

# New York DMH Responder

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## In this Issue...

**Summary: IDMH Conference**

**Research Brief: How Does Your Website Rate?**

**Survey Invitation: Share Your Views on Warnings**

## The DMH Responder is a quarterly production of...

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## Welcome

Welcome to the Spring 2014 issue of the **New York DMH Responder**, our quarterly newsletter for the Disaster Mental Health community. This edition summarizes presentations at the recent Institute for Disaster Mental Health (IDMH) at SUNY New Paltz conference. *"Why Don't People Listen?" – The Whole Community and Communicating in a Crisis*. This year's conference focused on how disaster response professionals can best communicate with community members during complex and rapidly changing disasters to help them avoid or minimize their exposure. We hope these summaries will be informative for readers who were not able to attend the event.

Additionally, we would like to thank the New York State Division of Homeland Security and Emergency Services (DHSES) for their generous sponsorship of scholarships which enabled approximately 60 individuals to attend conference.

As always, your feedback and suggestions for topics to cover in future issues are welcome; please email any comments to Judith LeComb or Steve Moskowitz.

**"Courage is what it takes to stand up  
and speak; courage is also what it takes  
to sit down and listen."**

– Winston Churchill

## Did You Miss the IDMH Conference?

Most presentations are available for viewing at:  
[www.newpaltz.edu/idmh/conference.html](http://www.newpaltz.edu/idmh/conference.html)

Videos include:

- Opening remarks by Karla Vermeulen, Ph.D., Acting Director, Institute for Disaster Mental Health; Donald Christian, Ph.D., President, State University of New York at New Paltz; Jerome Hauer, Ph.D., Commissioner, New York State Division of Homeland Security and Emergency Services; and Col. (Retired) Chris Gibson, MPA, Ph.D., Congressman 19th District New York
- Honorable Richard Serino; 8th Deputy Administrator, Federal Emergency Management Agency, on *The Whole Community Approach to Resilience*
- Wendy Harman, Director, Information Management and Situational Awareness, Disaster Cycle Services, American Red Cross, on *Information to the Rescue*
- Lou McNally, Ph.D., Research Assistant Professor, Climate Change Institute, University of Maine at Orono, Maine, and Assistant Professor of Applied Aviation Sciences, Embry Riddle Aeronautical University, on *The Media and the Madness: Is Rome Really Burning?*

## The Whole Community Approach to Resilience

The first keynote presentation was delivered by Richard Serino who recently stepped down from his position as the 8th Deputy Administrator of the Federal Emergency Management Agency. Mr. Serino began by thanking audience members for their work, which makes a real difference in people's lives – something not many people get to do, and which they don't receive enough thanks for.

He then discussed the critical importance of listening in disaster response. He noted that he has responded to countless disaster but the one that stuck out was the tornado that destroyed Joplin, MO. When asked what he did when he first arrived, he said he listened. FEMA brought a lot of resources and of course the community needed blankets, food, and other material items. But what the people of Joplin; the city manager; the fire chief; police chief; emergency manager; and politicians really needed was someone to listen and help address their long-term issues. Listening to people means not only hearing what they're telling you they need but understanding what they truly need – including what their mental health needs are, without saying those words (at least in the first few days).

Mr. Serino described the Whole Community approach that he was instrumental in promoting at FEMA. Whole Community means bringing together federal, state, local, and tribal government to prepare and respond. Former Massachusetts Congressman Tip O'Neill used to say that "all politics are local," and that's true of disasters as well: Outside responders aren't necessarily going to understand what's most important to survivors, like the importance of

neighborhoods and schools. The Whole Community approach also tries to shift us away from over-reliance on government for emergency management by bringing in the private sector as well as non-profits like the Red Cross, Salvation Army, VOADs, and other response organizations. It also involves the faith-based community, which he said must have a seat at the table. Almost every community in this country has some place of worship and they know the community members, including needy residents. He pointed out that almost every house of worship includes a food pantry so they're often already connected with residents with limited resources who are likely to have significant post-disaster needs. Those people trust their spiritual leaders so why wouldn't emergency managers include them in planning?



Turning to the importance of establishing working relationships before they're most needed, Mr. Serino quoted the old saying, "you don't want to be exchanging business cards at the scene of a disaster." It's not just about business cards, he said; it's about developing a relationship, trust and understanding of what that community needs. How many languages are spoken? Who do people trust? Building those relationships in advance makes a key difference during a crisis. For example, he described working with the faith-based community in Boston many years ago to address gang violence. That made a difference not just in the violence but years later when concerns



## More from Richard Serino

In an afternoon workshop on implementing the Whole Community approach Mr. Serino made these points:

- Dwight D. Eisenhower once said that even though they spent years working on the plan for D-Day no one would remember the actual plan. But that didn't matter because they had worked on it and understood what was in the plan. Plans are a guide which includes communication.
- The most important thing is developing relationships and trust in advance. Pick up the phone, send a text message and invite someone to meet over coffee. Building relationships isn't difficult if you're going in for the right reasons and you're willing to listen to what the other person needs, not just what you want to offer.
- On being survivor-centric: Put yourself in the survivor's shoes everywhere you go. For example, after Sandy they sent FEMA Corps students into neighborhoods to register people on iPads. That took a third the time of earlier registration methods and allowed FEMA to provide resources on the spot like electronic fund transfers and authorization for temporary housing so survivors never had to go to a shelter.
- It's essential to go to impacted neighborhoods and talk to people face to face. Whenever possible include people who understand the language and the culture which will change how people interact with your agency.
- What we do in terms of recovery, response, and preparedness is disproportionate. So much of our preparation is for response but by far most dollars and time go to recovery and rebuilding. Giving more attention to recovery will entail improving preparedness.
- Afteraction reports are usually so sanitized they make us unable to learn real lessons from a response – but the hotwash immediately after the event can give more useful information.
- We have to adapt to what the public is going to do including how they choose to use social media. We can't expect to impose our plans (i.e., a predetermined hashtag to centralize information exchange on them).
- Keep mass messaging as simple as possible. Everyone says you want one spokesperson but he disagrees: You want one message, multiple spokespersons, and many different media. But don't be naïve enough to think that the message you'd like to send out is the message that people are going to hear, or pick up and retweet.

during the pursuit of the bombers almost everyone followed what the governor and the mayor said without complaint. People listened, people trusted because people had relationships.

Beyond those professional relationships, Mr. Serino pointed out that including survivors themselves is probably the most important element of the Whole Community team. For years he said, "we looked at the public as a mouth to feed, someone to give blankets and shelter to when we should be viewing the public as an asset, not a liability". Why not flip that and make them part of the team just as we've shifted to calling people "survivors" rather than "victims" of disasters? Involving the public in preparedness and especially in the response phase makes a huge difference.

Finally, Mr. Serino described FEMA's shift to a "survivor-centric" approach as an agency imperative. That means looking at the process through the survivors' eyes and making it easy for them, not easy for the government. That includes changes like streamlining registration processes at Disaster Recovery Centers (DRCs) so people don't need to repeat their stories multiple times. Some of these ideas are coming from students in the FEMA Corps and are modeled on sources like the experience at Apple stores. When you make it easy for the public that's when you can start to communicate – which is common sense but hasn't always been done in the past. In a crisis, he concluded, listening matters.

about flu began in 2009 they were able to use those relationships to connect with people who they otherwise would not have been able to reach. Strong professional connections across agencies and extensive preparations were also activated during the response to the Boston Marathon bombing. Mr. Serino said it was no accident that people listened to each other or that everybody that left the scene alive is still alive. That came from years of preparations and of people knowing and trusting each other to make decisions and that came out in how officials communicated with the public. It was a horrible week he said, but when residents were asked to shelter in place

## Adaptation: Superstorms, Climate Change, and the Future of Cities

The second speaker, Eric Klinenberg, Ph.D., is a Professor of Sociology, Public Policy, and Media, Culture and Communications at New York University. His talk brought together conclusions from his book *Heat Wave: A Social Autopsy of Disaster in Chicago* and his January 2013 New Yorker magazine article, "Adaptation," which examined the idea of "climate-proofing" cities. Dr. Klinenberg began by addressing the need to think differently about cities and communities as we enter a moment when climate is different than before.

An early example was the extreme weather in Chicago in the summer of 1995 when the temperature hit 106 degrees, and high humidity that lasted 2 to 3 days meant that the heat index (people's experience of heat hit 126 degrees). The heat wave had been predicted but because it wasn't a dramatic event like a hurricane it received very little media attention.

The heat caused city residents to use more air conditioning which made it very difficult to maintain the power supply. A record was set for energy consumption so the grid started failing and several hundred thousand homes lost access to power. At the same time many lower-income households didn't have access to air conditioning or couldn't afford to run it so people opened fire hydrants for relief. When the power failed the city lost the ability to pump water to buildings so many homes lost running water. Roads literally buckled from the heat leading to gridlock; among those stranded were children on buses that were not air conditioned en route to day camps. Hospitals were



so overwhelmed with heat-related ailments that half of the emergency departments went on bypass status sending ambulances back into the gridlocked streets. Compounding the problems many city authorities were away on vacation and those left in charge were not familiar with the existing heat emergency plan. As a result, the plan was never implemented and a heat emergency was never declared.

The result was 739 deaths in excess of normal for that week. Many who died were elderly or had mental illnesses so they had impaired temperature regulation and understanding. Dr. Klinenberg points out that this was almost the death toll of Hurricane Katrina and far higher than Sandy yet the event is barely remembered – it was an "invisible disaster." Though an after-action report was written its lessons were not widely disseminated so there was a similar outcome in the 2003 European heat wave which also disproportionately killed elderly and poor people.

Indeed, Dr. Klinenberg said, "Heat waves harvest the poorest and most vulnerable people around, many of them very isolated." Chicago prides itself as the city of neighborhoods, but hundreds of people died alone and were not found for hours or days. This sheds light on changing patterns in the United States including an increase in our aging, isolated, and vulnerable populations. Not only has the climate changed but so has the pattern of how we organize our lives and our communities which poses new challenges for those in this field, especially the intersection of vulnerability with mental health issues.

The strong correlation between race, poverty, and mortality during the Chicago heat wave was unsurprising, Dr. Klinenberg acknowledged, but important to recognize because it counters any belief that natural disasters impact everyone equally. His research also identified disparities between equally poor neighborhoods. In some, the earlier dense social infrastructure had been depleted following the loss of blue-collar jobs so there were many abandoned buildings, overgrown lots sheltered drug dealers and elderly people were afraid to go outside and seek companionship. These

neighborhoods foster isolation as opposed to more densely populated neighborhoods that allow more interaction. As a result, the strongest correlation wasn't between poverty and mortality but between depopulation and mortality. Regardless of type of disaster Dr. Klinenberg said, social connectedness can mediate the impact. Do you have a neighbor who can check on you and get you help, water, to the hospital? That's what makes the difference between life and death.

He then turned to the infrastructure weaknesses Hurricane Sandy revealed, especially around New York City:

- Power lines are above ground and surrounded by trees, so they're very vulnerable to outages;
- Subways filled up like bathtubs because their infrastructure was built for a different planet, a different climate; and
- Many NYC hospitals are located in a flood plain and had backup systems located in their basements.

All of these failures demonstrate that we need to rethink zoning and where we place vital systems. Technology can help but not if the power is out and cell towers are down. When you need technology most is when it's least likely to be available.

Dr. Klinenberg then asked can cities be climate-proofed, meaning made immune to weather hazards? Of course the answer is no, unless you could completely seal a city off – but we can adapt. Billions of dollars have been spent engineering systems to keep water out of cities like New Orleans, Rotterdam, Venice, London. Something similar could be done in New York City but where would that excess water go? How high do you have to build a sea wall knowing sea levels will continue to rise? Burying power lines is extremely expensive but is it a worthwhile investment if it prevents costly repairs post-event? Could climate-adaptive changes actually enhance quality of life or would they be purely defensive like security features added after 9/11? In short, if we can't armor cities against water how can we accommodate it?

Part of the problem is that people love water and want to live near it so we've built homes close to the coast wherever we possibly could, including where we shouldn't have. This means that places like the Rockaways – which geographically are a barrier island – went from a neighborhood of beach shacks to real houses and apartment buildings. Now that we recognize the problem the debate is how to handle relocating.

Dr. Klinenberg then described some post-Sandy examples of the Whole Community approach in action including a Rockaway surf club and a Redhook Youth Center that spontaneously became community-based and citizen-driven response operations that demonstrate the value of social infrastructure in dealing with the weather to come. He concluded by noting that adapting in a lasting and meaningful way can't be done one building at a time, though you have to start somewhere. For these kinds of projects to succeed they need to spread through the community, city, state, and nation. Ultimately we're going to end up there as we don't have a choice; it's just a question of whether we get there in time.

## Survey Invitation

### Share Your Views on Warnings

Related to the conference focus on communications in times of crisis, IDMH would like to tap into YOUR experiences with disaster warnings and other challenging forms of emergency communications by asking you to participate in a brief online survey. This survey has been approved by the SUNY New Paltz Human Research Ethics Board and will take approximately 10 minutes to complete. Participation is anonymous and completely voluntary and can be terminated at any time; results will only be reported in the aggregate with no identifying details. If you have questions or complaints about the survey, please contact Karla Vermeulen of IDMH at 845-257-2333 or [vermeulk@newpaltz.edu](mailto:vermeulk@newpaltz.edu), or the Human Research Ethics Board at [hrebchair@newpaltz.edu](mailto:hrebchair@newpaltz.edu). We'll report the results in a future issue of the New York DMH Responder. To participate in survey please go to: <http://tinyurl.com/WarningSurvey>



## Information to the Rescue

It's probably a safe assumption that anyone who deals with the public has struggled to figure out how to integrate social media into their communications strategy. The next speaker was someone who is immersed in that constantly evolving challenge: Wendy Harman, the Director of Information Management and Situational Awareness, Disaster Cycle Services, for the American Red Cross. She began by saying that the name of the conference is "Why Don't People Listen," but she bet that if members of the public were to organize their own event they might be asking why institutions don't listen. Recognizing that gap, the goal of the Red Cross social media strategy was to set themselves up as listeners. That includes always trying to erase the line between what it means to be a Red Crosser inside the institutional walls and a regular resilient human being outside of those walls.

She provided some examples of this strategy in action. When a tornado touched down in suburban Maryland her staff started monitoring Twitter and saw a tweet from a woman who wrote "I'm babysitting three kids and the tornado sirens are going off and I have no idea what to do." That was one of the first times the Red Cross realized they could provide just-in-time help when someone needed it. They responded to her to "Calmly bring the children into the basement, bring a flashlight, put some shoes on them, you're going to be fine. If you take those three actions you're making all the best decisions you can make at this time." In addition to the practical advice they've learned that providing a bit of confidence for people can be very helpful.

Another trend Ms. Harman said they've seen among the public is dark humor in response to disaster warnings, like tweets referring to grabbing a bottle of bourbon on the way to the basement during a tornado. Rather than trying to squelch those messages a Red Cross response might be something like "That's great you're going to the basement – don't forget your flashlight and some thick-soled shoes as well and keep in touch with us." They also recognized that during disasters people were using social media not only to try to get information but as a way to feel connected to others in similar situations – something the Red Cross tries to encourage and to use as a way to suggest citizens watch out for each other.



Ms. Harman noted some shift away from public reliance on an official response system: "We're living in a time when people don't necessarily need institutions and infrastructure to solve discrete problems so at the Red Cross we've had to go through a transformation of imagining what is the role and the niche we're going to be playing if it isn't going to be that mass care over a long period of time." Mass care and feeding and giving comfort to people is always going to be very important but they're now trying to examine the opportunities provided by all of the people who want to be doing that work before an event happens.

Given the public's essential need for information before, during and after disasters she noted that the Red Cross's goal is to offer the right information, to the right people, at the right time, in the right format. "We're decent at this as an institution but even the Red Cross's voice is tiny amid the social web response to any disaster – which often includes the spread of misinformation." So, a goal of Red Cross social media strategy is not to be a sole source of news and guidance but to form connections among sources in order to enable people to have access to accurate information to share with their networks. What matters isn't that information is coming from the Red Cross but that it's trustworthy and helpful. That approach also builds

## More from Wendy Harman

In her afternoon workshop, *How to Become a Digital Humanitarian*, Ms. Harman suggested that people have three typical reactions to new information:

1. Totally simplify the message so it's not quite accurate;
2. Stick with old wives tales or currently held beliefs; and
3. Believe incorrect or conflicting information because they trust the source (such as a good friend

And they ask three questions:

1. How do I get help?
2. How can I stay safe?
3. How can I help my neighbors?

The first two are easy to respond to but sometimes the “crushing abundance” of voices in the third group becomes so loud it's hard to hear the voices of survivors. However, that's actually an opportunity to enlist aid.

Ms. Harman also offered these social media dos and don'ts:

- **Don't be trigger happy** – don't react before reflecting and doing

some research. “While we want our Digital Volunteers to be fast we don't want them to be wrong,” she said. The Red Cross trains them to stay calm, not get defensive and to use judgment in what they spread;

- **Traditional marketing and PR approaches don't work in social media.** Don't use corporate talking points; messages must reflect the person's own voice;
- **Digital Volunteers must disclose they're with the Red Cross** so the organization can't be accused of “astroturfing” – fake grassroots communication that's likely to backfire;
- **Time and date stamp all time-sensitive information** so outdated news is less likely to be spread after it's no longer useful; and
- **Spread information from authoritative sources** to help strengthen the collective message.

corner of First and Main” but “This wind is fierce!” It's much more emotional in nature. That makes it harder to recognize opportunities to offer tangible advice about preparedness and response, though it does fit the Red Cross mission of offering hope and comfort on people's worst days. Recognizing that potential, the ARC has created a Digital Volunteer role, training people to become part of the voice of the Red Cross in responding to social media messages. Digital Volunteers are taught not to react immediately to individual messages but to take a moment to look at the poster's past messages, to question the validity of information before passing it along. Ms. Harman said they've learned that self-care is required for Digital Volunteers just as it is for people on the ground. Even though they're not physically at a disaster site they may be exposed to thousands of sad messages over the course of a four-hour shift so it's essential that they know how to recognize signs they need to step back a bit.

Finally, Ms. Harman discussed the difficulty of crafting effective preparedness messaging that people won't tune out. Perhaps, she suggested, the framing needs to shift from the number of home fires that do occur annually and the losses they cause to the number that are prevented by appropriate use of smoke detectors and other preparedness actions. She proposed normalizing the idea of being prepared: “Advising people to have a plan is like telling them to save for retirement, no one wants to think about it. But if the message is flipped so people hear ‘Oh, 16 people in my region were able to safely get out of their homes last week because they had a plan,’ it becomes the normal thing to do.”

connectedness, something Ms. Harman noted is linked to resilience: “The social web works in a similar way to neighborhood connectedness, often with the added ability to reach isolated individuals.”

Returning to the bidirectionality of social media Ms. Harman pointed out that organizations need to learn to go beyond using these formats to push messages out and to recognize them as tools for collecting information from the public about their actual needs, and then integrating that information into the response. For example, after Hurricane Sandy her team was monitoring tweets and other messages from people in impacted areas and passing that information onto Red Cross teams on the ground, sometimes resulting in a direct response to a stated need. Of course, that raises questions about whether that kind of individual response fits the Red Cross mission that generally focuses on collective needs, but it does allow the organization to increase direct human connectedness. They also recognize that not everyone has access to this form of communication so it clearly isn't a replacement for the response on the ground but a valuable supplement.

That said, they've learned that human beings don't talk the way organizations think they will: The message they share is not “There's a tree down at the

## The Media and the Madness: Is Rome Really Burning?

The final presentation examined the role of the mass media in communicating with the public around disasters and why the media's goals may differ from the emergency response community's goal. The speaker has experienced all sides of that divide, having worked as a television meteorologist and a spokesperson for a governmental agency as well as being an academic and consultant. Lou McNally, Ph.D., is a Research Assistant Professor at the Climate Change Institute, University of Maine at Orono, Maine, and Assistant Professor of Applied Aviation Sciences at Embry Riddle Aeronautical University. He discussed five reasons why people don't listen to emergency communications:

1. **Because they're confused:** The terminology used in warnings is unclear or unfamiliar to the public including the difference between "advisories" and "warnings," and "severe" versus "significant" weather advisories. Additionally, some terms have different meanings depending on location. For example, a "red flag warning" in our region means a high fire risk while in Florida that indicates the presence of sharks near the beach. This means that even when people do receive a message they're often unable to interpret the level of threat accurately.
2. **Because they don't know where to go for information:** The National Weather Service is the only public or private agency that's officially tasked with issuing warnings, while thunderstorm and tornado watches are the responsibility

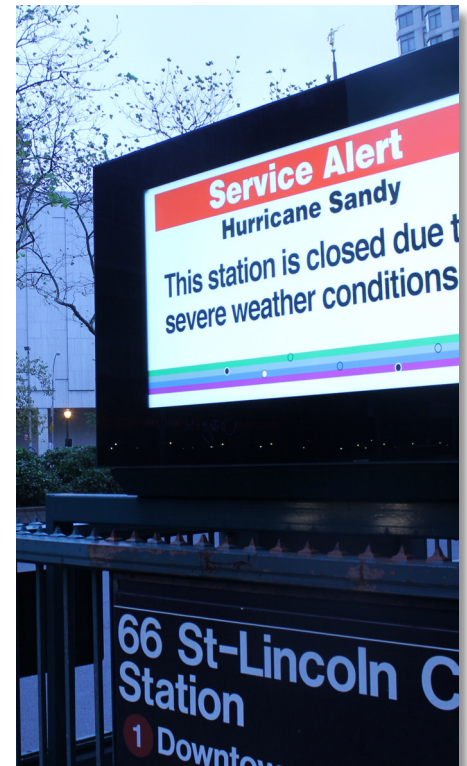
of the Storm Prediction Center and rain and snowfall amounts are issued by the Weather Prediction Center. Other agencies have highly specialized roles in issuing guidance and it may take time for any information to be disseminated through the media to the public.

3. **Because they don't know who to believe:** In terms of end users of weather information television is by far the most popular source.

However, television meteorologists have limited access to National Weather Service data. Emergency managers, on the other hand, do have direct access to National Weather Service data but fewer options for disseminating that information to the public. So, people are coming to the media looking for information but the data needed for accurate forecasts is not going to the media, or at least not immediately. Yet weathercasts are a major driver of ratings for television stations which in turn generates revenues so stations emphasize reporting on weather despite the lack of accurate data. There's also a tendency to sensationalize or inflate reporting of weather events, especially when not much else is happening to attract viewers. Compounding the issue, television meteorologists don't need any kind of license or credentials so their credibility varies widely.

Another issue Dr. McNally raised is a disconnect between the weather cycle and the news cycle. Many weather events can be predicted far in advance of arrival and that is when warnings about protective action would actually be useful. But they don't become the big story until they're actually occurring and it's too late for viewers to follow warnings. Then they remain the top story until they're replaced by something newer at which point attention to the ongoing recovery disappears. Station policies also may drive access to critical information depending on whether they require program interruption to broadcast warnings and watches.

4. **Because their memories are different:** Experience is a major influence on risk perceptions. Meteorologists regularly compare an upcoming event to a "reference storm," a specific past disaster but this approach doesn't register with newcomers to an area or others who didn't experience it directly. This is a particular issue in coastal areas that regularly receive new influxes of retirees who don't grasp the significance of the reference storm. Recent memories also have a strong influence on reactions. Generally if the last storm was powerful people will over-react to a new warning (like the response to Hurricane Rita a few weeks after Katrina). If





## Research Brief: How Does Your Website Rate?

While social media is becoming an increasingly important tool for messaging many adults still rely on websites to acquire information about health, mental health and emergencies. Back in 1999, government researchers Kim, Eng, Deering, and Maxfield collected information from 29 different assessment tools to rate the effectiveness of health-based websites. They found the following elements were the most important to users:

1. **Content of site:** quality, reliability, accuracy, scope and depth;
2. **Design and aesthetics:** layout, interactivity, presentation, appeal, graphics and use of media;
3. **Disclosure of authors, sponsors, developers:** identification of purpose, nature of organization, sources of support, authorship and origin;
4. **Currency of information:** frequency of update, freshness of data and maintenance of site;
5. **Authority of source:** reputation of source, credibility and trustworthiness;
6. **Ease of use:** usability, navigability and functionality;
7. **Accessibility and availability:** ease of access, fee for access and stability;
8. **Links:** quality of links and links to other sources;
9. **Attribution and documentation:** presentation of clear references and balanced evidence;
10. **Intended audience:** nature of intended users and appropriateness for intended users;
11. **Contact addresses or feedback mechanism:** availability of contact information and contact address; and
12. **User support:** availability of support and documentation for users.

Current research suggests that the websites of health agencies (Fallon, Schmalzried, & Hason, 2011), emergency management offices (Schmalzried, Fallon, Keller, & McHugh, 2011), American Red Cross chapters (Schmalzried, Fallon, & Harper, 2012), and local law enforcement (Stinson, Liederbach, Fallon, & Schmalzried, 2014) are missing many of these elements that could be crucial in disseminating information. How does your organization's site compare?

Source: Kim, P., Eng, T.R., Deering, M.J., & Maxfield, A. (1999). Published criteria for evaluating health related web sites. *British Medical Journal*, 318, 647-649.

the last one was mild people tend to under-react. This was clearly seen in many residents of the New York City area who largely dodged the effects of Hurricane Irene and then didn't prepare adequately for Sandy.

5. **Because they didn't hear the warning:** Dr. McNally recommends that everyone get a weather radio, get it tuned properly, get extra batteries, and leave it on.

He offered a number of solutions to these problems. First, the National Weather Service must find ways to reach geographically and socially isolated populations including those within metropolitan areas who may not have access to traditional warnings. That means not only developing targeted social media strategies but also using community-based resources like houses of worship and other social organizations. They also need to start treating media as their most efficient and important outlet for quickly reaching a wide audience. For disaster managers private meteorological support can provide more tailored and timely predictions than the National Weather Service currently offers.

To build trust in the media broadcast meteorologists need to develop a consistent practice in gauging the importance of warnings so that when they're disseminated they're always perceived as important and are not

dismissed as likely false alarms or exaggerations. That includes developing a better way of communicating the strength of tornado predictions. And media outlets need to be consistent in the attention paid to weather events so they're not hyped during a slow news cycle but ignored when other events are being featured.

Dr. McNally concluded by noting that new, extreme weather patterns are emerging globally at an unprecedented rate and that emergency managers who are using current climate data and history for planning purposes are not going to be ready for the future as that data is off by an order of magnitude.