Chapter 1

# Why You Need to Care about Emergency Risk Communication

## Chapter Objectives

- Identify how to use this book to support emergency communication planning, implementation, and evaluation.
- Describe different public health communication terms.
- Name the six Crisis and Emergency Risk Communication (CERC) principles.
- Explain the CERC framework and phase-based messaging framework.
- Summarize how risk perception impacts emergency risk communication.
- Explain the importance of strong relationships between leaders and communication officers.

Between December 2019 and May 2023, the world was ravaged by a virus that caused as much destruction as Achilles during the Trojan War. The COVID-19 pandemic impacted individuals worldwide, regardless of their geographic location, religious or political beliefs, occupation, or social standing. People's experience was directly impacted by lockdown measures, physical distancing, masks, vaccine recommendations, or illnesses of self or friends or family members, as well as by how their local and national elected officials and public health leaders managed and communicated about the pandemic. As people went into lockdown, they went online and found a flood of information both true and false about the pandemic. The constant deluge of online information, the new and evolving outbreak, and the worldwide impact created a complex health emergency.

Public health agencies worldwide faced a global pandemic. Despite decades of table-top discussions, functional exercises, and even real-life health emergencies like H1N1 and Ebola to help us prepare and respond to a global pandemic, the US public health system experienced early setbacks that impacted its attempts to contain the outbreak: faulty tests created by the Centers for Disease Control and Prevention (CDC), mixed messaging on the use of masks due to personal protective equipment shortages, the inadequate Strategic National Stockpile, and the lack of a suitable national testing strategy. As the outbreak evolved, the public health system faced issues regarding vaccine effectiveness, vaccine hesitancy, pandemic fatigue, and a politicization of public health recommendations. The complexity of the outbreak further exacerbated communication challenges, resulting in conflicting messages from US government leaders at the federal and state levels. The public was often left wondering what the most accurate information was, who the most credible leader to trust was, and, ultimately, what the best action to take to avoid severe illness was.

As public health leaders, medical doctors, health care providers, emergency management officials, government officials, and graduate students, it is imperative to understand

what emergency risk communication is and how to leverage such a powerful tool before, during, and after health emergencies. In the United States, during the COVID-19 emergency response, pandemic playbooks and emergency risk communication strategies developed over decades by previous administrations were tossed aside by White House officials.[1,2,3] Instead of coordinating pandemic response efforts at the federal level to ensure access to needed medical resources and supplies across the United States, the White House viewed the unfolding health emergency without adequate appreciation for the seriousness and scale of the risk. Further, instead of leveraging emergency risk communication principles, the President continued to deny the health threat, and his communication strategy was to overly reassure the public and avoid addressing the uncertainty of the situation through statements like, "The Coronavirus is very much under control in the USA."[2] While career public health professionals and medical doctors like Dr. Nancy Messonnier, Dr. Anthony Fauci, and Dr. Deborah Birks tried to engage in transparent communication about the health risks and potential disruption to life posed by COVID-19, their messages to the public were often walked back by the White House, creating confusion and dispelling the trust of the American public.[2]

Used appropriately and in tandem with dedicated emergency response plans, emergency risk communication can get the right information to the right people at the right time to prevent severe health impacts.[4] Previously, emergency risk communication was a tool used by some medical doctors and public information officers (PIOs) within health departments, but today, with the emergence of new health emergencies around the world, the ability to understand and use emergency risk communication should no longer be reserved for those at the top of these organizations; rather, it needs to be a basic core capacity that anyone working in public health, health care, or emergency response can understand and utilize in their jobs. Much like putting on a seat belt when getting into a car, emergency risk communication needs to be the first thing we consider in emergency planning and response, not an afterthought for fixing something that has already gone wrong.

COVID-19 revealed severe cracks in the public health system,[5] including:

- The need for more comprehensive regional and national disease registries, especially for infectious diseases
- The need to develop efficient mechanisms and detection tools to more rapidly and accurately identify cases of COVID-19 and other infectious diseases
- The need for laboratories to scale up testing
- The need to streamline future responses and educate stakeholders on the measures and actions to take during a health emergency
- The need for worker education and development to address misinformation
- The need for better private–public partnerships to address supply chain issues for personal protective equipment
- The need for additional workforce development and training in the public and private sectors to ensure that the various stakeholders are capable of responding to outbreaks as is pertinent to their skills and positions.

The reduction of federal appropriations to support public health preparedness in the United States creates a predictable situation: Gutted health departments will be unable to prepare for or respond to the next inevitable health emergency. The 2021 Public Health

Workforce Interests and Needs Survey discovered that many are leaving the public health workforce, and the pandemic is often cited as a cause:

> Nearly one-third of state and local public health employees (32%) said they are considering leaving their organization in the next year – 5% to retire and 27% for another reason. Among those who said they're considering leaving, 39% said the pandemic has made them more likely to leave. Looking out further, 44% said they are considering leaving within the next five years.[6]

With a burned-out and fed-up workforce coupled with the reduction of public health authorities across the United States, one could think that the future of public health is dismal. But when considering crises and emergencies, out of destruction and loss come opportunity and renewal.[7,8]

The opportunity is here for health departments, health care systems, emergency management, and graduate students in these fields to learn what went wrong in COVID-19, what can be learned from these mistakes, and what can be done to ensure similar mistakes do not occur in the future. Through after-action reviews, government agencies can look at the cracks in their own institutions to understand what relationships need to be built and how to continue to uphold their mission to protect the health and safety of citizens.

## How to Use This Book

This book focuses on crisis and emergency risk communication (CERC) to educate and inform current and future public health leaders, health care providers, emergency management officials, government officials, and graduate students on how to plan, create, disseminate, and evaluate emergency risk communication during health emergencies. The CDC's CERC framework is highlighted to demonstrate its application of emergency risk communication strategies and activities to health emergencies.[4,9] Case studies written by public health students from Tulane University analyze health emergencies like COVID-19, Mpox, and the Norfolk Southern train derailment using the CERC framework to understand how to communicate accurate and actionable health information. Additional theories like risk perception, the health belief model, agenda setting, mindfulness, and transformational leadership and their relevance to emergency risk communication are included. To deepen the reader's exploration and learning of emergency risk communication through practical application, mini case studies, examples, and discussion questions are provided.

This book is made up of four parts: precrisis planning, communicating during a health emergency, communicating and evaluating after a health emergency, and crisis leadership.

- Part I: Precrisis Planning builds the foundation for emergency communications by outlining critical steps in the communication planning process, identifying key audiences, and addressing the unique information needs of the medical community during a health emergency.
- Part II: Communicating during a Health Emergency provides specific practices and guidelines for constructing messages during the various phases of an emergency response.
- Part III: Communicating and Evaluating after a Health Emergency outlines how to pivot from emergency messaging to messages of renewal. It also offers key tips on learning lessons from the emergency response.

- Part IV: Crisis Leadership provides key tips and best practices on being a spokesperson. It is Media Relations 101. This part also provides practical guidance on how to be an effective leader during a health emergency.

## Health Emergencies and Public Health Preparedness

Health emergencies can be defined as emergent situations with health consequences that overwhelm routine health department capacities and capabilities.[10] For health departments to be ready to respond to health emergencies, engaging in public health emergency preparedness (PHEP) activities is crucial. PHEP activities include establishing an infrastructure to support emergency operations (i.e., emergency operations centers, Incident Command Structures) and identifying key personnel to assist in this.[10] The ability of health departments to leverage and integrate public health preparedness with existing systems and public health practices allows for emergency response activities to be quickly scaled up during health emergency responses.[10]

Health emergencies often impact not only community residents but also businesses and nongovernmental organizations. Developing and maintaining relationships within the community and engaging with these stakeholders prior to a health emergency are key preparedness activities. Key preparedness activities fall under three main categories: preplanned and coordinated rapid response capability; expert and fully staffed workforce; and accountability and quality improvement.

- Preplanned and coordinated rapid response capability includes understanding hazards and vulnerabilities within the community (i.e., community health assessments and populations at risk); knowledge of legal authority and liability barriers for the health agency; roles and responsibilities; Incident Command Systems; public engagement; epidemiological functions; laboratory functions; countermeasures and mitigation strategies; mass health care; public information and communication; and robust supply chains.[10]
- Expert and fully staffed workforce means having a skilled workforce that can perform well during a health emergency and leaders who can manage the health emergency, engage with stakeholders, and effectively communicate response operations and mitigation strategies.[10]
- Accountability and quality improvement include testing operational capabilities, performance management, and financial tracking.[10]

Another key feature of public health preparedness is understanding the legal authority that public health departments have during a declared health emergency. State laws dictate the amount of legal power that health officials have during a formally declared emergency to enact measures to protect the health and safety of a community:

> Once a public health emergency is declared, designated officials can harness powers that are typically unavailable without legislative approval, by issuing emergency orders. These expansive powers may include deploying military personnel, commandeering property, restricting freedom of movement, halting business operations, and suspending civil rights and liberties.[11]

See Chapter 3 for more on public health powers.

## Public Health Communication Terminology

"Communication" is often considered an umbrella term, something casually used with an assumption that its definition is the same to everyone. Often, however, it turns out that people are not on the same page, resulting in project delays and even financial losses. These same assumptions are also made regarding health communication, risk communication, crisis communication, and emergency risk communication. The terms "crisis" and "emergency" are often overused, and if one listens to the news media, everything is now a crisis. To help create a common understanding of terms, this first chapter will outline common terms used in public health preparedness and response. Let's define these terms to understand how they will be used throughout this book.

### Health Communication

It is important to understand health communication, as it is fundamental to the work of public health and for programs designed to change behavior. Health communication is "the study and use of communication strategies to inform and influence individual and community decisions that enhance health."[12] Health communicators use a wide range of methods to design communication programs relating to media literacy, media advocacy, public relations, advertising, education entertainment, individual and group instruction, and partnership development.[12] Some of these methods will also be used in emergency risk communication activities, so it is helpful for emergency risk communicators to understand how public health programs use these methods and maintain partnerships during nonemergency times.

Health communication from the perspective of a health department involves communicating information at the population or community level, not at the individual level. Within health departments, there is often a team or program called the "health promotion" or "health education" team. This type of health promotion or health education is what is generally referred to by public health staffers as routine, day-to-day public health communication. Health departments want to inform, influence, and motivate groups of people to take action to improve or maintain their health.[13] Health promotion activities focus on adolescent health, sexual health, breastfeeding, school health, physical activity, and immunizations.[14]

An example of a federal health promotion program is the Move Your Way campaign developed by the US Department of Health and Human Services (HHS).[15] The campaign is focused on getting citizens to live healthier lives by increasing their physical activity. By focusing on the entire nation, the campaign is designed to inform, influence, and motivate a group of people to act together: a key component of health promotion activities.

On an individual level, an example of health communication is speaking with your health care provider – a doctor, nurse, nurse practitioner, naturopath, acupuncturist, therapist – about your current health status or health concerns. This basic, interpersonal, one-to-one communication is focused solely on the individual and the individual's health. In terms of study samples, the sample size in this case is one. This type of individual communication between patient and health care provider is also important during health emergencies. Research continues to show that health care providers are a trusted source of information during emergencies.[16]

## Risk Communication

Another key term used by public health practitioners, health care providers, and emergency management officials is "risk communication." Generally, the definition for "risk communication" is the same across multiple agencies and industries: communication messages that alert people to some type of hazard or threat to life or property. For public health practitioners, risk communication focuses on the risks and benefits of a given action to protect one's health.[17]

Let's examine risk communication related to the benefits and risks of getting the vaccine for measles, mumps, rubella, and varicella (MMRV), a vaccine for children and young adults attending college. In the United States, CDC recommends all children get two doses of MMRV vaccine, starting with the first dose at 12–15 months of age and with the second dose at 4–6 years of age. Additionally, students who will attend post-high school educational institutions and who are likely to live in close quarters with others, such as in dormitories or shared housing, need to get additional doses of MMRV vaccine. The benefit of getting the MMRV vaccine is immunity protection against measles, mumps, rubella, and varicella.

The risks associated with getting a vaccine, or even with taking certain medications, are side effects. For the MMRV vaccine, the side effects include a sore arm from the shot, fever, and a mild rash. In some cases, the MMRV vaccine can cause swelling of the neck or checks or a temporary low platelet count (the cells that help with blood clotting). In rare cases, as with most vaccines, a person can experience a severe allergic reaction also known as anaphylaxis. This type of allergic reaction can occur in people who have a life-threatening reaction to components that make up the vaccine, such as gelatin or the antibiotic neomycin.

In this example of risk communication, the individual ultimately needs to decide whether they want to take the action recommended by their health care provider. The individual weighs the risks and the benefits and determines whether the benefits outweigh the risks. This type of decision-making is characterized by a theory called "significant choice" and is based on a person making a rational decision. The significant choice framework comes from the work of Thomas Nilsen and is defined as a choice made based on the best information available when the decision must be made.[18]

The implication here for health communicators regarding risk communication is that there is a power differential between the person sharing the risk information and the person receiving the risk information. Those receiving the information are in a submissive and vulnerable position. This is why it is so critical for communicators to understand the power and influence that is wielded when engaging in risk communication. The stakes become even higher in emergency risk communications. In this situation, for individuals to make the best decision – to make their significant choice – they are relying on those sharing the risk information to be fully truthful, honest, and transparent with the information that is being provided.

Let's take risk communication a step further and explore how risk communication can be used as a form of risk management. The US National Research Council defines risk communication as a two-way flow of information – including fact and opinion – with the goal of facilitating better risk management decisions.[19] Here's an example of risk communication that includes a two-way exchange of information to lead to better risk management.

### Mini-Case Study: Triangle Lake, Oregon

Individuals living in rural Oregon near Triangle Lake began raising concerns about pesticides being used in industrial forest management practices in Oregon's coastal mountains. In 2010, residents of the area were approached by a researcher from Emory University who conducted an initial investigation by collecting urine samples from the community members. The results of that study – which indicated elevated levels of pesticides but not high enough for a public health concern – were shared with the Oregon Department of Forestry.[20] Oregon Health Authority (OHA) was contacted to perform a community health assessment to see whether pesticides were present in the area and whether there were any potential health effects from the pesticide use. OHA launched an investigation, and various samples were collected for analysis, including urine, water, soil, and foods.[20,21] The investigation eventually ruled out pesticide exposure through drinking water, soil, and homegrown food, leaving the culprit to be air exposure.[22] The OHA report revealed that residents had been exposed to the chemicals atrazine and 2,4-D.[21,23,24]

This example shows how risk communication was used as risk management that created a dialogue between the community, private companies, and the government to inform risk management decisions. Engaging in risk communication as a dialogue removes the power differential and provides an opportunity for communities to engage in emergency responses. See Chapter 10 for more on engaging the public through community-based participatory research.

## Crisis Communication

"Crisis communication" is another common term used in both private and public sectors. In the public relations industry, crisis communication is most often related to responding to a situation with the goal of maintaining the reputation of the business. This perspective is known as "reputation management" – ensuring that the image of the business or organization does not deteriorate to such a degree that it negatively impacts product sales, stock prices, and other financial assets.

A crisis is defined as an unexpected event or series of events that creates a perceived threat, has an element of surprise, and has high levels of uncertainty.[7] There are three key aspects of an organizational crisis: heightened media attention, shortened response time, and uncertainty.

These characteristics of heightened media attention, shortened response time, and an uncertain situation can be seen in an anthrax attack that occurred in the United States in 2001: The anthrax attack drew widespread media attention, the nature of the threat to humans required the government to act fast to contain and mitigate health harm, and given the nature of the situation – a terrorist attack – the situation was very uncertain. A year after the attack, I served as an intern in Washington, DC, for then US Senator Tom Daschle. Senator Daschle was one of the people targeted during the attack. Staff members would share the story of what happened on the day of the attack, the hazmat procedures that were put in place, and how staff dealt with being exposed to such a lethal substance. Luckily no one on Senator Daschle's staff died, but some of the postal workers exposed to the anthrax through the mail service did die due to their exposures.

For emergency risk communicators the anthrax attack showed the need for message consistency, timeliness, and accuracy. Because the situation – a bioterrorism attack – was

a novel situation for CDC to respond to, there was limited science on how to mitigate the health threat. Plus, CDC's pressroom only had a few people working there, with no clear crisis communication plans or policies in place. As a result, CDC had over 80 spokespeople communicating during the response. Having 80 spokespeople speaking to the press is not an ideal situation during a crisis.[25] As a result, CDC took the time to learn from the anthrax response and thus began the development of the CERC term and theoretical framework.[17]

## Crisis and Emergency Risk Communication: CERC Framework and Phase-Based Messaging

CERC consists of messages that include the urgency of crisis communication and the need to communicate risks and benefits to stakeholders in the public.[4,17] CERC is the communication model and framework CDC created in 2002.[17] The first edition of CERC was initially created as a manual to support federal relations between agencies and the press. The 2014 CERC manual includes 12 modules focused on explanations of crisis communication and the psychology of a crisis, message development, crisis communication plans, spokesperson guidelines, working with the media, public health law, and human resource considerations. It also includes references to the National Incident Management System (NIMS) and the use of Joint Information Centers to coordinate health information between agencies involved in an emergency response.

"CERC can be described as a standardized methodology for the communication function of government agencies responding to public health emergencies."[17] The CERC framework has been used to analyzed to numerous health emergencies including pandemic influenza, hospital emergencies, severe winter storms, H1N1, and food recalls.[17] Since CERC has been a foundational mainstay in the field of public health, case studies using the CERC framework will be shared throughout this book. These case studies were created by students at Tulane University's Celia Scott Weatherhead School of Public Health and Tropical Medicine who participated in the Disaster and Emergency Communications class taught by the author.

### CERC Principles

The CERC framework focuses on six principles as the tenets for effective CERC: Be First, Be Right, Be Credible, Express Empathy, Promote Action, and Show Respect (see Figure 1.1). The framework also includes explanations of how to create messages for different phases of the crisis communication life cycle (i.e., precrisis, initial, maintenance, recovery, and evaluation).[4,9,26] In short, the CERC framework provides an outline of the what and how of CERC.

Be First: Crises are time-sensitive. Communicating information quickly is always important. For members of the public, the first source of information often becomes the preferred source. If your agency is legally required to respond to the emergency, being the first agency to release information is important for legitimizing the response operations and mitigating the health threat to the community.[4,9,26]

Be Right: Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps. Accuracy of information supports organizational credibility. For an organization to be right in the early stages of an emergency, addressing uncertainty is critical. See Chapter 6 for specifics on addressing uncertainty.[4,9,26]

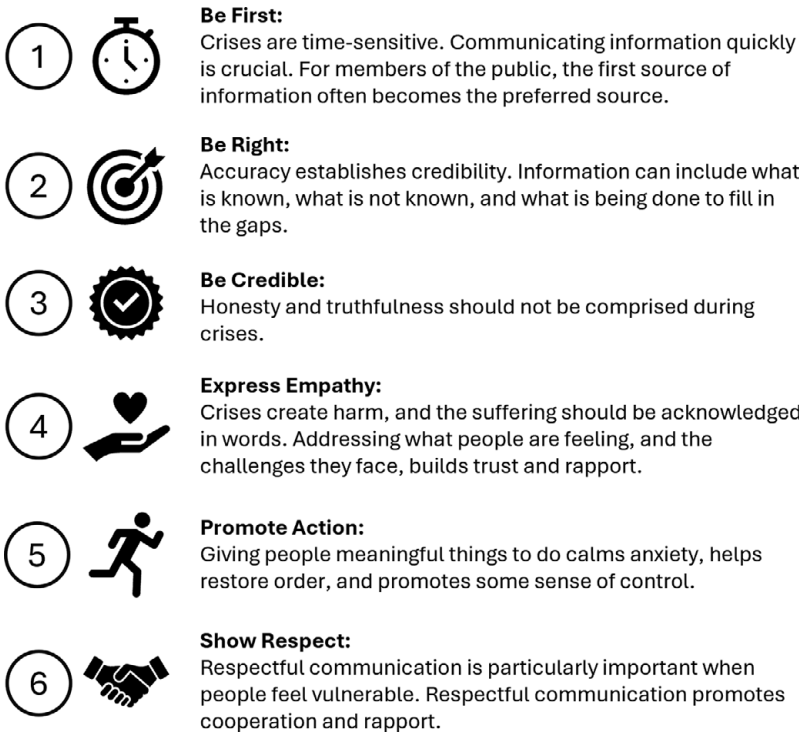


**Figure 1.1** The Crisis and Emergency Risk Communication (CERC) framework principles
This figure describes the six principles of the CERC framework that are the tenets for effective crisis and emergency risk communication. The CERC principles were identified by the US Centers for Disease Control and Prevention in 2002.
*Source:* United States Centers for Disease Control and Prevention (CDC). The use of this material does not imply endorsement by CDC, Agency for Toxic Substances and Disease Registry, United States Department of Health and Human Services, or the United States Government of the author. This material is available on the CDC website free of charge: www.cdc.gov/zika/about/needtoknow.html

Be Credible: Honesty and truthfulness should not be compromised during crises. Being open, honest, and transparent about what the agency knows and what the agency is doing is necessary during emergency operations. This also supports organizational credibility and establishes trust between the agency and the community affected by the emergency.[4,9,26]

Express Empathy: Crises create harm, and this suffering should be acknowledged in words. Addressing what people are feeling and the challenges they face builds trust and rapport. Crises cause disruption, fear, and anxiety; health emergencies impact one's well-being. Health is a currency that is hard to replace once it is gone. Expressing empathy acknowledges the disruption, fear, and loss that have occurred. When a spokesperson authentically expresses empathy, they can change impersonal perceptions of the organization in a connected and personal way that transforms the organization from an "it" to "we." Expressing empathy can build trust and rapport with those affected by the emergency.[4,9,26]

Promote Action: Giving people meaningful things to do calms anxiety, helps restore order, and promotes a restored sense of control. Providing people in an emergency

with meaningful action steps reduces anxiety and promotes a sense of personal control.[4,9,26]

Show Respect: Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport with those affected by the emergency, but also with those groups of people and organizations who are assisting with the response operations. Working in multidisciplinary and multijurisdictional responses often leads to organizational and cultural challenges that can slow or even stall activities.[4,9,26]

## CERC Phases

There are five phases in the CERC framework: precrisis, initial, maintenance, resolution, and evaluation phase. The original CERC manual distinguished evaluation as a separate phase; subsequent updates advocate for evaluation to occur throughout the health emergency to inform public messaging and optimize emergency risk communication activities.[4,9,26]

During the precrisis phase, those routine public health and health promotion communication activities relating to immunizations, physical activity, and chronic disease prevention are occurring. In addition, emergency risk communicators are engaging in public health preparedness activities such as developing, reviewing, and adapting emergency risk communication plans. These communication plans go beyond the required emergency response plans that adhere to CDC Public Health and Emergency Response funding and Emergency Support Functions (see Chapter 2). These communication plans include communication objectives, key audiences, identified spokespeople, thresholds for communication activities, links to currently available public information such as websites or FAQs, and even sample messaging.

Another key preparedness activity for emergency risk communications during the precrisis phase is to reach out to other communicators, partner agencies, and stakeholder groups to maintain relationships. It's often very helpful to talk through proposed messaging to create and strengthen message consistency across partner agencies and stakeholder groups.

The next phase of the emergency is the initial phase. This phase begins when some catalyst has occurred to start the health emergency. For example, in a foodborne illness or infectious disease outbreak, the numbers of cases drastically increase. In some cases, it may be a death of a community member that signals the start of the health emergency. Once the initial phase begins, there are immediate emergency risk communication concerns to address. The CERC principles can help with developing and delivering key messages during the initial phase of the emergency. During the initial phase, being first, right, credible, and empathic, showing respect, and promoting action are necessary to build organizational credibility and take organizational responsibility for the health emergency.

With social media, agencies, organizations, and businesses often are no longer the first ones to release emergency information. Often agencies, organizations, and businesses are alerted *by* social media about a health emergency. However, during the initial phase of a health emergency, it is critical for the government agency that is legally accountable and responsible per state statue and Emergency Support Functions to release credible, accurate, and honest information as soon as possible. As we know from the definition of a crisis, there will be heightened media attention, a shorted response time, and a lot of uncertainty. All these components are exacerbated early on in a crisis.

The initial phase is usually short and lasts from 24 to 48 hours. Generally, after this amount of time, more information has been obtained and test results have been validated. In health emergencies, samples and test results provide key clues about their cause. Even while health agencies wait for the scientific test results to come in, key crisis information must be shared with the public about what has happened, what the agency knows at this time, what the agency does not know, and what the agency is doing to find more information and respond to the health emergency. Providing this type of information addresses the uncertainty of the crisis. Stating what the agency knows and what the agency does not know currently supports truthfulness, openness, and honesty. This will bolster the credibility of the organization overall. Hiding or intentionally not releasing information has never worked out for any agency or business in the short or long term.

The next phase of the emergency is the maintenance phase. Typically, health agencies spend a lot of time in this phase. This phase can last from a week to years, as was seen during the COVID-19 pandemic. During the maintenance phase, as more information is becoming available about the cause of the health emergency, more detailed risk information by population group can be shared. For example, pregnant women, children, and those with underlying health conditions tends to be the most vulnerable during health emergencies. By communicating their specific health risks, these groups can make informed decisions on how to protect their health. However, there might be additional groups that are affected by the health emergency. During the maintenance phase, tailored messages can be created for each population group that is affected by the health emergency, indicating the risk level for each group. Additionally, there may be pharmaceutical interventions that are available. During the maintenance phase, communicating about interventions is a vital component to mitigating the health threat.

Once the health threat has been mitigated, the health emergency moves into the resolution phase. This phase is also called the "recovery phase" by emergency management officials. At this point, the health agency begins to pivot away from emergency communication and moves into educational messaging. During the recovery phase, messages of renewal or returning to a new normal may be published. Depending on the severity of the emergency, memorials may be held or physical monuments constructed to remember those affected by the emergency. During the recovery phase, there are often policy changes that may occur both internally within the agency and externally as elected officials write new legislation related to the health emergency.

The final phase of the health emergency is the evaluation phase. Seasoned health practitioners and emergency managers know that evaluations can occur during the emergency response and after. Interim progress reviews, hotwashes, and after-action reviews provide an opportunity to investigate what worked, what didn't work, and what can be improved for the next response. Inevitably these types of evaluations focus heavily on emergency response operations and little on the actual communication during the event. Veteran risk communicators know that evaluating emergency risk communication activities takes a dedicated vision and intention to do so. There is a benefit to reviewing communication-specific activities, policies, and procedures.

Let's take a brief look at how CDC public health communicators applied phase-based messaging during Hurricane Katrina. Public health communicators excelled at pre-event health information dissemination and delivered messages in advance to mitigate issues due to short-term power outages during and after the storm.[27] However, the length of

the emergency response, coupled with severe flooding and a second hurricane, complicated emergency risk communication activities. Different types of information were needed at different times in each of these emergency situations. For example, health information was needed on how people could protect themselves from storm debris and storm winds. Later, guidance was needed on preventing drowning, carbon monoxide poisoning, electrical hazards, and driving in floodwater. As emergency shelters opened, health information was needed on personal hygiene, infection control, storing food safely, stress reduction, and management of chronic disease.

After the health emergency, CDC public health communicators reviewed communication messages, policies, and procedures to learn what worked and what did not. Through the Hurricane Katrina response, CDC learned that phase-based messaging was key to meeting information demands throughout a health emergency. Plus, depending on the type of health emergency – flooding, wildfires, infectious diseases, foodborne illnesses – strategic communication planning could drive the development of health messages for each phase of the specific health emergency. This would create a basic communication plan for different types of health emergencies and establish specificity regarding the types of messaging needed at different times throughout an emergency.

## The Role of Risk Perception in Emergency Risk Communication

As emergency risk communicators plan for and respond to health emergencies using the CERC framework and other theories, it is imperative for communicators to understand the public's risk perception. Risk perception derives from the probability and severity of a threat mixed with emotions, knowledge, attitudes, and beliefs. How people perceive risks is informed by how much knowledge they have about a particular risk, how they feel about the risk, and whether the risk was chosen or imposed upon them.[28–31] A key challenge emergency risk communicators face when communicating about a health risk is the visibility of the risk. For example, when someone is ill, there are symptoms such as a fever, a runny nose, or a cough. However, during the COVID-19 pandemic, emergency risk communicators struggled to give the public direction on how to avoid a risk they couldn't see. In contrast to communicating about almost invisible health risks, emergency management and forestry PIOs can easily communicate about weather- and land-related risks such as tornadoes, floods, earthquakes, severe winter weather, and wildfires because people can see them and usually have some understanding of these threats. The unfortunate benefit of having gone through COVID-19 is that people across the globe now have direct experience of engaging with contact tracing, isolation and quarantine, mask wearing, and vaccination campaigns. Emergency risk communicators can leverage this prior experience of COVID-19 to support future emergency risk communication messaging.

To understand the complexities of emergency risk communication, one needs to take a step back and consider why this area is so complex and inherently challenging to communicate. Research on emergency risk communication comes from multiple disciplines, including psychology, economics, business, public relations, public health, and disaster sociology. Crises and emergencies can cause disruption at individual, community, societal, and even global levels. Regardless of the scope and scale of the emergency, the communication needs are complicated due to the following variables:

- Emergency type
- Cause
- Risk to health and property
- Geographic location
- Socioeconomic status of those affected by the emergency
- Number of stakeholders impacted by the emergency
- Business and political interests

These multiple factors prompted researchers in the late 1970s to investigate why communicating risks to the public was so complicated. In a landmark research paper, Paul Slovic offered clear insights into how people view risk and why people view risks differently.[28] In this quantitative study, Slovic had technical experts and members of the public judge different hazards. For hazards that fall under the category of dread risk (i.e., things that are uncontrollable, catastrophic, fatal, and have an inequitable distribution), the public want to see these types of risks reduced and want strict regulations in place to reduce these risks. In contrast, experts viewed these dread risks very differently and were more likely to accept the riskiness of the hazard compared to members of the public. Slovic began to realize there is a psychological component of why people think about and understand risks differently: Risk perception involves a subjective assessment of the risk.[32]

A part of this subjective assessment of the risk is based upon one's instinctual desire for survival coupled with previous knowledge and experience, attitudes, and beliefs. As a result, during unknown situations that are out of one's control and are imposed upon people without their choice, fear can play a major role in perceiving risk. When things are uncertain, the human brain works hard to make sense of the situation and through the "affect heuristic" and judges the situation as simply good or bad.[29] "Risk as feelings refers to our fast, instinctive and intuitive reactions to danger. Risk as analysis brings logic, reason and scientific deliberation to bear on hazard management."[29]

One's initial judgments about a risk ultimately impact what decisions one makes about that risk. If a person perceives there is a benefit in taking an action or decision – such as getting a vaccine during a health emergency – the perceived risk of harm from the medical intervention is likely to decrease. "This result implies that people base their judgements of an activity or a technology not only on what they think about it but also on how they feel about it. If their feelings toward an activity are favorable, they are moved toward judging the risks as low and the benefits as high; if their feelings toward it are unfavorable, they tend to judge the opposite – high risk and low benefit."[29]

The challenge for emergency risk communicators is making the risk tangible at the personal or individual level but also communicating the risk at the community level. Ultimately, emergency risk communication is about population health, impacting hundreds of thousands of people during a health emergency. However, individual risk perception is all about the individual, and as the numbers grow larger in emergency risk communication messages, individuals may begin to lose interest. Such numbers are simply too big for a person to relate to or comprehend. This process is called "psychosocial numbing," and it is exemplified in the following quote by Albert Szent-Gyorgi: "I am deeply moved if I see one man suffering and would risk my life for him. Then I talk impersonally about the possible pulverization of our big cities with a hundred million dead. I am unable to multiply one man's suffering by a hundred million."[29]

Threat and dread are frequent emotional reactions to perceived threats and form a part of outrage – the negative emotional reaction by the public regarding an emergency.[33] Components of outrage are based on how the public judges the impact and causes of an emergency through factors such as trust, control, voluntariness, dread, and familiarity.[33] By understanding how the public is perceiving the risks and impacts of an emergency, emergency risk communicators can develop messages that consider the public's outrage. By combining the 12 factors of outrage with phase-based emergency messaging, communicators can develop messages that are attuned to the public and stakeholders affected by an emergency. Table 1.1 is based upon the outrage factors as defined by Peter Sandman and includes updated descriptions and examples.[33]

**Table 1.1** Outrage factors with descriptions and examples

| Outrage factor | Description and examples |
|---|---|
| Voluntary vs. coerced | A person chooses the risk vs an organization imposes the risk upon a person or community. Coerced threats are more likely to create outrage. |
| Natural vs. industrial | An act of God, natural disaster, or naturally occurring pandemic vs a lab leak or nuclear power reactor malfunction. Industrial or human-made threats are more likely to create outrage. |
| Familiar vs. exotic | A familiar act like driving a car can be perceived as less risky: The more we do it, the more familiar something is. In contrast, self-driving cars are more exotic – the technology is new and less familiar to us. Exotic threats are more likely to create outrage. |
| Not memorable vs. memorable | The use of symbolization and media images can make a situation more memorable, such as the images of the Deepwater Horizon oil rig explosion and footage of oil gushing from the well that were constantly shown on TV. Odors related to a chemical emergency such as that of the 2023 Southern Norfolk train derailment can create a memorable event. The more personal the experience, the more memorable it will be, and the more outrage it will generate. |
| Not dreaded vs. dreaded | Dreaded threats create a perceived lack of control over catastrophic consequences and highly fatal events that result in an individual feeling fear. When people don't dread something, they are likely to experience less outrage. |
| Chronic vs. catastrophic | Chronic risks become absorbed into society and become familiar, such as health risks from cancer, heart disease, or smoking. Catastrophic risks – events those that are less likely to happen such as contracting Ebola in the United States – can cause more outrage than chronic, ongoing hazards. |
| Knowable vs. unknowable | Knowable risks provide certainty, as there is available science and data about the hazards. In contrast, unknowable risks such novel viruses or issues with new vaccines create uncertainty and can cause more outrage. |

**Table 1.1** (*cont.*)

| Outrage factor | Description and examples |
|---|---|
| Individually controlled vs. controlled by others | Like the outrage factor of voluntary vs coerced, if an individual can control the hazards, they are less likely to experience outrage. In contrast, if the hazard is controlled by others, the public is likely to experience more outrage. For example, the Flint water crisis was under the control of the government, not individuals. |
| Fair vs. unfair | The unequitable distribution of risks and hazards can create outrage. About 40% of Flint, Michigan's population lives below the poverty line and the impacts of lead poisoning on children have lifelong consequences. Many view the Flint water crisis as an unfair distribution of risk to the community. |
| Morally irrelevant vs. morally relevant | When hazards transgress society's morals – the accepted customs of conduct among the community – outrage can occur. The issue of vaccine mandates can stimulate outrage among the public. |
| Trustworthy sources vs. untrustworthy sources | Receiving health information from trusted sources such as medical doctors can reduce outrage. However, if the public feels betrayed by those trusted sources of information, enormous outrage could occur. |
| Responsive process vs. unresponsive process | When organizations engage in honest, transparent, respectful, accurate, and empathetic communication during emergency responses, there is less likely to be outrage. When organizations are secretive, withholding, lack respect, or lie, outrage will occur. |

In addition to considering the public's outrage, a final challenge facing emergency risk communicators is navigating the politicization of public health and its impact on risk perception. In the United States, emergency risk communicators must strike a balance of messaging that protects the public's health while respecting the constitutional rights of its citizens. While this has always been an issue, the COVID-19 pandemic has sparked fierce debate about how much authority public health agencies should have during an emergency and about deferring to parental authority regarding childhood vaccinations instead of relying upon evidence-based science of communicable disease prevention.

## The Partnership of Organizational Leadership and Communication Officers

For emergency risk communication activities to work effectively, organizational leadership needs to identify risk communication as a priority function for the health agency during routine public health activities and emergencies. By establishing the importance of risk communication for the agency, organizational leadership signals to the rest of the agency that risk communication is not an afterthought when conducting public health

work but a necessary and integral part to communicating and working with the public, stakeholders, and other government agencies.

It would be ideal for organizational leadership to have a strong working relationship with the communication officers within the agency. Communication officers or PIOs play a critical role in the development and dissemination of messages and the management of Joint Information Centers during health emergencies.[34] The messages that are created by PIOs and subject matter experts are communicated through the health department's leadership team via press releases, media briefings, and stakeholder meetings. Health department leadership – especially those designated as spokespeople – has a key role to play in personalizing the emergency response activities, gaining support from the public and stakeholders for emergency response operations, and as the face of the emergency.

While most communications occur during the emergency response, having the support of agency leadership during precrisis and postcrisis stages to support message testing, communications training, and evaluation of communication activities is imperative to the effectiveness of emergency risk communication messaging. Ensure that organizational structures and procedures are established to facilitate effective emergency risk communication, such as: clearly defined clearance and review processes; identified and trained spokespeople; current social media policies; preidentified vendors to rapidly receive funding to support the development of communication campaigns; and executed memorandums of understanding for nonagency communication experts and PIOs to support emergency response activities as surge staff.

### Case Study of Public Health Crisis: Outbreak of *Legionella* in Central Ohio Hospital (2019)

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#### Overview of Crisis/Situation

Legionnaires' disease (LD) is a severe type of pneumonia caused by bacteria of the genus *Legionella*.[35] LD is caused by inhalation exposure to the droplets of the bacteria, and the bacteria thrive in environments such as large water systems that have not been properly maintained.[36] Most healthy individuals exposed do not end up getting LD, but certain individuals are at increased risk for developing LD. These include those aged 50 years and older, those with chronic lung disease, such as chronic obstructive pulmonary disease (COPD), those with weakened immune systems, or those who are on medication that weakens the immune system.[35] As is clear, it is of significant concern when LD outbreaks do occur, especially in settings where those most at risk might be present, such as hospital settings.[35] We will now examine an outbreak of LD that occurred in Ohio in 2019.

In 2019, an Ohio hospital system known as Mount Carmel opened another location, Mount Carmel Grove City, on April 28, 2019. The private, 210-bed hospital was defined as being "large-scale [and] comprehensive" by the news channels.[38] It would offer a comprehensive cancer center, complex neuroscience services, and a newborn intensive care unit, bringing a full-scale health system to the south of Columbus. Just a month after the grand opening, Mount Carmel Grove City announced it was undergoing a "possible" LD outbreak after its sixth reported case. In total, 16 patients would be diagnosed with LD during the outbreak at this new and state-of-the-art facility, resulting in one death. Mitigation efforts included water restrictions for patients, staff, and visitors, as well as the installment of water filters and disinfection of the water supply through hyperchlorination.[39,40,41]

The timeline of key events was as follows[37]:

- Three positive cases were confirmed at Mount Carmel Grove City (earliest reported on May 15, 2019).
- The first LD case was diagnosed at the facility between April 29 and May 7.
- Cases were confirmed via urine antigen testing.
- Five later cases were reported between May 8 and May 20.
- The onset of LD cases occurred from May 12 to May 29.
- The hospital reported to the Ohio Department of Health (ODH) cases of confirmed LD as of May 16.
- Water samples were taken from May 23 through June 1.
- Samples for water testing were taken from the second and fourth to seventh floors and emergency department, confirming *Legionella* through polymerase chain reaction testing in the emergency department and on the seventh floor.
- A fourth case was determined as a result.
- The first declaration to the public of this as an outbreak of LD occurred on May 31, at a then-current total of six confirmed LD cases.
- May 31: ODH releases a "rare adjudication order" to the hospital to take immediate action or not accept any new patients.
- May 31: Water restrictions were put in place.
- June 1: ODH Director, Amy Acton, discusses the outbreak with the public via a news conference.[42]
- Disinfection operations were set up for the entire water system by June 2.
- Hyperchlorination was expected to be completed by June 2.
- June 2: A patient who contracted LD during the outbreak died.
- June 6: Temporary water filters were installed by the hospital as a barrier to the transmission of the bacteria.
- June 6: ODH lifts water restrictions on floors at the hospital.[44]
- June 11: A 16th case of LD was confirmed (noting that incubation of the disease can take up to 14 days) and permanent supplemental disinfection system was installed.
- June 13: Leadership from the hospital announced the cause of the outbreak and the corrective actions.
- June 24: A press release from the hospital was published regarding total confirmed cases and demographic data, along with a source of the outbreak, and that corrective action was taken.
- July 9: A fifth lawsuit was filed against the hospital due to illness related to LD, citing hospital negligence.

#### Overview and Analysis of CERC Principles and Phase-Based Messaging

According to CDC, there are six CERC principles that lead to effective emergency and risk communications. These principles ensure that resources in a crisis are properly managed, communication is delivered effectively, and decisions are made swiftly and accurately with regard to the data available.[45] These principles enable preplanning functions in crisis and disaster scenarios in which trained spokespeople can adapt to various situations and so be prepared during every phase of the situation. These six CERC principles as defined in CDC'S CERC 2014 manual are as follows:

1 Be First: Communication of information quickly and being the first source of information to the public are key.
2 Be Right: There must be information in the message about what is known, what is not known, and what is being done to fill in the gaps of knowledge.

3 Be Credible: This encompasses honesty as the best policy during the crisis; do not compromise your honesty.
4 Express Empathy: Acknowledge and address what the community is feeling in times of crisis and disaster. Ensure that messages address what people are feeling and the challenges they may be facing.
5 Promote Action: Give the community activities to do to limit the crisis and restore order, and outline clear paths toward resolving the crisis or disaster.
6 Show Respect: Communication should be respectful and promote cooperation. Phase-based messaging works in line with the CERC principles to ensure that specific types of information are communicated outward during a crisis. Communication efforts and various priorities are shifted throughout the phases of a crisis, and communicators who work with the public need to respond accordingly.[45]

The five phases of the CERC rhythm are precrisis, initial, maintenance, resolution, and evaluation. Messaging during a crisis starts in the initial phase, where rapid communication to those affected groups should be evident.[45] Additionally, messages should explain the risks of the threat, what the agency is doing to control the spread and identify the source of the outbreak, and promote action in terms of what people can do to protect themselves. In the maintenance phase, more information should be coming out about the crisis and what the agency is doing. Keeping the public informed of the facts and mitigating any misinformation should be priorities. The resolution phase should focus on recovery from the crisis and the promotion of public policy changes that may have emerged due to the crisis.[45] As the crisis dissipates, evaluations on how the situation was managed start to develop and the evaluation phase begins. Utilization of CERC phase-based messaging in line with the CERC principles minimizes negative public responses and maintains public trust in the health care agency.

During the 2019 outbreak of LD at Mount Carmel Grove City, some of the CERC principles were evident in Mount Carmel's communications to the public, but some of its messaging was severely lacking. In the following subsections we will analyze some of the messages put out during the LD outbreak at Mount Carmel Grove City and highlight the various phases during which each message was published. Please note that the CERC principle Be Right was absent from the communication response and so is not included in this analysis.

***Be First***

When it comes to the principle of "being first," in this situation Mount Carmel Grove City did not react in as timely a manner as it should have, nor did it act as the initiator of informing the public. In one of its first messages, the hospital released a general statement to the public informing the community that the hospital was working with the health department and CDC to confirm the source of the outbreak and informing the public that the hospital was confident that all operations could be maintained without disruption:

> Working with local health officials, we've determined at least seven confirmed cases of Legionnaires' Disease in individuals who recently received treatment at Mount Carmel Grove City. We are partnering with Franklin County Public Health (FCPH) and the Ohio Department of Health (ODH), in conjunction with the CDC, to identify the source of bacteria.
>
> We are running additional tests on water sources throughout the hospital, and our entire water supply is undergoing supplemental disinfection. We're confident that we can safely maintain the full services of the hospital while we study this situation.

> For most people, the risk of developing Legionnaires' Disease is low; however, individuals with chronic, underlying medical conditions are at increased risk. If you have been hospitalized and developed a cough, muscle aches, headaches, fever chills, or shortness of breath, please contact your primary care physician.
>
> As always, the safety of our patients is our top priority. We will continue testing the water over the next few weeks in coordination with FCPH, ODH, and CDC.
>
> As we learn more, we will provide updates to our patients and community.[46]

This statement was informative but lacked a few aspects of an initial CERC phase-based message, including information regarding a timeline of events and who to contact for more information. Regarding the principle of "being first," it was only after the declaration was made by the ODH on May 3 of an outbreak and of immediate action being taken that the hospital made its statement.[47,48] The rare adjudication order that the ODH Director, Amy Acton, issued was to ensure that Mount Carmel Grove City took the necessary steps to protect public health.[49]

Additionally, the spokesperson for the parent company of the hospital, Trinity Health, noted "the health system followed the guidelines in place for investigating individual cases . . . it's not uncommon to see sporadic cases that have nothing to do with being in a health-care facility."[46] CDC guidance states that LD outbreaks can be associated with travel, health care, and potable water systems, and declaring an outbreak requires there to have been "two or more cases associated with the same possible source during a 12-month period."[36] This goes against the Trinity Health spokesperson's statement as: (1) We know that individuals with LD were admitted to the hospital for a separate illness and were later diagnosed with LD and (2) the individuals who contracted the illness were admitted and stayed in the hospital at around the same time. The hospital was slow to communicate the LD risk to the public, and its eventual public message indicated that "it followed the guidelines in place," which could be perceived as a lack of transparency about *what* they knew and *when* they knew about the source of the outbreak.

#### *Be Credible*

Mount Carmel Health System is part of a network of hospitals spanning central Ohio. In 2019, the health care system had multiple full-service hospitals open. It was also undergoing investigation regarding accusations of a doctor's malpractice and murder through deliberate fentanyl overdosing of patients at two of its locations. With the opening of Mount Carmel Grove City, and with it already being under such scrutiny, we can assume that Mount Carmel Health System knew its credibility was being examined by the public,[50] which led to a lack of openness and transparency in its dealing with the LD outbreak. During the maintenance phase of the outbreak, the media was starting to notice this. *The Columbus Dispatch*, a local news outlet, noted in an article about the outbreak: "The building of the new hospital in Grove City was not without controversy from the beginning."[51] This article then discussed the closing of one Mount Carmel hospital in an area of Columbus where it was much needed, and it also highlighted the story of Dr. Husel, the doctor accused of the murder of 14 patients over multiple years. During his trial, Dr. Husel was acquitted of those 14 patient deaths.[51]

Mount Carmel's lack of public discussion of the outbreak generated distrust among the public, indicating that its credibility was severely lacking. Most of Mount Carmel's actions in dealing with the outbreak came about only after it was told to do so by the ODH. The public noticed this, and those currently in the hospital's care were outraged.[48]

*Express Empathy*

During the maintenance phase of the crisis, while the full investigation of the water system was underway, Mount Carmel Health System was having its spokesperson relay messages to the public. Dr. Streck, the Chief Clinical Operations Officer of Mount Carmel Health System, released a statement confirming the death of one of the patients who had contracted LD, and he went on to advise on what to do if one contracts LD. In his statement, he not only contradicted himself but also sounded like he was reading from a script: "We are deeply saddened to confirm that one of the patients who was diagnosed with Legionnaires' disease passed away today . . .. We can say it's too early to determine the final cause of death."[52] In his statement, he acknowledges the patient's death but does not acknowledge LD as a contributing factor. This could be seen as very misleading by the public as he was trying to prevent blame for the patient's death being attached to the hospital. However, a statement was made from the ODH Director, Amy Acton, on the patient's death that same evening. ODH noted it as a "*Legionella*-related death of a Mount Carmel Grove City patient," and it went on to state that "we share a concern for all impacted by this outbreak."[35]

*Show Respect*

During the maintenance phase of this health emergency, multiple statements made by Mount Carmel Grove City failed to show respect not just to the public and patients, but also to the business partners the hospital was supposed to be working with during the outbreak. One example of this is the delay in the hospital undertaking action. According to the timeline of events, the first cases were reported to FCPH as of May 16, 2019, but water restrictions were not implemented and the public was not notified until May 31.[41] A delay in action indicates a failure to show respect to the community. Secondly, as mentioned earlier, the blame game played by Mount Carmel's parent company, Trinity Health, regarding ODH's delayed outbreak response action indicated a lack of respect and cooperation. Trinity Health noted that it did not announce the outbreak until it was confirmed that the cases were all related to its own hospital system when in fact the numbers had already passed the CDC threshold of greater than two reportable cases.[36]

*Promote Action*

A resolution message from a hospital allows it to give the public more information regarding the questions that many in a community might have: What has been done? Why did this occur? Who was at fault? When the President of Mount Carmel Health System, Sean McKibben, addressed the community, he noted that better disinfection and increased environmental testing could have prevented this situation. Actions noted were the installation of a supplemental disinfection system and 24/7 monitoring controls, as well as an updated protocol to flush the water system in every patient room daily.[41] Additionally, McKibben wanted Mount Carmel to be a change leader in industry and for it to be a part of the new task force that ODH had created for *Legionella* to address the issues surrounding policy changes and regulations regarding *Legionella* in health care settings. Mount Carmel produced a thorough message to the community once the outbreak had concluded, stating that it had resolved the crisis and was committed to change.

**Implications for Practitioners and Organizations Based on an Analysis of CERC Principles**

Communication in a crisis, such as an outbreak in a hospital, is critical to minimizing negative health outcomes for the public. This takes us back to the CERC principle of "the right message at the right time from the right person can save lives."[45] Three key

takeaways are noted from this crisis as lessons to be learned; these will be discussed in the following subsections.

*Response Timeliness*

A quicker response from the hospital system once LD was suspected should have occurred. Two weeks passed before action was taken to protect patients or an announcement was made to the public. The hospital was indeed testing the water supply, but it did not implement any other actions until the outbreak was declared. At that point, there were six confirmed cases, and a linkage had already been established to the hospital. When asked to explain the reason for this delay, the hospital blamed ODH and waited for confirmation of the outbreak.

*Adopt a Proactive Strategy*

Having an established policy in place for dealing with an outbreak leads to proactivity in dealing with possible future outbreaks. Mount Carmel Grove City, being part of a larger health system, should have had an established policy and practice in place for dealing with an outbreak of LD that aligned with best practices and guidelines following CDC recommendations. Instead, the hospital was forced to be reactive, changing its practices and altering its protocols after the outbreak had occurred to better equip itself to prevent potential future outbreaks. Instead, the hospital should have been more proactive, especially as this was a new hospital that was supposedly state-of-the-art.

*Transparency Is Crucial*

The last implication of this crisis is that transparency with the public is crucial. The messages given to the public should be concise, transparent, and forthright. In this crisis, little information was given during the outbreak from the hospital system itself through any of the available channels. Its website and social media were silent. This could be due to the fact that it was already battling negative media attention stemming from a separate incident involving a doctor accused of malpractice and murder and so it was trying to keep this outbreak as quiet as possible, but this lack of transparency did more damage. Mount Carmel Grove City should have addressed the situation publicly in its media strategy and informed the public promptly. The lack of transparency from the hospital led to its credibility being questioned.

**Conclusion**

Mount Carmel Grove City had big plans for this new facility opening, but due to an oversight in its planning process the hospital is now tainted by its failure to follow appropriate processes and oversight measures, which led to an outbreak of LD within a month of its opening. The hospital should develop effective crisis communication plans, especially on how to respond to outbreaks and mitigate risks, which will benefit it in the long term.

## End-of-Chapter Reflection Questions

1 **What emergency responses have you participated in? How was the communication different compared to day-to-day public health communication?**

2 **Compare and contrast where in your agency you see health communication, risk communication, and emergency risk communication occurring. Does your agency currently use emergency risk communication principles during health emergencies? Evaluate what works well and what needs improvement.**

3 **What emergency responses have been successful for your agency? Which responses have not been as successful? How would the use of phase-based messaging help in planning, sharing, and evaluating emergency risk messaging?**

4 **Think about your own personal risk perceptions. How do they impact your actions in your personal life? How are your personal risk perceptions reflected in your professional work?**

5 **Identify at least two ways you want to improve emergency risk communication at your agency. Consider who else needs to be involved, what resources are needed, how much time is needed, how you will evaluate whether these improvements are successful, and how these improvements will be maintained over time.**

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