordination and capability necessary to use social media and mHealth for 2-way communication with different populations; and (2) many LHDs may not have the resources necessary to use platforms to reach vulnerable populations.

**Examples of Success**

The following examples highlight current practices at LHDs using social media or mHealth technologies and
how LHDs have overcome organizational barriers to using these platforms:

- **Public Health–Seattle & King County** implemented its mobile technology program in 2008, which includes services such as its employee emergency text messaging program. In 2012, the SMS service was implemented during ice storms when several clinics and tens of thousands of residential homes in the county lost power. Public Health–Seattle & King County has taken several steps to address potential legal concerns when using mobile platforms, including working with its own compliance and legal departments, learning from other LHDs and health care entities, and conducting pilot tests and research to help answer legal and security concerns.

- **Toledo-Lucas County Health Department** has used various social media platforms to communicate preparedness and other public health messages to the public since 2010. Its Advanced Practice Center grant, which funded activities through 2012, enabled LHD staff to more regularly and seriously use social media. Toledo-Lucas County Health Department developed social media trainings for LHDs nationwide, through which department staff increasingly improved their own social media skill sets and shared valuable information with their peers. The trainings included diverse speakers with disaster response and social media expertise.

- **Orleans County (New York) Public Health (OCPH)** is a small county without dedicated television or radio media; print media is located in 2 different counties. These communication limitations compelled the Orleans County Public Health to use innovative communication platforms to relay information to their community, such as Facebook. The OCPH staff develop their own social media content and share useful information developed by other LHDs on social media sites. As OCPH’s social media use expanded, the health department created an in-house Facebook page for its Medical Reserve Corps. Since Medical Reserve Corps units are often housed within LHDs and share a common goal of assisting the community during public health emergencies, the development of OCPH’s Medical Reserve Corps Facebook page was a logical step.

- **Chicago Department of Public Health** has been active with the Healthy Chicago initiative, which has motivated LHD staff to use social media and mHealth technology. It has created several applications to provide residents with critical information about public health issues. For example, the Chicago Flu Shot application and the Back to School Immunization application provide resources and information on vaccination sites and maps of clinic locations.

Chicago Department of Public Health continues to develop its Foodborne Chicago app, which scans Twitter mentions for symptoms of food poisoning in the Chicago area. Once the information is collected, Chicago Department of Public Health reaches out to residents and provides them with a link to report and provide information on the food-poisoning case.

**Recommendations**

As highlighted by numerous interviewees, several roadblocks prevent local practitioners from capitalizing on the benefits of these platforms. Local health departments can still take steps to work around these impediments and advance their use of social media and mHealth. Simultaneously, policy makers can revise guidance and policies to support LHD use of these platforms and more accurately reflect the applicability of federal laws. In light of this study’s findings and analysis of existing relevant research, the project team recommends the following actions for local health practitioners and policy makers at all levels.

For local health practitioners:

- **Assess internal baseline capacity and augment, as needed, with the support of external partners.** Local health department leadership should take steps to better understand its department’s baseline capacity to use social media and mHealth for emergency preparedness and identify external resources that could help fill gaps in staffing and funding. Health departments should also identify community-based organizations and academic institutions that can offer pro bono or low-cost services to fill staffing and training gaps, such as unpaid interns and contractual services.

- **Learn from existing practices at other LHDs.** Local health department staff should take steps now to engage with and learn from their colleagues at other LHDs. As some interviewees noted, merely talking with colleagues in the next county’s health department or at a health department with visibly advanced efforts can help guide staff in developing programs and establishing policies.

- **Identify resources to inform health department policy development.** Local health departments can take steps to address legal and security concerns while waiting for concrete policy actions. Health departments should be proactive in identifying resources, such as sample policies from other LHDs, guidance from other entities that details managing liability concerns for specific platforms, and pro bono or low-cost legal consultant services, to vet concerns and department actions.
Identify key audiences and understand how they communicate. While use of social networking sites and mobile devices is generally widespread, LHDs must verify that targeted populations have access to these platforms to ensure they are effective communication mechanisms.

For policy makers at the local, state, and federal levels:

• Promote the creation of an information exchange database. As evidenced by numerous interviewee requests, a database or resource for LHDs to share examples of current efforts, funding sources, or potential uses and applications of mHealth and social media would be extremely useful in helping LHDs identify best practices and uses for different platforms. State and local officials should work to form or support the creation of such a database to serve as an information sharing mechanism for LHDs regionally.

• Support research to improve the evidence base for technology use. While statistics indicate increasing and widespread use of social networking sites and mobile devices, LHDs lack the evidence base they often need to demonstrate the role of these platforms in advancing public health activities, including emergency preparedness. Policy makers should explore ways to incorporate this needed research into efforts that are already being funded.

• Circulate guidance to LHDs regarding the applicability of existing federal laws. The Department of Health and Human Services and other federal agencies, as appropriate, should clarify how and when laws such as the HIPAA Privacy Rule and the Freedom of Information Act apply to LHDs. Guidance should also direct LHDs to legal resources that they can access to verify compliance with laws.

**Conclusion**

With more than 2800 LHDs across the country that serve their communities daily, these organizations are uniquely positioned to not only provide day-to-day preparedness messaging to the public but also reach them during emergencies to communicate and enhance situational awareness. Despite their promise, many LHDs face roadblocks that prevent them from fully adopting social media and mobile technologies. This study sought to identify what organizational factors LHDs perceive as influential in precluding or enabling their use of these platforms. Furthermore, this study shared the successes of LHDs that have overcome barriers to using social media and mHealth and the suggestions interviewees provided regarding how LHDs can be supported in advancing platform use. While only a fraction of LHDs currently use such technologies, with the pressures from a society that is becoming increasingly mobile and diminishing funding for preparedness programs, increased focus should be applied to additional efforts for LHDs to adopt such technologies.

**REFERENCES**


