

How to Get the Message Out

Understanding All of Your Communication Channels and When to Use Them

Chapter Objectives

- Describe how Media Richness Theory can guide the selection of communication channels.
- List two secure messaging systems used by public health agencies.
- List at least three internal communication channels that support collaboration.
- List at least three external communication channels that support public information.
- Describe how to organize a media briefing and town hall.
- Compare and contrast media channels, public alerting systems, mass communication channels, and digital media.
- Describe three ways to improve websites for emergencies.
- Describe the benefits and challenges of using social media.

Chapters 3 and 4 discussed identifying audiences, stakeholders, and partners who will be impacted by or involved with a health emergency response. In this chapter, the focus is on how information will be transmitted or disseminated to these various audiences through communication channels. Just as each audience group has its own information needs, identifying the best method to get information to each group is a critical part of emergency risk communication. This chapter will identify communication channels for transmitting information and highlight their corresponding tactics or communication products. In this way we identify the channel that could be used and also the corresponding tactics or communication products that will be need to be implemented to make use of that channel. For example, a media briefing or media interview is a communication channel, and the corresponding tactics or communication products are talking points. Another example is a website or web page communication channel, and the corresponding communication tactics or communication products are web page text (e.g., key emergency risk messages), data dashboards, and other relevant images.

Just as emergency risk communicators categorize audiences by identifying specific variables or characteristics about them, a similar process is used for channel selection. This process is guided by Media Richness Theory, which provides a helpful way to understand communication channels and their strengths and weaknesses for transmitting information.^[1] There are four components outlined to aid in channel selection: the flow of information back and forth between the message sender and receiver; the inclusion of text and multimedia, including video, images, charts, and graphs; language variety; and personal focus.^[2]

Table 5.1 Using Media Richness Theory to guide channel selection

Consideration	Media Richness Theory component
Is the audience internal to the agency or external?	Flow of information, language variety
Is feedback needed?	Flow of information
How much interaction is needed with the audience?	Flow of information, personal focus
Does the information need simply to be transmitted or transmitted and stored?	Flow of information
Does the channel need to transmit only text or do images, videos, and web links need to be included?	Inclusion of text and multimedia
Does the channel need to be private or password protected due to the sensitivity of the information that is being shared?	Flow of information
Does the channel provide a sense of personal connectedness?	Personal focus

Using Media Richness Theory, the questions in Table 5.1 can be used to aid in channel selection for communicating health information.

Much like a communications audit conducted to identify communication materials and decide on whether new materials need to be created (see Chapter 2), channel selection provides an opportunity to match the appropriate channel to the audience. This supports the purpose of emergency risk communication of getting the right message to the right audience at the right time.^[3,4] The following sections outline the variety of communication channels and their corresponding tactics used in health emergencies and other types of emergency responses.

Internal Communication Channels

For the purposes of this book, internal communications focus on two components:

- 1 Employees of the health agency responding to the health emergency
- 2 Other health and government agencies involved in the emergency response

This distinction is important because of the secure messaging systems that are used by government agencies solely for information-sharing purposes, as outlined in PHEP Capability 6: Information Sharing. This section will look broadly at internal communications by first discussing secure alerting systems that federal and local health agencies use to communicate health information to government agencies and health care partners. We will then discuss business collaboration tools that are used to communicate with employees.

Secure Alerting Systems

Within the public health system, there are two specific communication channels – or secure messaging systems – that are used to communicate outbreak information between federal, state, and local health agencies. These are the Health Alert Network (HAN) and the Epi-X (the Epidemic Information Exchange).

Health Alert Network

The HAN is a secure messaging system used by federal, state, and local health agencies. The US Centers for Disease Control and Prevention's (CDC) HAN is CDC's primary method of sharing cleared information about urgent public health incidents with public information officers (PIOs); federal, state, territorial, tribal, and local public health practitioners; clinicians; and public health laboratories.^[5]

Information shared through CDC HAN includes protocols and information about emerging health situations. There are three types of HAN messages:

- *Health Alert*: Conveys information of the highest level of importance about a public health incident.
- *Health Advisory*: Provides important information about a public health incident.
- *Health Update*: Provides updated information about a public health incident.

Under the federal HAN umbrella, state and local officials can also disseminate their own alerts to state and local partners.^[5] The HAN is important because it provides a secure channel by which health departments can alert and warn partner agencies and health care systems about an emerging situation, asking them to notify the health agency if they see any suspect cases that might be related to the emerging situation. It provides an opportunity for information coordination and consistency from the health agency to multiple agencies and health care systems about an emerging or ongoing situation. The HAN is a one-way communication tool and does not provide interaction between agencies.

The communication tactic or product association with HAN is an alert message. The following is text from a sample HAN message that could be sent via HAN to health care providers regarding an emerging smallpox threat.

Scenario 1 Sample alert message for healthcare providers in an area without any cases of smallpox

On [date], the US Department of Health and Human Services (HHS) confirmed that [#] individuals in [city] have been confirmed to have smallpox. At this time, there are no suspected, probable, or confirmed cases within [area name].

We do not know the extent or the source of the smallpox outbreak. Local, state, and federal officials, including public health and law enforcement, are working together to find these answers. They will update you as they learn more.

Smallpox is a serious, life-threatening disease. There are no medications to cure smallpox, though medical care may help manage some of the symptoms. There are vaccines for smallpox. When given before exposure to the smallpox virus, vaccination can prevent the disease. When given within several days of an exposure to the virus, vaccination may prevent a person from developing smallpox, or may lessen the severity of disease.

The [public health department] recommends that all medical providers and first responders in [area name] review the information for diagnosing and treating smallpox found on the Centers for Disease Control and Prevention (CDC) website at www.cdc.gov/smallpox. This website also provides information about the smallpox vaccines, vaccine administration, and vaccine adverse events.

If you suspect a patient has smallpox, contact [local public health department] at [phone number] immediately for consultation. Follow guidelines for standard, contact, and airborne precautions to protect healthcare workers and other patients. If smallpox is diagnosed in the area, CDC will make the vaccine available.

[Public health department] will update the public and medical communities as the situation changes or more information is known. Contact [public health department] at [phone number] or for more information.^[5]

Epi-X

Created in 2000, Epi-X is a secure network maintained and managed by CDC. Epi-X is primarily designed for epidemiologists, poison control centers, federal agencies, and other public health professionals involved in identifying, investigating, and responding to public health threats. It facilitates rapid reporting, immediate notification, editorial support, and coordination between public health professionals during public health investigations.^[6] For example, events reported and shared on Epi-X include the 2002 West Nile Virus outbreak, the 2006 *Fusarium* keratitis outbreak, the 2009 H1N1 influenza outbreak, the 2014 Ebola outbreak, and the 2016 Zika virus outbreak. In contrast to the one-way channel of the HAN, Epi-X is designed to be a secure channel that allows for information-sharing and collaboration regarding emerging outbreaks and health threats.^[7]

Epi-X is relevant to emergency risk communication because it provides a channel for rapid information-sharing across multiple jurisdictions to support nationwide disease tracking, investigation, and response as soon as officials detect a disease outbreak. “Epi-X was created to provide public health officials with a single source of up-to-the-minute alerts, reports, discussions, and comments – contributed by their peers, and moderated by Epi-X staff at CDC. The network’s primary goal is to inform health officials about important public health events, to help them respond to public health emergencies, and to encourage professional growth and exchange of information.”^[6]

Partners who can participate in Epi-X include federal agencies such as CDC, the Department of Defense, the Department of State, the Department of Homeland Security, the Environmental Protection Agency, the Food and Drug Administration, the Department of Health and Human Services, the Department of Agriculture, and the Federal Emergency Management Association; state and local health departments; partner organizations; the American Association of Poison Control Centers; the Association of Public Health Laboratories; the Association of State and Territorial Health Officials; the Council of State and Territorial Epidemiologists; the National Association of City and County Health Officials; the National Association of State Public Health Veterinarians; and the Mexican and Canadian governments.^[7] Private health practitioners are not given access to Epi-X unless they hold a government position.^[8]

Epi-X is an important tool for emergency risk communication as it allows epidemiologists to gather and share information about an emerging threat with other health officials. This type of information-sharing can help identify potential links between cases across state lines and even across international borders. Epi-X can enable more robust investigation into the source of the outbreak as health officials work together to better understand the symptom profile, potential source, and risk factors related to the health threat. It can also help health officials with critical decision-making related to emergency response operations. For example, once the information from Epi-X is confirmed, that information can be used to alert the public about the health threat through public communication channels such as news media, social media, GovDelivery, and partner agency newsletters.

The communication tactic or product for Epi-X is a report. Such reports are used to seek cases of an infectious disease by including key information on what is currently known and by asking other epidemiologists for information and feedback.^[8]

Hospital and Healthcare Information-Sharing

In addition to sharing information from emerging outbreak investigations, public health departments and emergency management coordinate with hospitals to determine the availability of hospital resources through an electronic database system.^[9,10]

In Oregon, public health departments and hospitals coordinated efforts to develop the Oregon Capacity System, which was previously called HosCap. The intention of the system is to track hospital resources such as numbers of beds and ventilators. The system does not collect any patient-identifiable data. The primary benefit of this system is that it provides almost real-time data instead of requiring manual data entry. In Oregon, collaboration was achieved with nearly all institutions in the state, representing 90% of Oregon's hospital beds on the standardized, automatically updated electronic tracking dashboard.^[9]

Another private-sector resource system used by health agencies and emergency management is called EMResource.^[10,11,12] EMResource also tracks hospital beds, hospital and emergency medical services resources, and other emergency response data. In the United States, various states have adopted and implemented EMResource. For example, in Texas, emergency management monitors real-time communication to enhance responses to daily medical emergencies.^[10] EMResource is used by health care, public health, first responder, and other government agencies. This system is utilized to monitor and provide notification of changes in resource statuses such as diversions, emergency operations center activations, resource availability, and other information. In Indiana, the data inputted into this system provide the Indiana Department of Health and health care coalitions with up-to-date information on capacity and needs.^[11] EMResource is a tool to optimize communication and expedite patient care among health care facilities, public health, emergency management, and first responders. In Wisconsin, seven health care emergency readiness coalitions (HERCs) use EMResource to support hospital and emergency response information-sharing.^[12] The data requested in EMResource are used to provide real-time updates on health care capabilities on a local, regional, and state-wide level. Through EMResource, partners can:

- Send time-sensitive alerts
- Review hospital diversion statuses
- Determine bed availability
- Share available resources to assist hospitals in need

The communication tactics EMResource or other hospital resource management tools include dashboards and graphs. These dashboards and graphs can be shared during partner webinars and meetings to provide situational awareness and support resource management and to support decision-making regarding health emergency operations.

Business Collaboration Channels

As outlined in Chapter 2 as part of Crisis and Emergency Risk Communication (CERC) planning and public health emergency preparedness (PHEP) Capability 4: Public Information and Warning, the crisis communication team needs to identify and use a

notification system to inform staff and crisis communication team members of an emerging health emergency that will need crisis communication support. The notification system can use different communication channels such as business email or business text notifications. The following subsections outline how these internal notification systems can have multiple functions to support internal communication for public health departments.

Project Management Tools

To coordinate information-sharing with and among health department staff, a variety of methods can be used. Twenty years ago, whiteboards were used in small rural county health departments' conference rooms to communicate key updates and messages to employees about a meningococcal outbreak. Now there is a plethora of project management tools that can be used to store and share information internally with employees. Project management tools can also help you to organize emergency response operations, store key documents, and communicate with response operations staff. Many government agencies use Microsoft Office Suite as a tool to manage emails and documents and to support business administration.

SharePoint can provide a space for all employees to receive updates, share key messages on what information they can share with public, and identify what is going on in real time. Leverage SharePoint to create a space for internal updates about an emergency with health department staff. Emergency response staff will use secure and restricted files as working documents associated with an ongoing emergency.

Communication tactics or products associated with internal communications include status updates on the emerging health threat, key messages for the public, and points of contact for emergency response activities.

Microsoft Teams

During COVID-19, many government agencies and private health care systems needed to learn how to continue operations but adhere to the recommended physical distancing measures to mitigate the spread of the coronavirus between coworkers. In London, the National Health Service adopted the use of Microsoft Teams to support internal and external communications.^[13] The National Health Service used Microsoft Teams in the following ways^[13]:

- To deliver medical education sessions virtually, avoiding the need to meet in person
- To host non-face-to-face multidisciplinary team (MDT) meetings (e.g., lung cancer MDT meetings)
- To host frequently updated documents (e.g., staff rosters)
- To facilitate large group discussion forums (e.g., COVID-19 Journal Club)
- To collaboratively edit shared documents (e.g., research papers)
- To share data quickly using instant messages (e.g., oxygen usage in different wards)
- To host virtual meetings (e.g., board meetings)
- To broadcast live video streams (e.g., chief executive briefings)

For emergency risk communicators, using Teams represents a way to provide internal communications to health department employees. Having an informed workforce helps support emergency communication by ensuring all employees are sharing the same information, thereby improving message consistency.

The communication tactics or products associated with Microsoft Teams include creating a dedicated channel for questions and updates about the emergency response, weekly 15-minute “stand-up” meetings for all staff to update them on the emergency, or brief status updates or videos from the public health director or incident commander about the emergency.

Webinars and Conference Calls

Additional internal communication channels that help support the flow of information internally to employees and others in the public health system are webinars and conference calls. When done effectively, these channels can enable the sharing of key information and facilitate interaction between the message sender and the message receivers. The key to webinars and conference calls is to balance the amount of information that is shared, identify what is new information since the last time you met, and allow for people to ask questions.

During COVID-19, a study was conducted to determine the effectiveness of webinars for sharing information with hospital staff.^[14] The webinars were used to educate clinicians about changes to clinical practice during health emergencies. Survey participants expressed dissatisfaction stemming from multiple potential issues. These included overall poor webinar quality, the repetition of information in multiple webinars, and a lack of sufficient tailoring of information to each audience.^[14]

The study offered three lessons to be learned on how to make webinars more effective. First, planning through cross-agency coordination is necessary for communicating webinar topics and schedules and so avoiding repetition and scheduling conflicts. Second, content needs to be tailored appropriately to each intended audience. Third, webinars need to be more interactive.^[15] The study’s authors suggested four ways to improve interaction: allowing for questions to be asked throughout the webinar and not just at the end; providing live conversation or chat with the presenters instead of just sharing prerecording webinars; leveraging social media platforms to extend the interaction beyond the webinars and to post key highlights; and using a poll at the end to rate the webinar and reviewing the knowledge gained by attendees, their interests, suggestions, and challenges faced, which may help organizers to improve webinars in the future.^[15]

Webinars require more communication tactics or products than conference calls. For webinars, visuals will be included, such as speaker notes, slide decks, graphics, and charts. Speakers will also need a set of talking points and interactive questions to ask the audience. Organizers should ensure that a webinar host is able to post a polling question at the end of the webinar for feedback. It is also helpful to share the slide deck after the webinar or post it in a shared document repository where everyone will have access to the information.

For conference calls with large groups of people, which tend to be audio-only, the onus is on the speaker to reinforce key information that was shared during the conference call. For conference calls with smaller groups of people, it is helpful to identify who is on the call, who is taking notes, and who is responsible for sharing these notes

Zoom Fatigue

During COVID-19, government agencies, businesses, educational institutions, and health care providers were forced to move services online due to physical distancing

requirements.^[16] As a result of moving services and daily organizational operations online, people began to develop and experience “Zoom fatigue.”

Zoom fatigue is defined as “somatic and cognitive exhaustion that is caused by the intensive and/or inappropriate use of videoconferencing tools, frequently accompanied by related symptoms such as tiredness, worry, anxiety, burnout, discomfort, and stress, as well as other bodily symptoms including headaches.”^[17]

Assessing Zoom fatigue through media naturalness theory helps to us understand how cognitive exhaustion and somatic exhaustion emerge.^[17] First, as humans we are essentially hardwired to communicate by seeing and hearing each other. Zoom provides an opportunity for this, but ultimately, we do not achieve true eye contact via Zoom. To appear as if you are looking at someone on Zoom, you have to actually look at the camera, not the person.^[16] Second, communication often occurs in real time via a back-and-forth flow between people with the ability to convey and listen to speech. With videoconferencing services there can often be delays in transmission or poor network connections that produce asynchronicities. “If a delay is perceived during videoconferencing (even if this perception occurs subconsciously in the range of milliseconds), the human brain works harder and thereby attempts to overcome the issue of asynchronicity, which is accompanied by increased cognitive effort to restore synchrony. Moreover, this effect is likely accompanied by enhanced frustration and stress.”^[17]

Third, when communicating with another person we often look for cues through facial expressions and body language to check whether the other person is understanding us. For audio-only situations such as a phone or conference call, we listen for verbal cues or long pauses to check for message understanding. Zoom provides audio and video options, but, depending on the individual’s camera quality, lighting, camera angle, gaze direction, and whether they are sitting or not, it is hard to actually gauge facial expressions and body language.^[16]

Additionally, Canadian philosopher Marshall McLuhan famously wrote “... the medium is the message. This is merely to say that the personal and social consequences of any medium – that is, of any extension of ourselves – result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology.”^[18] In the context of Zoom fatigue, McLuhan’s words point to the consequences of new technologies for human interaction. Research on Zoom fatigue has highlighted that our brains are just not able to simultaneously cope with high information loads and electronic interaction.^[17]

Thus, the very architecture of the technology that connects us during a health emergency can actually cause more stress, anxiety, and cognitive fatigue. The mirror effect is another phenomenon that disrupts our natural communication flow with another person through Zoom, because with Zoom, in addition to face-to-face human communication with another individual, we are also in face-to-face communication with *ourselves*. Our brains have yet to catch up with these developments, meaning our brains are not yet sure how to process this change in face-to-face communication. Since we can now see ourselves while communicating, we are now conscious of our own verbal and nonverbal feedback, causing us to engage in more controlled mental processes. This additional mental control leads to increased use of attention and working memory, which ultimately leads to cognitive exhaustion and fatigue.^[17]

The pressures to multitask to complete tasks and deliverables during a health emergency are paramount. The emergence of videoconferencing as a main

communication tool, constant instant messages, multiple observers, and the mirrored self – essentially the feeling of being stared at by others and of staring at one's own self – add to the fatigue and stress felt by videoconference participants.^[17]

Information on Zoom fatigue has been included here because it points to two key factors for emergency risk communicators. First, public health emergencies can lead to stress and put pressure on the internal systems of a health agency to make decisions quickly in a context of uncertainty and unknowns and then communicate that information to the public, the media, stakeholders, and partners. Second, in a system that is already stressed, adding in Zoom and/or other videoconferencing tools can add to the stress and anxiety of those responding to the health emergency and those affected by it. The key takeaway here is to be aware and cognizant of potential information overload and to use Zoom and/or other videoconferencing tools effectively through clear meeting objectives, shorter update meetings, designating which meetings need to have participants' cameras on, and humanizing the experience for all involved. As we learn how to incorporate more technology into our workspaces, awareness of staff reactions to and willingness to adopt and adapt to using a new communication channel is important.

External Communication Channels

External communication channels are designed to inform audiences external to the agency and external to the emergency operations incident command structure. This section will include media relations channels, emergency wireless alerts, mass communication channels and digital and social media, and call centers and hotlines.

Media Briefings

Media briefings are created and organized by government agencies, organizations, and businesses to share a major news announcement with many members of the news media at once. Pre-COVID-19, most media briefings were held in person, but with the rise of streaming technology, online media briefings are now more common.

When organizing a media briefing, there are eight key steps to follow.

- 1 *Identify a location to host the media briefing.* If you are meeting at your agency's building, consider the size of the room, the accessibility of the room, lighting, audio, electricity, and Wi-Fi availability. If you are meeting online, consider what platform (e.g., Zoom, WebEx, Teams) and what meeting style (e.g., webinar, live meeting) you want to use. Next, consider the location where the spokesperson will give the announcement and consider camera angle, lighting, and audio. Specifically, you want to ensure that your spokesperson can be seen on camera with a professional background in a well-lit space that is free of external audio distractions such as barking dogs, construction work, sirens, etc.
- 2 *Identify team to support the event, including people and tools to support accessibility.* Managing a media briefing often requires a team including the media relations officer, the health emergency PIO, the spokesperson or spokespeople, tech support, and sign language interpreters. If your event is being held online, consider what tools are available to support closed captioning and ensure those tools are enabled on your account. A recent study of COVID-19 media briefings revealed that only 65% of countries across the world used a sign language interpreter.^[19] This figure was lower in low-income countries (41%) and Sub-Saharan African countries (54%).

Surprisingly, no international organizations, including the World Health Organization (WHO), had a sign language interpreter present during COVID-19 press briefings.^[19]

- 3 *Identify spokesperson or spokespeople.* Media briefings can be organized by one health department, but they may coordinate with other agencies to host their spokespeople as well. Hosting a coordinated media briefing ensures that each agency involved in the health emergency can provide an update on the key actions their agency is taking to support response operations. Ensure each spokesperson knows when to show up, where to go, and/or how to log on to the media platform.
- 4 *Review talking points and create visuals.* It is crucially important to take time with the spokesperson to review the current talking points and identify the key messages that need to be shared during the media briefing. Additionally, identify any visuals that may help communicate complex data or reinforce risk explanations. A study from the UK on visuals during health media briefings found that government officials included visual representations of data and infographic-style messages.^[20] Visuals can help convey information on policy decisions, highlight available resources, and explain health risks. The most commonly used visuals by UK government officials during COVID-19 included the number of UK cases, and the number of hospital admissions, deaths, critical care beds, and mechanical ventilators, and a colored alert system. There are three key lessons to be learned from the UK study that emergency risk communicators need to consider^[20]:
 - 1 Have a plan for visuals that will be on your website and that will be used during the press briefing.
 - 2 Ensure visuals convey the correct information, are easy to understand, and are accurate.
 - 3 Explain risk levels and health threats and do not leave any information up to interpretation.
- 5 *Prep the spokesperson.* Next, prep the spokesperson by engaging in a mock media briefing, and practice questions you know the media are likely to ask. Go through the approved talking points multiple times. Provide feedback on the spokesperson's speed and tone of voice, which can boost trust and credibility with the audience. Ensure nonverbal communication (i.e., attire, physical space around the spokesperson) is aligned with and represents the values of the health department.
- 6 *Notify the media.* Send a media release announcing the media briefing to news organizations. Ensure they know the time, date, and location of the briefing. If the media briefing will be held in a physical space, make sure there is ample parking or let news crews know where the nearest parking is available. If the media briefing will be online, provide the meeting's details, including those of the spokespersons who will be attending.
- 7 *Prepare backup plans and process for troubleshooting technology issues.* When hosting the media, it is good practice to ensure there is a backup plan and you are ready to troubleshoot technology issues. Identify a second location in the event that your room or building is unavailable. Add signs and place greeters at the doors to ensure reporters get to the right location. Regarding technology issues, meet with your tech team early and ensure you have tech support on the day of the event. Work with the spokesperson on a backup plan in the event that their power goes down or their Wi-Fi drops; a good backup plan is to have them call into the media briefing instead of being on camera.
- 8 *Host the media briefing and debrief afterwards.* After the media event is over – whether in-person or online – it's a good idea to meet with the spokesperson, subject matter experts, and communications team to debrief. Make sure to highlight what worked well

and identify challenges that need to be addressed before the next media briefing. Debriefs can also increase trust and accountability among the communications team, facilitate organizational learning, and build institutional knowledge.

The communication tactics associated with media briefings are talking points. Talking points are sets of clear, easily remembered phrases that outline a proposal, project, or idea.^[21] For emergency risk communicators, talking points include the emergency risk communication messages that will be delivered by the spokesperson. Once a set of talking points are developed, they can be tailored to be used on different communications channels (e.g., websites, social media) and by health department staff answering public inquiries or hotline or call center staff to support the development of preparedness responses.

Talking points keep the spokesperson on message whether they're giving a presentation, talking to a reporter, or in a meeting or elevator discussion. The purpose of talking points is to ease the verbal presentation, as it needs to be short and only to contain the most relevant information. Using bullet points can help condense and organize information.^[21] Ensure the key emergency risk communication messages are included in the talking points. Keep in mind audience and information needs, the phase of the health emergency,^[22] health risks, and the action steps people can take to protect their health. Weave in the CERC principles as appropriate.

Some agencies may have a teleprompter that you can make use of, or for online media briefings spokespersons can read their talking points directly from their computer. In that case, narrative talking points instead of bullet points are needed.

Public Alerting System: Wireless Emergency Alert System

The Wireless Emergency Alert (WEA) system is a partnership between FEMA, the Federal Communications Commission (FCC), and the nation's wireless service providers. Launched in 2012, the WEA system is designed to enhance public safety by allowing authorized federal, state, and local officials to send 90-character (recently increased to 360-character) geotargeted, text-like messages to the public's mobile devices during an emergency.

The WEA system is an essential part of US emergency preparedness and has been used more than 56,000 times to warn the public about dangerous weather, missing children, and other critical situations. The WEA system is designed to enable officials to send "imminent threat" alerts, as well as AMBER (America's Missing: Broadcast Emergency Response) alerts for missing and abducted children. A third type of alert – "public safety messages" – became available for alert originators in July 2019 (related messages include recommendations for saving lives and property). A fourth type of alert – a "presidential alert" – allows the President of the United States to send a message to the entire nation in the event of a catastrophic disaster, such as a nuclear attack.^[22] The benefit of the WEA system over SMS text messages is the WEA system broadcasts use a "push" technology that sends messages to all enabled devices in a designated area, while SMS uses a point-to-point system and requires officials' prior knowledge of specific phone numbers.^[22]

During the COVID-19 pandemic, no nationwide mobile alert was issued in the United States, but some state and local governments issued WEAs about the COVID-19 health emergency.^[23] Specifically, governors in Colorado, Maryland, Michigan, New

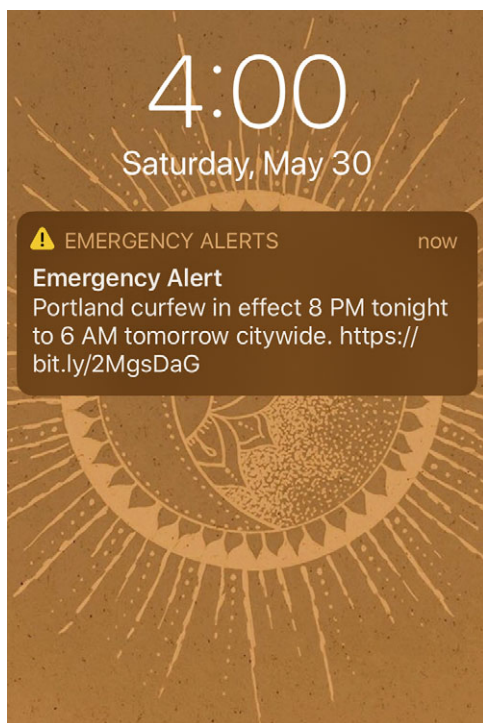


Figure 5.1 A Wireless Emergency Alert sent to Portland, Oregon, residents during the COVID-19 pandemic when the local government issued curfews.

Mexico, and South Carolina used WEAs to issue stay-at-home orders. In Portland, Oregon, a WEA was used to alert residents to a city-wide curfew (see Figure 5.1). The WEA system is an important tool for emergency risk communicators to consider as WEA messages can provide messages to people in a particular area on how to avoid becoming ill during an ongoing health emergency.

The corresponding tactic or communication product is the alert message template found within the WEA system. The alert message must include location, time frame, and health guidance information for those affected by the health emergency.

GovDelivery

GovDelivery is an electronic system that can be used to share information with citizens about health emergencies and other key government-related information.^[24] Prior to GovDelivery, government agencies would send paper mailings.^[25]

During COVID-19, Kitsap County in Washington state used GovDelivery to send out emails, texts, and social media messages about the outbreak and to counter misinformation.^[26] Kitsap County had been using GovDelivery for 9 years, but during COVID-19 the county saw a double-digit percentage increase in subscribers to GovDelivery. Further, the county's COVID-19 daily bulletin included key information to answer citizen's questions received from call centers, media, and other channels.^[26]

This consistent bulletin along with coordinated messaging shared via SMS and social media helped people identify Kitsap County as a trusted source of information during the health emergency. In addition to increased email subscribers, the county's Twitter

(now known as X) and Facebook accounts saw a 10% growth, and its SMS messages reached over 830,000 recipients.^[26]

The corresponding media tactics for GovDelivery are the newsletter, SMS text, and social media post templates that the system has set up. Leverage your agency's approved talking points and social media messages to create engaging newsletter content and social posts. Ensure message consistency when sending SMS messages about a health emergency and about the actions that the public can take to protect their health.

Town Halls

There are differences between media briefings and town halls or online forums. During a media briefing, the spokesperson is directly communicating with reporters. There's a set context, and everybody understands that there are reporters, a spokesperson, and set rules of engagement during press conferences. In contrast, in a town hall the spokesperson is communicating with everyone: the public *and* reporters. When a spokesperson is communicating with everyone including members of the public or those directly affected by the health emergency, the spokesperson must be prepared to interact and engage with the public's emotions. In a town hall, how the spokesperson communicates is vital.

Town halls can be more difficult for spokespeople than media briefings because town halls usually occur over a longer time frame. Media briefings are often about 30 minutes in length, whereas town halls can last for hours. Typically, the more speakers you have, the more interaction there will be between those attending the town hall.

During a town hall, the spokesperson will deal with multiple narratives and issues. In a media briefing, the spokesperson can control the narrative, but during a town hall, which encourages interaction with the public, multiple narratives will emerge. By conducting a stakeholder assessment prior to a town hall, the communication team will gain a good sense of the condition and emotions of the audience. Finally, there is potential for the spokesperson to be confronted with emotions, especially anger. Anger is not likely to be displayed during a media briefing, but it might very well be present in a town hall, and it is important to know how you can deescalate any such conflicts (see Chapter 11 for more information).

Town halls are created and organized by government agencies, organizations, and businesses to share information with a large group of people, engage in dialogue with the public and key stakeholders, and gather feedback on an issue affecting community. For emergency risk communicators, town halls provide a vital source of feedback for understanding public sentiment regarding the health agency's management of a health emergency. Like media briefings, most town halls were held in person before COVID-19, but with the rise of streaming technology online town halls are now more common.

When organizing a town hall, there are eight key steps to follow.

- 1 *Identify a location to host the town hall.* Most likely the health department will want to choose a neutral location or community-focused location to host the town hall. Town halls are not often held at the health agency but rather in a location that resonates with the community. When deciding on a physical location, consider the size of the room, the accessibility of the room, lighting, audio, electricity, and Wi-Fi availability. If the town hall is to be held online, consider what platform (e.g., Zoom, WebEx, Teams) and what meeting style (e.g., webinar, live meeting) will be used. Next, consider the location where the town hall speakers will speak and consider matters regarding the camera

angle, lighting, and audio. Also consider how town hall attendees can ask questions. If the town hall is in person, ensure there are at least two microphones and mic runners who can make sure the questions are heard by all attendees.

- 2 *Identify partner agencies to cohost or speak at the town hall.* Including partner agencies to speak and present information to the community at the town hall demonstrates a partnership between the health agency and others to mitigate the health threat. Ensure partner agencies are included in any planning meetings to identify speaking topics, visuals, and other logistics related to the town hall.
- 3 *Identify team to support the event, including event moderator.* A town hall needs a formal facilitator or moderator to guide the flow of the event. The moderator will give a welcoming statement, introduce the speakers, and facilitate the question-and-answer session. The moderator monitors the audience, takes note of any drops in energy in the flow of dialogue, and supports conflict management actions if a confrontation escalates. In addition to the moderator who works the front of the room during the town hall, there also needs to be a back-of-room support team monitoring lights, audiovisual equipment, cameras, and other production-related items. For example, if the town hall is in person, it is important to have identified mic runners to ensure a microphone is provided to those asking questions. If the event is online, it is helpful to have a tech team supporting the online event. In addition to the moderator, it is a good idea to have an online host who will assist with any technological needs during the event such as muting and unmuting speakers and screen-sharing.
- 4 *Prepare backup plans and troubleshoot technology issues.* When hosting the media, it is good practice to ensure there is a backup plan and that you are ready to troubleshoot technology issues. Identify a second location in the event that your room or building is unavailable. Add signs and place greeters at the doors to ensure reporters get to the right location. For technology issues, meet with your tech team early and ensure you have tech support on the day of the event. Work with the spokesperson on a backup plan in the event that their power goes down or their Wi-Fi drops; a good backup plan is to have them call into the town hall instead of being on camera.
- 5 *Develop rollout and communications plans.* Develop a strategic communications plan to ensure the intended audiences are aware of the event and are able to attend. Develop a digital presence, including a dedicated web page and social media engagement, and alert the media via a press release.
- 6 *Day of town hall: Use a run-of-show document to organize team.* The moderator, speakers, and support team ought to use a run-of-show document to guide the production of the town hall. The run-of-show document includes the event agenda, timestamps, speaker information, and cues for key actions such as breaks or transitioning to the question-and-answer session. The run-of-show document helps guide and direct the moderator, speakers, and support team to stay on time and ensure each key action is completed to create a successful event.
- 7 *Gather feedback and continue dialogue.* Ensure the audience is given the opportunity to provide feedback after the town hall is complete. Provide QR codes to a feedback survey, but also identify a point of contact people can reach out to if they have more questions. Also share websites, email addresses, and phone numbers that people can use to provide feedback. Be sure to set up an email autoresponder so that people know that their emails have been received.
- 8 *Debrief afterwards.* After the town hall ends, it is good practice to hold an immediate debrief meeting to capture the successes and challenges of the event. Be sure to identify any action items that need to occur based on the event. Identify whether there were any issues that need to be corrected before any future town hall events.

The corresponding tactics for a town hall include talking points, slide decks, graphs, charts, and other visuals to support the speakers. Another key communication product is the run-of-show document for the production team – regardless of whether the event is online or in person. The run-of-show document will help orient everyone regarding the purpose of the event, outline speaker order and the roles and responsibilities of the production team, and indicate at what time the event will move to taking questions from the public.

Call Centers and Hotlines

In PHEP Capability 4: Emergency Public Information and Warning, establishing avenues for public interaction and information exchange includes the use of call centers and hotlines. Developing a call center doesn't have to be organized or managed solely by the public health agency. It is possible to leverage existing poison control centers, crisis hotlines, nurse advice lines, or community connection hotlines such as a 2-1-1 to support health emergency response activities and created a coordinated call center.^[27] Calls centers are important because they provide another way for the information-seeking public to gather information about a health emergency. Further, when a call center is established, it can provide much-needed interaction with the public and build trust between the public and the health agency responding to the emergency.

It is good practice to ensure daily metrics about numbers of calls and the types or categories of calls that are being received, such as vaccination questions, symptoms of the illness, travel, or reporting illness, are shared with the communication team. These data can be used to inform and update communication strategies to ensure the agency is answering questions from the public and continuing to provide the most accurate and credible health information that is available.

The corresponding tactic or communication product for a call center is a prepared response. The prepared response is the official message and approved answer to a particular question. For example, if someone called about the symptoms of an illness, the prepared response would include the symptoms of that illness.

Digital and Social Media: Websites, Search Engine Optimization, Social Media, TikTok, Podcasts, and Chatbots

Digital channels are powerful external communications channels that ensure the provision of coordinated and consistent emergency risk information during a health emergency. Digital channels, including websites, GovDelivery newsletters, and social media, are large platforms that can reach many audience segments.

Websites

During COVID-19, state and federal health departments created COVID-19-dedicated websites with information about COVID-19 symptoms, health intervention and self-protection messages, dashboards with case counts by geographic location, testing information, and guidance.^[28]

Websites are important channels for public health practitioners to use to share and disseminate important health and safety information. The key is to ensure that these channels are usable and accessible by all populations. When discussing websites, usability

is formally defined as “the extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.”^[29] Accessibility is defined as the usability of a product, service, environment, or facility by people with the widest range of capabilities.^[29]

Within the context of public health, usable and accessible websites need to communicate real-time and complex health and safety information to the public, partner agencies, community stakeholders, and the media through text, images, and other means to support those with language, hearing, eyesight, or other challenges that impact their ability to receive these materials.

A recent study of state health department COVID-19 websites used 148 evaluation criteria of website usability such as using images, optimizing for mobile device viewing, displaying information in a usable format, placing important information at the top and center, and options to view pages in a language other than English, and the researchers found that websites often were *not* usable or accessible.^[28] In this study, the researchers found nine common issues that may have hindered emergency risk communication. These are listed in the following subsection, and they include but are not limited to: a lack of action messages, poor web page layout, issues with navigation menus, and a lack of content explanation for data dashboards.

Nine Recommendations to Improve Emergency Risk Communication on Websites

- 1 Ensure the web team, graphic designers, and communication specialists work with subject matter experts to design website graphics and data dashboards that convey the risk information to the public through the use of trend lines, warning signs, and different colors and icons signaling escalation and de-escalation of risk. Create interactive features for people to be able to select location information in order to understand the health risk by geographic area. Use “conventional urgency colors instead of non-standard color schemes (i.e., red, yellow, green, for high, moderate, and no urgency levels, respectively) so that the colors directly correspond to user mental models representing danger, moderate danger, and no danger. In addition to using colors, including patterned or textured areas could address accessibility concerns for color-blind users.”^[28]
- 2 Design for mobile viewing and ensure responsive designs and fluid layouts are implemented. Designers should design web pages to automatically adjust based on screen size and resolution. This is an important design consideration, particularly for web pages that include images or for dashboards containing tables and charts, where the content may not render and display properly and might not fit all screen sizes.
- 3 Provide a search function on the website. To ensure the public can find the information they need quickly, having a search function (i.e., site search) available on the website is key. This can take the form of a search box at the top of the website or a chatbot to assist the website visitor. Having a search function on the website can offset any website navigation issues or poorly laid-out pages that a website visitor might encounter.
- 4 Implement more language options. To ensure language accessibility, the study’s authors recommended, at a minimum, embedding the freely available Google Translate or similar application programming interfaces to render pages in different languages for users. Additionally, ensure accessibility features are enabled for those with screen readers or who need large font sizes.
- 5 Clarity in website content. Website content needs to be organized in such a way that audience members can easily find the information they are looking for without excessive cognitive overload. At a minimum, the content should be organized to provide general

information about the situation, the risk factors, and how people can protect their health. Leverage the web page layout template to create pages with clear titles and subtitles, a logical sequence of information, and formatting features that highlight and define content pieces. Further, consider information density or the amount of information provided in a given space. During a health emergency, design web pages so that audience members are able to scan and quickly find pertinent health information without needing to invest a lot of effort.^[28]

- 6 Use images and graphics to educate people on what actions to take to protect their health. Ensure these images complement the risk message so that the audience is able to take action without compromising their safety. Balance the amount and size of images so that page loading does not take too long, which might drive away web traffic. Make sure to include alternative text (“alt text”) attributes to make the images accessible and inclusive.
- 7 Make sure to use a different color for visited links to distinguish these from unvisited links. This will help audience members to see what links they have already clicked on. When health departments update their websites and add more information, ensuring that previously visited links change color provides “a positive user experience when users need to navigate several pages of a public health website to find useful health information efficiently. Given the amount and mix of new and old links on these pages, if visited links are not distinguished, users may spend more time and feel frustrated clicking on and navigating through links that they may have already reviewed and did not intend to review again.”^[28]
- 8 Ensure websites support both online and print readability. The study’s authors recommended not designing information that is only suitable for online reading. Since all web browsers have printing options, ensure that these pages are able to be printed.
- 9 Social media on websites. Make sure to include links to social media accounts such as X, Facebook, YouTube, and Instagram. Embed health department press conferences and tweets from health officials on the health department’s website.

Search Engine Optimization

Search engine optimization (SEO) is often considered to be a tool that is relevant to marketing, but ensuring your agency’s website includes metadata and alt text will help search engines find your agency’s content during a health emergency. Search engines help people find information on the internet, and SEO helps place your website at the top of search results.^[30] Due to the vast number of websites and web pages available, leveraging your site’s metadata, which includes page titles, page text, site URLs, alt text for images, and graphics or images that constitute engaging content, will help make your agency’s website more findable.^[30]

Search engines use two basic algorithms when ranking websites. One algorithm ranks websites based on the quantity and quality of inbound and outbound web links. The other ranks websites according to relevance through search queries or keywords.^[30] Google uses a combination of both of these algorithms.

For those maintaining your agency’s website, there are two strategies to achieve SEO. One is using an on-page optimization strategy, which focuses on leveraging the page title, metadata, the titles of images, and anchor text. The other is off-page optimization, which focuses on web links that link to websites and web pages away from your agency’s website and web links that are coming to your website from other websites (e.g., partners and stakeholders that provide links on their websites to your agency’s website). Using

these strategies will improve your agency's accessibility and findability on the internet. Doing so will also help those members of the public who are searching for credible and accurate health information to find official government sources and response information.

Key Tips for Emergency Risk Communicators to Improve SEO

Anchor Text

"Anchor text" refers to the visible characters and words that hyperlinks display when linking to a document or another web page. To optimize anchor text, ensure that the text is an exact match to a keyword you are targeting for an exact-match strategy or include a variation of the keyword on the page or document you are linking to for a partial-match strategy.^[31]

- Make sure the anchor text is relevant to the page or document you are linking to.
- Keep the anchor text to as few words as possible instead of providing a long sentence.
- Keep the nature of the anchor text intact and do not stuff as many keywords as possible into the anchor text.

Keywords

Keywords are words that the public, partners, and stakeholders are using within search engines to find health information related to an emergency.

- Identifying keywords the public and others are using to locate health information can help you to strategize regarding your use of keywords on your agency's website in page titles and web page text. For example, during COVID-19, search terms included "coronavirus," "fever," "sore throat," "cough," "stay home," "facial masks," "social distancing," and "washing hands."^[32]
- Understanding what terms the public is using to look for information is key when developing emergency risk communication content for your agency's website.

Page Titles

Page titles can be tailored for SEO purposes to support those who are searching for relevant health information and emergency risk information.

- Depending on how your agency's website is structured, there may be up to three page title options: the title of the web page, the page's SEO title, and a navigation web page title.
- Page titles can include keywords that you know the public and others are using to look for health information.
- It is helpful to keep page titles to 70 characters or fewer.^[33]

Alt Text

Alt text is text added to images to make them more accessible.

- Alt text is also used by search engines to identify content on the web page and can also support an on-page SEO strategy.
- Alt text is also used by assistive screen readers or browsers with images disabled.
- If the browser cannot display the image for some reason, the alt text will be displayed instead. When creating alt text, use short, readable terms to describe the image.^[34]

Inbound and Outbound Links

To maximize off-page optimization, including a combination of both inbound and outbound links will help increase the rank of your content on search engines and help those looking for health information to find your agency's content. Health departments are very good at including outbound links to federal and international health agencies such as CDC and WHO. Make sure to encourage your local partners and stakeholders to provide links from their websites to your agency's health emergency website.

Social Media

When engaging with social media channels, emergency risk communications need to review the health department's internal policies and ensure that resources are available to support social media platform management (e.g., Facebook, Instagram, X, YouTube, and LinkedIn). Social media accounts require daily maintenance even during nonemergency times. During an emergency, a health department may not want to add a new social media platform unless audience research indicates the agency is missing a key audience by not using a particular platform.

Social media platforms each have their own style, features, and norms of how to create and share content. Each platform will have its own unique way to convey information through text, images, video, use of emojis, hashtags, and @mentions. Each platform has a distinct way for people to follow or subscribe others for content updates. Some channels may allow for cross-posting, meaning that when the agency posts on Facebook, it will simultaneously cross-post on Instagram.

Due to the evolving nature of social media platforms and media technology, make sure to double-check each platform's guidance and training materials on how best to leverage its functions to disseminate the agency's key health messages.

The corresponding tactics or communication products for Facebook, Instagram, X, and LinkedIn include text, images, links, videos, hashtags, and @mentions. YouTube, by contrast, is a video-centered platform. To create social posts, review approved talking points and then tailor the talking points for each platform's unique audience. Setting up a photo or image library with approved images will help reduce the amount of time spent looking for appropriate images to match each social media post. Research on X messages revealed that, during health emergencies, tweets containing details regarding hazard impact, time, location, guidance, and source and that are delivered in a style that is clear, specific, certain, accurate, and consistent have a higher probability of positively impacting protective action-taking among persons at risk.^[35]

Key Tips for Emergency Risk Communicators When Working with Social Media

- 1 Review organization policies about use of social media, including commenting, deleting, harassment/civil communication, and retention of posts.
- 2 Ensure there is team capacity to manage and monitor social media and address misinformation.
- 3 Engage in strategic planning of content creation by social media platform. Engage in continuing education regarding each of the social media platforms with reference to character limits, use of emojis, video content restrictions, hashtags, and @mentions.

- 4 Review processes regarding content review/clearance of materials. Ensure reviewers understand what feedback to provide regarding text, images, and video. Ensuring accessibility through language and Section 508 compliance guidelines.
- 5 Reuse content from previous media releases and press briefings to support social media engagement. Ensure content is tailored to each social media channel.
- 6 Embed social media into the web page. Ensure the health agency's social channels are featured on the health emergency web page, and embed video links for media briefings, interviews, and other key video content.
- 7 Repost or reshare partner content. Work with partner agencies to repost and reshare content related to the health emergency. Ensure reposting and resharing of information is outlined in the crisis communication plan.
- 8 Follow partners and influencers. Review current followers and accounts that the health agency is following. Consider adding new partners and influencers based on the type of health emergency. For example, particular influencers might resonate with an audience segment that is impacted by the health emergency.

TikTok

During COVID-19, a new platform rose to prominence: TikTok, a video-based platform. Some 62% of 18–29-year-old Americans say they use TikTok.^[36] While many Americans use TikTok, the Chinese-owned company faced legal constraints prohibiting the use of the app on federal and state government phones based on national security risks regarding the Chinese government's ability to access American user data.^[37]

Podcasts

Podcasts emerged in the early 2000s, but during COVID-19 the podcast industry shifted dramatically as telework became the de facto mode of work. Instead of listening to podcasts during the morning commute, listeners tuned in through their computers or mobile devices while multitasking, working out, cleaning, or working in their gardens.^[38] Podcast types include traditional podcasts, enhanced podcasts, video podcasts, or vodcasting. Enhanced podcasts include slides, animations, or short videos to enhance the audio content. Vodcast eschews the audio-only tradition of podcasting and includes video footage. According to the Pew Research Center, about half of Americans have listened to a podcast in the past year, and about 20% of Americans listen to podcasts a few times a week.^[39] While people tune in to podcasts for entertainment or learning purposes, some listeners indicate that they listen to podcasts for news or to stay up to date on current events.^[39]

Podcasts represent an important channel for emergency risk communications to leverage. While ensuring there are ample resources to maintain a regular podcast, health departments could host and manage their own podcasts. If the health agency does not have a podcast, working with partner agencies or landing an interview for a staff member on a well-known podcast can further spread health information regarding a health emergency. During COVID-19, CNN medical correspondent Sanjay Gupta was

interviewed on the *Joe Rogan Experience* podcast to dispel misinformation about COVID-19.^[40,41]

Chatbots

Chatbots – computer programs designed to simulate conversation with human users – were used during COVID-19 to help provide answers to questions about the outbreak. During COVID-19, chatbots were used to: disseminate health information and knowledge; aid in self-triage and personal risk assessment; monitor exposures and notifications; track COVID-19 symptoms and other health aspects; and combat misinformation and fake news.^[42,43]

Chatbots can be programmed to ask and answer questions, create health records and histories of use, complete forms, and generate reports.^[42]

The answers provided by these chatbots were based on information generated by WHO, CDC, and other health sources. Instead of having staff members engage with the public or having people call a hotline, chatbots on a health agency's website could provide information about COVID-19 symptoms, what people could do to protect their health, and personal risk assessments, as well as address misinformation.^[42]

The two challenges of using chatbots during COVID-19 were the public's willingness to engage with a chatbot and the overall functionality of the chatbot. The public's willingness to engage with a chatbot is based upon whether they trust the technology to provide them with correct information and protect their privacy. Additionally, some people might not have had access to technology and therefore could not engage with chatbots. The overall functionality of the chatbot also impacts the adoption of this technology. Chatbots leverage existing databases (e.g., medical databases, information from WHO and CDC) and natural language capabilities to understand clinical terminology.^[44,45] However, it can be hard to ensure that the chatbot has the latest and most accurate health information. Further, chatbots are not yet equipped to handle sensitive issues such as mental health concerns.

There may not be a corresponding tactic or communication product for a chatbot. Agencies ought to weigh the risks, benefits, and costs of deploying a chatbot on their website to determine whether this tool fits their communication and customer service needs.

Intersection of the 2018 California Camp Fire and CERC Principles

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Introduction

The 2018 California Camp Fire is known as the deadliest wildfire in Californian history.^[46] Significant and damaging health effects occurring during the Camp Fire, and lasting beyond the fire's containment, negatively impacted thousands. The utilization of CERC principles during this crisis will be explored, as will the lack of use of those CERC principles that would have been effective for conveying information to area residents. Upon analysis of the use of CERC principles, or lack thereof, implications for Butte County Public Health (BCPH) and other communicating entities will be presented for consideration regarding future disaster communications. Crisis communication by BCPH was sufficient, but it is vital to understand the intricacies of the Camp Fire and the resulting health-related impacts when analyzing such communications.

Overview of the Disaster

On November 8, 2018, the state of California was forever altered when the California Camp Fire began. The result of Pacific Gas and Energy's failure to maintain and replace components of its 50,000 electrical towers and 18,500 miles of transmission lines, the Camp Fire burned 153,000 acres, destroyed more than 18,000 structures, and caused 85 deaths before it was contained on November 25, 2018.^[47,48] In the community of Paradise, California, over 85% of residential units were lost to the Camp Fire.^[49] Devastating structural losses combined with ever-present, toxic smoke from the Camp Fire, which was harmful enough to warrant declaration of a public health emergency for the entire state of California by the US Secretary of Health and Human Services.^[50] By 2023, the Camp Fire's immense destruction meant that the majority of burned areas were still in the recovery phase, and many residents remained impacted by the health-related effects they experienced during and after the Camp Fire.

Among the impacts of the Camp Fire were a variety of health-related effects that had the potential to cause severe long-term damage. These included the presence of significant amounts of toxic smoke, which contained dangerous levels of both metal contaminants and particulate matter (PM). Smoke containing elevated levels of lead and zinc, along with calcium, iron, and manganese, was found to have reached areas such as the Sacramento Valley and the San Francisco Bay Area, over 150 miles away from Paradise.^[51] In nearby Chico, California, for instance, lead concentrations in the air were reported to reach 50 times average levels.^[51] Such a degree of lead exposure can result in extremely harmful health effects including cancer, high blood pressure, difficulty reproducing, and behavioral changes and learning deficits in children.^[51]

The toxicity generated by the Camp Fire was further compounded by the presence of PM, or minute particles in the smoke which represent as the largest health concern from wildfire smoke, as PM can reach the lungs' deepest recesses.^[51] Throughout the Camp Fire's burn period, "... maximum PM levels increased across CA [California] by more than 300% compared to average levels seen during the same time period from 2010–2017."^[51] Damaging health effects associated with inhaling PM include worsening of asthma, onset of various respiratory diseases, increases in infections and inflammation (e.g., pneumonia), and greater occurrences of hospital admissions.^[51]

In addition to smoke-related impacts, poor water quality in the Camp Fire's burn area caused significant health concerns. Damage to water infrastructure and settling of ash and contaminants on lakes and water reservoirs led to contamination of drinking water.^[52] Some 2,217 parts per billion (ppb) of the cancer-causing compound benzene, which has a federal limit of 5 ppb in drinking water, were found in water samples taken from the Camp Fire's burn area, along with elevated levels of aluminum and iron.^[53] *E. coli* bacteria and polycyclic aromatic hydrocarbons, or chemicals stemming from burning wood, garbage, or gasoline, were also found in collected water samples.^[54] As a result, BCPH issued a do-not-drink water advisory, lasting from January 2019 to August 2019, after which water customers were encouraged to continue engaging in water testing and treatment options for homes and businesses.^[55]

Finally, hazardous fire debris also served as a health-related concern for those returning to their homes. Homeowners were confronted with debris and settled ash that contained toxic substances as a result of burned synthetic and hazardous materials, ranging from gasoline to household goods such as pesticides and cleaning products.^[56] The toxic environment thus produced specific health threats to homeowners and response workers during cleanup, increasing the importance of these individuals properly equipping themselves with reentry health and safety protective equipment.^[56]

While the immediate and long-term damages of the Camp Fire were severe and continued to be felt 5 years post-disaster, the nationally accredited BCPH played a

significant role in providing crisis communication during the Camp Fire.^[57] BCPH's phase-based and CERC-focused messaging was of benefit to all Paradise residents impacted by the many events associated with the Camp Fire.

Timeline of Key 2018 California Camp Fire Events

A timeline of key events in the 2018 California Camp Fire is provided in Table 5.2.

Table 5.2 Camp Fire Key Events Timeline

Date	Events
November 8, 2018	Camp Fire begins in remote stretch of canyon in Butte County, CA CA Governor Newsom declares State of Emergency in Butte County, CA, due to Camp Fire
November 9, 2018	Camp Fire spreads, burns entire town of Paradise, CA Toxic smoke from the Camp Fire begins to spread to Sacramento Valley and into the San Francisco Bay Area First press conference pertaining to the Camp Fire is held BCPH releases initial public statement on negative effects of wildfire smoke and promotes action items for residents via Facebook
November 10, 2018	Highest concentrations of lead detected in air in Chico, CA; lead concentrations reach 50 times average levels Second press conference pertaining to the Camp Fire is held; this is the first press conference in which public health-related information is shared by BCPH's PIO
November 12, 2018	President Trump makes a Federal Disaster Declaration for Camp Fire
November 13, 2018	US Secretary of Health and Human Services declares a Public Health Emergency for the state of California
November 14, 2018	BCPH releases health and action information related to returning to properties where hazardous fire debris remains
November 25, 2018	100% containment of Camp Fire is reached
Month of November 2018	PM levels are increased by more than 300% across California compared to November 2010–2017
December 1, 2018	California Air Resources Board notes substantial decrease in and return to safe level of PM in air
December 21, 2018	BCPH and Paradise Irrigation District await results of water sample testing for contaminants following the Camp Fire
January 18, 2019	California Water Boards issue a public warning not to drink or to cook with untreated surface water in Camp Fire burn areas due to the presence of contaminants in water
March 3, 2019	BCPH issues a water quality do-not-drink advisory for the majority of areas burned by the Camp Fire
August 6, 2019	BCPH issues a revised water quality advisory for residents in Camp Fire burn areas, lifting the do-not-drink advisory for some locations and encouraging individual home testing before resumption of water use

Overview of CERC Principles and Phase-Based Messaging

Effective communications during a public health emergency are necessary to ensure efficient responses are achieved. To meet this need, CDC created the CERC evidence-based framework, which utilizes psychological and communication sciences to develop six principles to assist organizations in communicating needed information to first responders and residents, allowing those on the receiving end of communications to take proactive steps to protect their health.^[58] The six CERC principles that should be present in crisis communication responses are: Be First, Be Right, Be Credible, Express Empathy, Promote Action, and Show Respect.^[58] Utilization of these six principles may vary based on the present communication phase, which tailors specific information to the current phase-based needs of the media, government, public and private entities, and those impacted by the disaster.^[58] The following section will provide an overview of both the CERC principles and phase-based messaging.

CERC Principles

To begin with, *being first* focuses on the provision of information from an established and appointed communicating agency as quickly as possible. As disaster and crisis situations are time-sensitive, agencies should work diligently to be the first to provide incident-specific information.^[58]

The incident-specific information that is released quickly must also meet the principle of *being right*. Communicating organizations and personnel should provide accurate, up-to-date information to audiences to help establish an organization's credibility.^[58] This principle is achieved through the sharing of information and facts that are known in the moment, acknowledging details that are not known, and explaining what is being done to find missing information.^[58]

In conjunction with being right, *being credible* is of the utmost importance when communicating in disaster situations. All communications and associated materials presented should honestly and truthfully convey the data, facts, and circumstances surrounding crisis situations.^[58] This not only cements an organization as credible but can also grant a sense of peace to those receiving such accurate, reliable information in the midst of chaos.

While disseminating information, it is important that *empathy be expressed*. Times of crisis are often accompanied by harm and loss. Those communicating on behalf of an organization should be prepared to acknowledge the suffering being experienced by those receiving the communications and address common feelings and general challenges that are present.^[58] Doing these things, while also being cognizant of the tone of any such messages, aids in building rapport and trust between a communicating organization and recipients of such information.^[58]

As communication messages reach their end, the *promotion of action* should also be included. To help those receiving these messages regain a sense of control over current circumstances during crisis situations, to restore order, and to help calm fears, nerves, and anxiety, meaningful action items should be given to those impacted by disasters.^[58] This is especially useful in terms of providing those impacted by crises with a sense of purpose, tasking them with significant items to carry out.

Finally, all communications, regardless of the present disaster or crisis, should embody the *showing of respect* to everyone receiving the message. During times when people feel particularly vulnerable, respectfully communicating through word choice and tone can help build rapport, garner trust, and promote cooperation between communicators and those on the receiving end of such communications.^[58] When individuals feel respected, they may be more likely to acknowledge, respect, and follow the communication's warnings and shared information shared, regardless of the current disaster phase.

Phase-Based Messaging

Throughout crisis situations, a disaster event proceeds through different phases as the event changes and progresses; the same is true for crisis communications. Within crisis communications, three key communication phases exist: the initial, maintenance, and resolution or recovery phases of communication messaging.^[58] As crisis situations evolve, so too do the “communication efforts and priorities that are to adapt and respond according” to the different needs of first responders, government entities, private and public organizations, the media, and those impacted by crises, resulting in phase-based messaging.^[58]

During the initial phase of crisis communication, utilization of all six CERC principles should occur, with a particular focus on expressing empathy, providing accurate information that details risk explanations, promoting action, and establishing an organization's credibility.^[58] This phase is often accompanied by sharing ways in which those receiving information can mitigate risk and what can be expected regarding the next steps of a crisis.

Transitioning to the maintenance phase, messaging during this phase is often more detailed, as ongoing risks are explained and background information pertaining to prior instances of similar events are shared.^[58] During this phase, risk explanations for different audience segments (e.g., the elderly, those who are immunocompromised) are provided and misinformation or rumors are addressed, further supplemented by accurate, clarifying messaging.^[58]

Lastly, resolution messaging serves as the final phase of crisis communication. Risk communications during this phase utilize empathy to motivate people to continue taking action so as to remain vigilant in protecting themselves from the current disaster.^[58] This phase also capitalizes on the momentum of the focus placed on emergency preparedness and response and encourages communities to consider responses to future similar events, which may be revised or improved upon following evaluation of the current communication response.^[58] In any crisis, utilization of the CERC principles and phase-based messaging can make a significant difference with respect to response and recovery efforts. Such utilization will be analyzed in the following section in terms of communications surrounding the Camp Fire.

Analysis of CERC Principles in Disaster

During the 2018 California Camp Fire, CERC principles were incorporated relatively well into BCPH's crisis communications. The following analysis highlights instances in which CERC principles were utilized fittingly, as well as instances in which such principles were not followed, the implementation of which may have resulted in more effective communication.

Example 1: Be Credible

During the initial phase of crisis communications, the CERC principle of *being credible* was first illustrated on the BCPH Facebook page. On November 9, 2018, details regarding the health effects of wildfire smoke were shared. This post also accurately detailed population groups who might be more sensitive to impacts from wildfire smoke, such as the elderly, children, or women who were pregnant.^[59] Correct risk explanations were shared, as were honest action items that area residents could take that had “been proven to be most effective for protecting people from particles in smoke or ash.”^[59] Albeit a seemingly brief social media message, it provided simple risk explanations, including who was at risk and what were the health risks of the Camp Fire, along with promoting action, both of which are vital components of the initial phase of CERC phase-based crisis messaging.^[58]

Example 2: Be Right

Moving on to the maintenance phase of crisis communications during the Camp Fire, the CERC principle of *being right* was apparent via another post to BCPH's Facebook page. Clarifying, accurate information was posted on BCPH's Facebook page on November 16, 2018, to address rumors and unclear facts, a key component of the maintenance-phase messaging.^[58,59] The post's accurate information ultimately helped BCPH to establish credibility and reinforce the importance of mask wearing, given the known information about elevated levels of PM and metal contaminants in the air.^[59]

Additionally, this post explained that while BCPH did not know how long it would be before the elevated levels of PM would decrease, an explanation regarding scheduled testing at air monitoring stations, with a commitment to provide updates regarding air quality levels, was provided in this Facebook post.^[59] As a result, reinforcement of additional, accurate information related to the wearing of N95 masks, including not needing to change such masks every 8 hours and ensuring that they are tight-fitting, further guaranteed community members understood the ongoing risks and actions they could take to reduce related health risks. This is a key component of the maintenance phase of crisis communication.^[58,59]

Example 3: Show Respect

The resolution phase of crisis communication during the Camp Fire also adequately followed CERC principles, specifically in relation to the importance of *showing respect*. Evidenced primarily by BCPH's PIO during many Camp Fire press conferences, this individual communicated up-to-date crisis information regarding public health threats with composure and body language that showed respect for the vulnerability of those listening.^[58] Cognizant of the health-related threats and losses many had experienced, whether related to difficulty breathing or loss of life, the PIO frequently highlighted various ways in which listeners could receive health-related assistance for conditions stemming from the Camp Fire following the fire's containment.^[58] Throughout the Camp Fire crisis communications by BCPH, the PIO was never once blamed others, used derogatory language, or dismissed audience or reporter questions related to health threats, further illustrating the respect shown by BCPH to all impacted by this disaster.

Example 4: Promote Action

In all of the crisis phases analyzed, BCPH can be credited with *promoting action* for area residents during and after the Camp Fire. During a November 13 press conference, BCPH's PIO relayed a variety of action items residents could undertake to further protect themselves from wildfire smoke impacts, as well as ways in which to protect against health threats when returning to burn sites and structures. The PIO encouraged area residents to continue wearing properly fitting N95 masks when outdoors, "utilize bottled drinking water, due to contaminated well water ... and obtain reentry health and safety kits or wear Tyvek suits/long pants, N95 masks, rubber gloves, and helmet protection" when reentering burn areas.^[60] Discarding of any remaining food in residences, proper methods for cleaning food storage equipment, and replacing of in-home air filters were also discussed and presented by BCPH's PIO, all in an attempt to help those impacted by the Camp Fire restore some sense of order and control over their lives and so reduce feelings of unease.^[58,60] Within each crisis communication phase, ranging from the initial phase to the resolution phase, BCPH frequently promoted actions for residents to take, facilitating effective responses to and recovery from the Camp Fire.^[58]

Example 5: Be First

While BCPH utilized four of the six CERC principles well throughout its crisis communications, two CERC principles were not followed well. To begin with, the principle of *being first* was lacking during every phase of BCPH's crisis communications. With an understanding that crises are time-sensitive, quickly communicating information, particularly that related to health and safety, is crucial.^[58] Cognizant that it is difficult to be the first to share information at a time when social and digital media are the main channels through which information is disseminated, allowing outside agencies or news media to claim the role of being the first to share such information, BCPH's inability to share pertinent information first is understandable. However, it was not until the second day of the Camp Fire – November 9, 2018 – that BCPH first shared risk information regarding the health threats associated with the impacts of the Camp Fire's smoke.^[59] While the dissemination of this risk explanation on the second day of the Camp Fire was beneficial, sharing of health-related information on the day when the Camp Fire began would have provided residents – especially those living within the 20,000 acres that burned over the first 14 hours – with much-needed information, allowing them time to begin to protect themselves from the toxic smoke that would sit over California for days to come.^[61] BCPH's delayed sharing of health-related information may have exacerbated the health effects experienced by some of those who were impacted by the Camp Fire.

Example 6: Express Empathy

Finally, *expressing empathy* was a CERC principle that was not followed in BCPH's crisis communication messaging, regardless of the messaging phase. Whether it be via BCPH's Facebook page, internet web page, or live communications from BCPH's PIO during press conferences, the suffering being experienced by thousands of individuals whose homes had burned or whose family members had died was unfortunately not acknowledged in any way.^[58] Addressing of people's feelings – even those associated with the uncertainty regarding mask wearing, for example – was not done by BCPH. The building of trust and rapport between those impacted by the Camp Fire and BCPH did not occur in relation to the many challenges area residents faced.^[58] Use of simple statements by BCPH – such as “We recognize your fears and concerns associated with the damaging health effects stemming from the Camp Fire” – during press conferences or in social media posts could have been extremely impactful, validating the feelings of those receiving these crisis communication messages, yet such statements were not delivered.

Discussion of Implications

Responding to and communicating during a disaster or crisis of any size and type are challenging yet necessary. BCPH did an adequate job overall of providing area residents, emergency personnel, government agencies, and private and public entities with needed information pertaining to threatening health effects from the 2018 California Camp Fire. Following analysis of the utilization of CERC principles throughout the phase-based messaging cycle, a few implications for those tasked with providing crisis communications in the future are presented.

First, although potentially difficult at a time when digital media is the norm, it is imperative that those providing crisis communications disseminate needed information as quickly as possible. While BCPH was unable to be the first agency to report on health-related impacts stemming from the Camp Fire, provision of information prior to the second day of a disaster should be expected from such agencies and organizations, especially those that have a duty to report and inform constituents of present dangers. Rapid crisis-

related messaging from an established practitioner or agency such as BCPH, regardless of the crisis event, is vital to reducing the negative health effects such events may have on many people.

Another lesson learned from BCPH's dissemination of information relates to increasing access to communicated crisis information. Regardless of the speed at which information is released, such information should be made available on a variety of platforms and through various media to reach as broad of an audience as possible. Unfortunately, BCPH mainly utilized its social media channels in this event, making it difficult for those interested in revisiting crisis communications and action items on platforms such as BCPH's web page to find relevant, up-to-date information. While access to and the speed at which information is shared are vital, so too is how such information is presented to those listening.

Following a review of the crisis communication provided by BCPH during and after the Camp Fire, BCPH is encouraged to increase empathy in its future crisis messaging. No empathetic statements were present in any of BCPH's communications, whether spoken or via text. Simple adjustments (e.g., to tone of voice) could have conveyed some empathy to those listening. Instead, information was communicated in a straightforward and matter-of-fact way, which inhibited the building of rapport or trust between BCPH's PIO and those listening. Future crisis communications for any and all practitioners and organizations tasked with communicating crisis information should incorporate empathetic statements, even simple ones, which may take the form of acknowledging the fears and emotions of the audience.^[58] Utilization of person-first language and acknowledgment of the challenges being experienced by those impacted by a disaster are likely to result in substantial buy-in and adherence to crisis information, as such an approach would involve being sensitive to the current, lived reality of many.

Finally, crisis communicators should look to BCPH's promotion of action within its crisis communication messaging as a model. BCPH did an excellent job of promoting action for area residents, emergency personnel, and public and private entities throughout the entirety of the response to the Camp Fire. Not only did BCPH's PIO provide action items that residents could follow during each messaging phase, but these actions were also realistic and effective, providing a sense of control to those experiencing immense instability.^[58] The action items presented included accurate and credible accompanying information that helped rather than hindered area residents and emergency personnel. Those on the receiving end of BCPH's crisis communications were well-prepared to take micro-level actions that enabled their personal protection following each press conference involving BCPH's PIO. While analyses and revisions to crisis communications following a disaster are important, valuable lessons can be taken from BCPH's communications response to the 2018 Camp Fire and implemented in Butte County and other communications response agencies elsewhere.

Conclusion

Regarded as the deadliest wildfire in Californian history, the 2018 California Camp Fire has served as an invaluable case study pertaining to crisis communications. The Camp Fire incurred damaging health effects to thousands of individuals living and working in the areas burned. Fortunately, BCPH was able to utilize a majority of the CERC principles through a phase-based messaging system to accurately provide needed crisis communications to all impacted by the Camp Fire. Analysis of BCPH's inclusion of CERC principles – or lack thereof – has provided valuable lessons that other crisis communicators and organizations responding to disasters can use to convey pertinent information to area

residents. While some aspects of BCPH's crisis communications were flawed, it ultimately played a significant role in mitigating the long-term, damaging health effects that could have severely impacted the lives of those thousands who had already become victims of the Camp Fire.

End-of-Chapter Reflection Questions

- 1 Identify a recent health emergency in which you successfully used at least five channels to communicate to your audiences, stakeholders, and partners. What channels did you use with each audience, stakeholder, or partner? How do you know that you used those channels successfully?
- 2 What types of metrics do you use to evaluate communication channels? How do you share these metrics during an emergency? How are these metrics used as inputs into your communication strategy?
- 3 If you had to identify a stretch goal (i.e., challenging target) for your agency regarding communication channels, what would it be and why? What support would you need to make this stretch goal a reality?
- 4 Field trip: Relationships are vital before and during health emergencies. Set up an in-person meeting with an emergency management staffer you haven't met yet or haven't seen in a while to discuss the current status of emergency risk communication in your agencies.

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