



Understanding Risk Communication Best Practices: A Guide for Emergency Managers and Communicators

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About This Report

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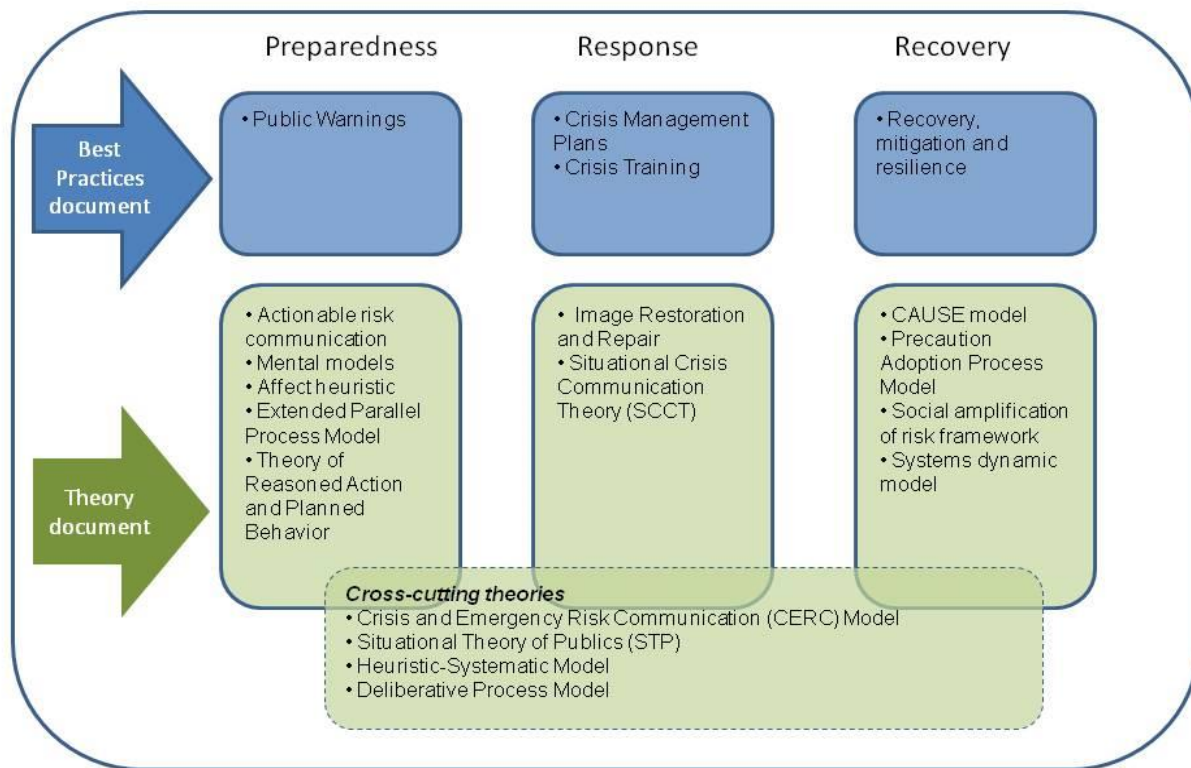
Introduction

Effective risk communication requires the alignment of complex factors including trust between the communicator and the audience(s), audience involvement, and emotional responses to risk. Risk communication is especially challenging now as new media changes the landscape for both communicators and their audiences. Viewed as a discussion of the most important findings for risk communicators and managers, this report delves into research-driven recommendations for effective risk communication practices. Paired with *Understanding Risk Communication Theory: A Guide for Emergency Managers and Communicators*, this report reveals the complexity of developing and disseminating effective risk messages. Trust in institutions and organizations, risk-related emotions, public proximity to risk, the severity of risk faced, overall tolerance of risk, and public experience with past risks and threats all should be considered in developing risk communication messages and are explored here. The need to reach out effectively to special needs populations is discussed to provide insight on crafting messages for and understanding the behavior of children, the elderly and disabled, those with literacy difficulties, activists, and minority racial and ethnic groups. Other important populations discussed are activist groups and white males. The report also examines the direct and indirect roles of the media—both traditional and new media—on official communication efforts, and concludes with a discussion of communication considerations relevant to specific phases of a threat or risk. Throughout, the report offers explicit information on key implications of all these factors for effective risk communication.

This report starts from the recognition that there is agreement on some specific principles related to effective risk communication: (1) that understanding characteristics of an audience is essential to developing effective risk communication efforts; (2) that how, when, and by whom a message is delivered impacts its effectiveness; and (3) that communicators must continually adapt to changing situations.¹ The best practices presented here are rooted not only in experience but in well-developed theories and evidence from communication and other academic fields, as illustrated in Figure 1 and further discussed in the *Understanding Risk Communication Theory* report. The goal of this *Best Practices* report is to translate theoretical findings into practical guidance for those officials who have the daunting responsibility of communicating with relevant publics faced with a homeland security threat.

¹ Appendix A provides a broad overview of the scientific theories and models that inform the material presented here.

Figure 1. Theories and Best Practices across Risk Phases



Defining Risk and Crisis Communication

Risk communication is often defined in ways similar to that offered by Covello (1992), who wrote of the “process of exchanging information among interested parties about the nature, magnitude, significance, or control of a risk” (p. 359). Crisis communication is seen as the cross between managing information and managing meaning during all three stages of prevention, response, and post-crisis learning (Coombs, 2010). As such, Heath (2010) explained that “a crisis is a risk manifested” (p. 3).

Risk communication often focuses on developing and conveying messages prior to and during an event, and crisis communication focuses on doing so post-event. The distinction allows for a specific focus and understanding of the types of information and considerations that should be made at different stages and for different events.

Key Distinctions Between a Risk and a Crisis

- A crisis is a specific incident with a short time frame, while a risk is often more nebulous and evolves over time.
- Risk communication tends to utilize messages from experts and scientists while crisis communication typically utilizes messages from authoritative figures.

- A risk is viewed as controlled and structured whereas a crisis can be spontaneous and reactive (Ulmer, Sellnow, & Seeger, 2011).

Depending on the event characteristics, both risk and crisis communication can deal with known and unknown aspects of risk, including the magnitude of an event, degree of impact, and most effective response.

Publics and Risk Perception

This section focuses on major factors impacting how publics perceive and react to risk and risk communication. The severity of and proximity to the risk itself are considered as are trust in and previous interaction with the risk communicators and the impact of emotional connection and responses to the risk event. Appendix A, in the *Appendices* document, contains a table summarizing this research.

When crafting messages and engaging with publics, knowing how a public feels about a risk, how closely a risk is perceived to affect them, and the amount of trust the public has in an organization or institution can all make a big difference when applying risk communication models and theories. Public risk perception can be influenced by a wide variety of factors independent of risk and crisis phases. Covello, Peters, Wojtecki, and Hyde (2001) particularly noted that a risk event's voluntariness, controllability, familiarity, equity, benefits, reversibility, uncertainty, dread, ethical/moral nature, human or natural origin, victim identity, and catastrophic potential as well as the public's understanding, trust in institutions, and personal stakes in the event can impact risk perceptions in either positive or negative ways. Increasing public preparedness for a risk event before it occurs can be more effective when these factors are considered and used to help develop communication with publics. Preparedness also can be influenced by the frequency of communication, how expert knowledge and partnerships are utilized, strategies chosen for message dissemination, and the ability to evaluate and provide feedback to enhance future effectiveness (Mileti & Kuligowski, 2006).

Publics and trust

One strong social factor that influences public willingness to accept risk is the level of trust publics have in risk managers and risk communicators (Earle, 2004; Kasperson, Golding, & Tuler, 1992; Leiss, 1995, 1996; Löfstedt, 2005; Renn & Levine, 1991). Trust, defined here as knowing you can rely upon another, is one major factor within credibility, which requires consistency and connection between organizational words and actions to be fully effective (Corman, Trethewey, & Goodall, 2008). High levels of trust can reduce social uncertainty and complexity, and influence risk perceptions and acceptance of risks (Rogers, et al., 2007). Risk communicators seen as less trustworthy by publics foster a clear increase in public concern over the risk (Freudenburg, 1993; McComas & Trumbo, 2001; Poortinga & Pidgeon, 2003). Conversely, communication with publics based in trust and meaningful dialogue will increase public support for decisions made by and/or presented by risk communicators (Renn, 2004). Building dialogue and consensus between publics and organizations is also more successful than simply spreading

information (Palenchar, 2010b); town halls or community meetings can be used prior to a crisis to discuss information with publics and to gather feedback for use during an event. Publics are further more likely to trust risk communicators that appear to share similar values with them (Siegrist, Cvetkovich, & Roth, 2000).

Lack of trust in the communicator or his/her organization can cause audiences to view certain risks as greater than they are or to lose confidence in those leading and developing policy (Löfstedt, 2005; Rogers et al., 2007). Community management, which involves providing publics with methods for engaging in risk management such as focus groups or advisory boards, can be effective in increasing trust between publics and organizations or risk communicators (McComas, 2010). Community construction of knowledge and meaning allows for increased control and trust and reduced uncertainty within the risk situation (Palenchar, 2010b). Publics that perceive fairness in community decision making are also more willing to maintain or repair trust levels with risk communicators (Löfstedt, 2005; McComas, Besley, & Yang, 2008), allowing communicators to more easily and effectively present messages that ask for specific action to be taken. Community construction of knowledge and meaning allows for increased control and trust and reduced uncertainty within the risk situation (Palenchar, 2010b). Additionally, as more citizen-based organizations have gained power, publics have shifted their trust from public institutions to those citizen groups (Heath & O'Hair, 2010), continuing public insistence on a role in decision making processes (Fischhoff, 1990).

Risk communicators' efforts to build trust and increase control by providing risk response information can also actually increase a public's sense of risk (Palenchar, 2008). For example, Poortinga and Pidgeon (2003) examined how people perceive government and its policies toward risk regulation in different risk contexts. Where public skepticism is low and trust in government is high, message recipients are likely to accept the decisions and the communication – termed acceptance. Their research also provided evidence for the *critical trust* concept where a high degree of trust in a person or institution can co-exist with a relatively high degree of skepticism. For communication, the audience may still be skeptical, and thus still (constructively) question the correctness of the received information, but nevertheless still trust the messages and the communicator (Poortinga & Pidgeon, 2003).

Furthermore, it is critical that truthful, consistent information is provided and regularly updated by trusted sources (Fullerton, Ursano, Norwood, & Holloway, 2003). Especially during the recovery phase, a low-trust environment will undermine efforts to elicit desired behavioral responses (Sheppard, 2011). Identifying the importance of an issue to the public is a key factor in building and maintaining trust. Issues of moral importance are likely to result in the trust levels of risk managers being determined by the outcome preferences of individuals (Earle, 2004). When policy values are not aligned with individual values, the communication and response effort will undermine public trust in risk communicators (Earle, 2004).

Lack of trust can amplify risks and heighten stigma that may ensue. Social trust (an individual's trust of society and societal structures) is especially important when communicating risks that are less familiar, including highly complex risks, such as terrorism events, where the complexity of the situation dictates

that individuals will base their trust on agreement and sympathy, rather than on carefully reasoned arguments, thus forming a direct link with the previously discussed affect dimension of risk perceptions (Kasperson & Palmlund, 2005; Poortinga & Pidgeon, 2003).

Implications for Risk Communication: Publics and Trust

- Policy values should be aligned with individual/community values.
- Skepticism and questions from the public do not definitively equate to lack of trust.
- Information provided to publics must be credible, truthful and consistent, especially in highly complex events.
- Communicators need to know how important (and why) an issue or event is to publics.

Publics' emotional responses

Intense emotional states, as can occur amidst the emergence of a risk, can lead to a wide variety of public responses. People in risk or crisis situations are going to feel a range of emotions at varying levels of severity. Controllable or predictable crises tend to foster anger and sadness, while fear is the most frequent emotion when a crisis is viewed as unpredictable or out of the public control (Jin, 2010). The bigger the crisis, the more potential there is for a public to simply shut down and enter a state of denial (Covello, et al., 2001). Emotions are often distinguished as being either positive (e.g., gratitude, love, and interest) or negative (e.g., anger, frustration, and fear); both can be experienced by individuals in risk or crisis situations. Negative emotions that do not result in denial can encourage people to cope cognitively, through rational and positive thinking (Jin, 2010).

Four of the primary negative emotions in risk and crisis are anger, sadness, fright, and anxiety, and they are typically discussed relative to the affected organization's engagement in the crisis and the publics' chosen coping strategies (Jin, Pang, & Cameron, 2008). These four emotions need to be recognized clearly and distinctly in order to engage with the public's emotional experience (Garg, Inman & Mittal, 2005). *Anger* results from an offense against "me and mine" (Lazarus, 1991, p. 122), and it increases as perceptions of who is to blame for the crisis intensifies (Coombs & Holladay, 2005) such as when a city has inadequate emergency management personnel to respond to a disaster and is thus blamed more by residents for not providing desired help. Understanding the degree of anger in a populace following an event will assist in crafting risk messages that can encourage desired behavioral responses. While fostering anger is not always the most effective strategy and can have other consequences, anger-inducing messages can reduce dread risk perceptions and negative risk estimates (Lerner, Gonzalez, Small, & Fischhoff, 2003; Turner, 2007). Anger also motivates people into action (Lazarus, 1993), making it easy for risk communicators to tailor messages to anger as a method for improving message efficacy such as through showing images of the Twin Towers to motivate citizens to help the government combat terrorism. Other studies have found that angry people can process a persuasive message analytically (Albarracin, Cohen, & Kumkale, 2003). *Fear*, while often considered connected to anger, arises from perceptions of negative events as unpredictable (i.e., low certainty) and under situational control instead

of individual or personal control (Lerner & Keltner, 2000). A public that cannot figure out how to cope with loss and regain control, or predict how to better handle a threat, will most likely turn to fear as a response (Lerner, et al., 2003), so communicators are encouraged to help publics by suggesting specific actions or preparedness activities that can be undertaken. For example, during an epidemic outbreak, citizens need direction on concrete steps that they can take to remain healthy.

Understanding the other two major negative emotions is equally important. *Sadness* can stem from a tangible or intangible loss, or both, or when survival is threatened. Publics dealing with sadness typically have no one to blame but are still in need of relief and comfort (Jin, 2010), such as those that lose loved ones, their homes, or employment after a major disaster. Finally, *anxiety* as a response stems from large amounts of uncertainty, where the threat is more symbolic and ephemeral than those that produce fear such as terrorism, and the public often feels overwhelmed and looks for concrete, immediate solutions (Jin, 2010; Lazarus, 1991). Acknowledging and understanding the primary emotions felt by the public can aid the risk communicator in developing more appropriate and effective messages. Those experiencing anger, fear, and anxiety should be given specific coping strategies, and sadness should be addressed with comfort and support.

Implications for Risk Communication: Publics' Emotional Responses

- Institutions and organizations should provide information, action steps, and emotional outlets for publics.
- Strong, trustworthy relationships prior to a risk event can decrease the emotional impact.
- Allow publics to express the full range of emotions felt.

Publics' proximity to risk

Proximity to risk is, at its base, an understanding of how physically close publics are to a problem, which impacts their perceptions of risk. However, the definition of proximity is expanding, as people live, work, and travel in “complicated and highly variable geopolitical spaces,” all of which can impact their assumption of risk (Trumbo, 2008, p. 22) and thus, need to be understood by the communicator. The more publics know about how to lessen the effects of a threat, the less concern they have about living or working close to a potential source of such a threat (Heath & Abel, 1996). Providing preventative and impactful information about potential threats is found to be more effective than spreading a message of the extent of risk and probability of a threat manifesting itself (Heath & Abel, 1996), especially since localized negative news tends to draw increased amounts of attention (Wise, Eckler, Kononova, & Littau, 2009).

Proximity in terms of a public's physical closeness to risk has the greatest impact on levels of uncertainty, requested support, and dread, but it tends to have minimal influence on levels of trust, involvement, openness, or shared knowledge between the public and the organization (Heath, Seshadri, & Lee, 1998). Physical proximity also increases the basic likelihood that an individual will respond to a risk message

(Bateman & Edwards, 2002). In situations in which publics live close to major risk centers like chemical plants, they are often supportive of the potentially risk- or crisis-causing industry. The knowledge that passes between the public and the organization, and the benefits that the organization brings to the area have been found to outweigh any potential loss due to future risk or crisis events among the relevant publics (Heath, et al., 1998).

Health threats that are within close geographical range, or high proximity, need to have a greater allocation of resources; additional money, personnel, and other assets are necessary to deal with threats seen as the most likely to occur and have a large impact. Details from those high-proximity threats are remembered more accurately than those from low proximity threats (Wise, et al., 2009). Proximity can also aid in increasing trust, turning physically close partners into aids and not obstacles to success (Chess & Clarke, 2007).

Beyond physical proximity, temporal proximity (events occurring in the near future, regardless of spatial closeness) impacts communication dynamics as well. Events occurring in the near future are more likely to induce analytic processing of information. When events are further in the future, publics may give more attention to message presentation instead of message content (McElroy & Mascari, 2007).

Implications for Risk Communication: Publics' Proximity to Risk

- Providing risk *prevention* messages is more effective than risk *likelihood* messages.
- Benefits provided by an organization (ex: jobs) may outweigh potential losses of future risk events associated with the organization.
- Details of and responses to high proximity events are remembered more accurately than those of low proximity events.
- Proximity can increase trust, so physically close organizations are seen as aids, not obstacles, to success.

Severity of risk

Severity was initially considered to be an important piece of the situational crisis communication theory (SCCT), as a factor related to the amount of crisis responsibility attributed by a public to a specific actor (Coombs & Holladay, 2002). As severity, or the amount of financial, human, or environmental damage caused by a crisis or potential threat, increases, publics were thought to attribute greater responsibility to the organization perceived as the cause of the threat. As SCCT was empirically tested, however, no evidence supported the relevance of severity as a significant factor in responsibility attribution. Similarly, as public belief that personal consequences will be so severe as to make personal actions in the face of a threat futile, the likelihood that they will actually prepare decreases and engaging with them becomes more difficult (Paton, Parkes, Daly, & Smith, 2008). In contrast, positive outcome expectancies increase beliefs in the efficacy of preparation and the ability to make an impact (Paton, et al., 2008). When facing publics that have negative outcome expectancies, information should be provided to help distinguish between uncontrollable causes and controllable consequences.

When attempting to present believable messages of typical risk behavior, using specific evidence that reflects a public's cultural beliefs and values is the most effective message structure (Sellnow, Ulmer, Seeger, & Littlefield, 2009). Anecdotal messages are best at altering severity of risk perceived and changing the amount of consideration publics are willing to give a message (Greene, Campo, & Banerjee, 2010). Regardless of severity, publics that feel they have a significant amount of information about a risk are less likely to respond to messages; the more severe the threat, the more likely they are to respond to a warning message (Baker, 1995).

Implications for Risk Communication: Severity of Risk

- Perceptions of severity and susceptibility are often used in tandem by publics to determine overall risk and threat.
- When potential personal consequences of a threat are seen as too severe, likelihood of personal preparation decreases.
- Information should be provided to help publics distinguish between uncontrollable causes and controllable consequences of risk.
- Normative messages are better than anecdotal or statistical messages at conveying severity.

Tolerability of risk

A key approach to risk management is the tolerability of risk (ToR) framework. ToR examines how society can be informed to better tolerate risks that are less familiar and have varying dread risk attributes (Bouder, Slavin, & Löfstedt, 2009). Through ToR, with its aim to aid consistent, transparent, risk-based decision-making to communicate competence and address concerns (Bouder, et al., 2009), decision makers can better understand, evaluate, and effectively prepare to handle public safety risks (USBR, 2008). In contrast, an alternative regulatory framework called the precautionary principle can be misused and lead to organizations becoming risk averse and adopting a better-safe-than-sorry approach (Löfstedt, 2004).

The term "safe" in risk-based decision making has some amount of uncertainty since it cannot mean a zero chance of an adverse event occurring (USBR, 2008). ToR is particularly relevant for lower-familiarity and higher-dread risk events that are involuntary and potentially harmful, and where the science is uncertain. In such circumstances, communication has to successfully convey to the public that there needs to be an explicit acceptance of not only of risk, but of the costs incurred in reducing risk (Fairman, 2009). The ToR framework comprises three layers: the *broadly acceptable region*, where risks are broadly regarded as acceptable if adequately controlled; the *tolerable region*, where people are prepared to tolerate risk in order to secure benefits; and the *unacceptable region*, where the risk is unacceptable regardless of the benefits associated with it (Health and Safety Executive, 2001; Institution of Engineering and Technology, 2010).

Implications for Risk Communication: Tolerability of Risk

- Communication with publics should convey the need for acceptance of risk and the costs incurred in reducing risk.
- Communication should be transparent in how risk is being reduced as much as reasonably possible taking into consideration the unique challenges an event may pose.

Publics' prior relationships with risk and risk communicators

Organizations or institutions with a history of past crises face increased attributions of crisis responsibility and decreased perceptions of organizational reputation, which calls for more nuanced public understanding and message creation (Coombs, 2004). Reputation is built through the direct and indirect experience a public has with an organization and requires substantial knowledge of any and all interactions a public might have regarding the organization, even a brief mention in passing (Brown & Roed, 2001). Coombs' 2004 study had the most straightforward discussion of the impact of organizational history on crisis response through presenting crisis case studies to a mix of college students and community members. Research participants did not have a strong reaction to any of the presented companies in crisis when they were given information about the organization's history of crisis, information indicating no previous history of crises, or no presentation of information about crisis history at all. When organizations did not have a history or reputation with a public, Coombs (2004) did not find a significant difference between an organization's unknown crisis history and an organization without a history of crises; in both cases, publics are likely to assume that there were no previous crises.

When publics believe they have insufficient information about a topic, they tend to move toward a simplified or superficial method of processing, known as a heuristic method (Averbeck, Jones, & Robertson, 2011). The lack of knowledge coupled with the minimal effort of a heuristic process leads to greater fear arousal and a total lack of mastery or comfort with new information. Prior knowledge of a topic or risk frequently leads to systematic processing and attending to context-relevant information (Averbeck et al., 2011).

Implications for Risk Communication: Publics' Prior Relationships with Risk and Risk Communicators

- When publics have minimal knowledge of a risk, they process heuristically, leading to increased fear levels and lack of comfort with information.
- Prior knowledge of risk improves systematic and contextual information processing

Special Factors in Relating to Publics

Special needs publics are "any group that cannot be reached effectively during the initial phases of a public safety emergency with general public health messages delivered through mass communication

channels” (Reynolds, 2007, p. 97; as cited in Quinn, 2008, p. 18S). Trying to build and balance relationships with these groups can bring unique challenges, some of which risk communicators are uniquely qualified to address. Forming community collaborations or coalitions can often prove helpful, and can lead to negotiation, compromise, and collaboration among stakeholder groups in order to obtain innovative solutions and the development of realistic and achievable goals for a coalition, where early success can motivate later action (Springston & Lariscy, 2010). These collaborations and networks can then be used to help convey key risk messages to specific populations (Thomas, Smith, & Turcotte, 2009). This section looks at specific populations that should be given extra attention in risk communication efforts (including children, the elderly, the disabled, and racial and ethnic minority groups), two other groups deserving research attention (activist groups and white males), as well as a discussion of both traditional and social media outlets available to make communication more effective.

Special Needs Populations

There exists a long and strong tradition of research into special needs populations, but most of the work done to this point has been atheoretical. This particular area of research more often relies upon best practices and suggestions for how to effectively handle and reach out to specific publics, as engaging with specific, unique populations in a risk or crisis situation often requires tailored methods and preparation systems. These publics can be resilient when given the tools to adapt well to altered environments. This requires networked adaptive capacities, where both the resources themselves and the power behind the resources are utilized (Norris, et al., 2008).

Within these diverse publics, risk communicators should strive for representativeness, such that those sharing a message should be demographically or otherwise similar to those who are receiving the message (McComas, 2010). Tailoring messages with these publics prior to the risk event establishes trust and collaboration, and “people are more satisfied with decisions if they (or if they know others) engage in collective decision making” (Heath, Palenchar, & O’Hair, 2010, p. 478).

A communicator or emergency manager cannot and should not make the assumption that all publics are of one mind, as that could lead to ignoring a strong group or voice. Sometimes, segments of the population are uninterested in directed messages. To that end, organizations need to distinguish between publics, those that choose to not prepare from those who want to prepare, but need guidance in how to best do so (Paton, Parkes, Daly, & Smith, 2008). There is also a need to understand when and at what point publics may be interested in preparing but are uninformed or misinformed about the risk, or if there are other barriers to participation in preparation measures. Those publics who feel their voices or concerns are not heard during a crisis have been found to often be “stronger and more condemning” post-crisis (Waymer & Heath, 2007, p. 96).

Children. Children are often seen as a group worthy of special protection and aid during risk and crisis situations. Frequently, this is seen in the emphasis on disaster-related mental health prevention and intervention to support children, families, and communities (Rosenfeld, Caye, Ayalon, & Lahad, 2005). Those charged with the care of children in risk situations tend to weigh perceived risks and benefits more

carefully than the general public before making a decision. Risk that is perceived as involuntary, not naturally occurring, or dreaded will cause elevated concern for children and caregivers and may even lead caregivers to opt out of risk prevention behaviors such as vaccines entirely (Kennedy, Glasser, Covello, & Gust, 2008).

Elderly and disabled. Elderly populations are more likely to perceive a situation as a greater risk and may rely more on emotion-based processing in those situations (Reyna, 2011). Age also impacts source preference for information in both routine and crisis situations, with elderly participants much less likely to utilize any technology viewed as new or difficult to utilize (Avery, 2010).

Risk managers face challenges in identifying elderly members of the community in the midst of a crisis when those individuals are also disabled in some way, whether through deafness, loss of eyesight, or loss of mobility (O'Brien, 2003). Disabled populations have been found to be more likely to stockpile emergency supplies, but less likely to have a clear evacuation plan (Spence, Lachlan, Burke, & Seeger, 2007). In times of disaster (natural or otherwise), elderly and disabled publics tend to lack access to essential services due to lack of coordination and communication with the organizations or institutions set up to serve them. For example, in the aftermath of 9/11, home health aides were denied access to evacuated buildings to check on patients, in one case leaving a quadriplegic resident alone for three days until rescue (O'Brien, 2003).

Communicating preparedness and warning information to the elderly and disabled also requires special accommodations and training. Rehearsal or repeated training, especially for evacuation, can minimize the number of casualties in a disaster, but that training is more difficult and often not accomplished for those with physical or sensory disabilities (Sullivan & Häkkinen, 2006). During Hurricane Katrina, deaf individuals evacuated to the Super Dome were assigned to a "Deaf Area," where there was a dearth of signing translators, meaning many public announcements never reached people in that area (Sullivan & Häkkinen, 2006). Auditory warning systems of all kinds, not just those used in evacuation or disaster, have been found to be lacking when taking deaf publics into account (Stanton & Edworthy, 1999). When attempting to reach the full public, accommodations for visual, hearing, and other sensory limitations are necessary (Penner & Wachsmuth, 2008).

Some disaster planning with regard to disabled publics does exist. The American Red Cross created a booklet that allows disabled individuals to assess their personal disaster preparation and provides resources and suggestions for gathering supplies and making a home or office safer (American Red Cross, n.d.). The Federal Emergency Management Agency (FEMA) also provides a reference guide on how to accommodate individuals with disabilities, aimed at helping risk managers and communicators increase effectiveness in reaching these populations (FEMA, 2010). However, some disabled populations still may not seek out aid during a disaster because they are unaware or skeptical that safety or evacuation centers will provide services they need, or they may not see evacuation as feasible in their circumstances (Spence, et al., 2007).

After a disaster or risk situation has passed, the elderly and disabled publics may still need assistance, especially in obtaining food, water, shelter, and medical care (Penner & Wachsmuth, 2008). Additionally, since many disabled persons rely on service animals, risk communicators and managers should take into account their presence and the attachment between the individual and the animal (Legg & Adelman, 2009).

“Less numerate” populations. Risk communication can be made more complex when publics struggle to understand the message being imparted. Less numerate populations are those who have problems with mathematical literacy, a grouping which causes organizations and institutions to keep their messages simplistic and compact (Fagerlin & Peters, 2011). One way to determine mathematical literacy is to start by asking a public for their preference for information presentation: visual (one red dot in a field of 10,000 black dots), verbal (one person in a town of 10,000 people), fraction (1/10,000), or decimal (0.0001) elements. Less numerate publics will show the strongest desire for verbal and visual discussion; if forced into choosing an element that was more mathematical, they strongly preferred fractions over decimals (Kennedy, et al., 2008).

Problems associated with low levels of numeracy include interpretation, instruction following, and the need for interventions to make materials comprehensible. Tasks which require participants to know which mathematical skills to use and then to progress in a multistep fashion are often ignored as they overwhelm an audience (Rothman, Montori, Cherrington, & Pignone, 2008). Social math, or the connection of a statistic to a personal touchstone (“the number of people with this type of cancer could fill the Rams stadium twice”), appear more personal to the individual, making it more likely to impact behavior change, on the other hand. This influence is even stronger for family-related social math (“Imagine yourself and two family members. One of you is likely to be diagnosed with cancer in your lifetime.”), especially among female participants (Thompson, et al., 2008).

Racial and ethnic minorities. Previous research has generated suggestions for risk communication with racial and ethnic communities, including engaging key publics and leaders from those communities (Thompson, et al., 2008), incorporating potentially unique cultural considerations (Littlefield, Reiersen, Cowden, Stowman, & Feather, 2009), developing trusting relationships prior to the risk or crisis event, having regular meetings or information sessions during the risk or crisis, and using those community forums to evaluate what needs to be improved for the next crisis situation (Quinn, 2008). Leaders need to frame crisis situations to give attention and voice to potentially marginalized groups, provide legitimacy, and reassert the importance of a clear overall response (Waymer & Heath, 2007). Additionally, when those people in power are of the same racial background as the publics they are attempting to reach, it can produce higher rates of message acceptance and following, including evacuation orders (Burnside, 2006).

Within the United States, populations of color may be more likely than Caucasians/Whites to rely on traditional (i.e., off-line) social networks for disaster information and treat mass media as a reliable disaster information source (e.g., Blanchard-Boehm, 1997; Johnson, 2002; Perry & Lindell, 1991). For immigrant communities, this is especially the case when the crisis spokesperson is from their home

country (Arpan, 2002). Minorities also tend to perceive lower hazard levels, in general, so are less likely to prepare for disasters (Lachlan, Burke, Spence, & Griffin, 2009; Perry, Green, & Mushkatel, 1983).

Illiterate or dialect-speaking citizens often feel neglected in the information stream, so additional resources and special considerations should be utilized. In one case, dialect programming was developed by the Singapore Ministry of Health, and grassroots leaders made door-to-door visits, increasing knowledge and understanding within the community using this customized resource (Menon & Goh, 2005).

Messages tailored to specific ethnic communities promote the salience of risks and tend to stimulate additional discussion and questions (Thompson et al., 2008). For example, after conducting focus groups the Chicago American Red Cross realized that Latinos were not aware that the Red Cross provides disaster assistance in the U.S. because in Latin America the Red Cross is an ambulance service. So, the chapter developed a public information campaign that featured images of Red Cross ambulances from Latin America and Red Cross volunteers in the U.S. helping out after a disaster to increase awareness. Publics faced with statements that discuss ethnic disparity want suggestions for actions that can help decrease the disparity between ethnic groups before looking to solve the problem or improve the situation in general (Thompson, et al., 2008).

Other Important Populations

While activist groups and white males do not fall into the typical purveyance of special needs publics, they are typically treated as groups to either ignore or lump together with ideas of general publics, when in fact, they do have unique characteristics and reactions to risk situations that make them worthy of further study.

Activists. Local, national, and international activist groups often contribute to risk and crisis situations by gathering information, conducting modest research, and reporting their findings (Heath, Palenchar, & O'Hair, 2010). They project a particular credibility and voice to those who have the time and interest to learn about them, especially with the ease of self-publishing via the Internet. Activist organizations engage in public conversation for two main reasons: to change conditions they have identified as ineffective, and to sustain a movement or organization associated with the activists (Smith & Ferguson, 2010).

Activist publics tend to identify issues and needs for change earlier than other publics, and often discuss them in a bid to shape the interpretations of those publics and emerge as leaders on the issue or movement (Zietsma & Winn, 2008). Activists typically have a preferred resolution to an issue and work toward seeing it accomplished, and their contribution to the conversation and attention to community spirit can be assets to the overall community (Heath, Palenchar, & O'Hair, 2010). But, activists are also more likely to utilize message framing, dialogic communication, and hate language when discussing risk and crafting their own messages of resolution (Hallahan, 2010). Often, organizations are more focused on other functions, giving activists the agency they need to move a debate or discussion forward (Smith &

Ferguson, 2010). Activist groups are typically well organized, with specific goals and a communication plan to aid them in reaching those goals, and organizations may not always be prepared for that type of discussion, particularly when it is viewed as attacking the organization (Bourland-Davis, Thompson, & Brooks, 2010). Communicators that were previously not responsive to the issues or not engaged on the challenges put forth by activists may find themselves facing additional conflict due to their own views (Bourland-Davis, et al., 2010).

White males. A key socio-demographic group studied in risk perception research is white males, as they might perceive risks differently from females and non-whites. White males may perceive lower levels of risk than others in the same situation because of greater involvement in “creating, managing, controlling and benefitting from technology and other activities that are hazardous” (Slovic, 2002). An examination of 657 white, African-American, Mexican-American, and Taiwanese-American males found this to be the case in the area of health and technology risks, and that Asian males may have a comparable risk-perception outlook (Palmer, 2003). Kahan, Braman, Gastil, Slovic, and Mertz (2007) undertook a 1,800-person study that confirmed that cultural worldviews interact with the impact of gender and race on risk perception in patterns that suggest that individuals are more protective of their cultural identity than of other identities. This identity protection indicates that cultural understandings are necessary to include in risk messages, and that publics will be more impacted by cultural messages than those that attempt to reach other aspects of their demographic makeup.

As cultural worldviews are connected to risk perception, information must be transmitted in a form that makes individuals’ acceptance of it compatible with core cultural commitments (Kahan, et al., 2007). Kahan et al. observed that when developing a message, the “information being seen as true is not enough; it must be framed in a manner that bears an acceptable social meaning. Messages will then help to develop information that affirms rather than denigrates recipients’ values. Information that challenges commonly held beliefs within their group can negate the efficacy of the communication” (Kahan, et al., 2007, p. 501).

Implications for Risk Communication: Special Needs Populations

- Risk communicators should strive for representativeness; tailoring messages is most effective prior to the risk event.
- Publics who want to prepare for a risk event but need guidance or aid should be distinguished from publics who do not want to prepare.
- Rehearsal and repeated training, especially for evacuation, can increase effectiveness.
- Utilize professionals trained in specific skills and needs (childcare, sign language, medical assistance, etc.).
- Be prepared to continue to provide assistance well after the risk.
- Utilize multiple forms of information presentation (visual, verbal, mathematic, etc)
- Keep messages simple and compact to compensate for needs of the population.
- Connecting risk information to personal touchstones and cultural understandings

increases behavior change.

- Engage leaders from special needs public groups to spread risk information.

Organizational and Public Media Usage

Disasters increase public media consumption, making timely, accurate, specific, sufficient, consistent, and understandable messages necessary (Andersen & Spitzberg, 2010). Public belief and confidence in mass media content and ability increases the depth of message processing (Griffin, et al., 2002), and risk messages are more likely to be personalized and acted upon when delivered through multiple channels (DiGiovanni, Reynolds, Harwell, & Stonecipher, 2002), so organizations are wise to carefully consider their outlets. This section will look at both traditional and social media, and the differing impact each form has on its publics.

Research on *traditional media* such as newspapers and TV and radio broadcasts concludes that they can be reputable, trustworthy sources of information. However, communication and emergency officials should carefully consider which media outlets are used, taking into consideration what channels were utilized to reach out to publics in previous risk situations and what behaviors resulted from those messages. Effective *social media* usage involves understanding the potential impact of message and/or platform, and the security of the messages being distributed. Most publics have clear pre-established attitudes about social media usage and communication, and public leaders should be aware of them, and of the ability of social media to engage publics outside of a geographically-restrained community.

Traditional Media. Journalists tend to report news items that will gather the most attention (stories with controversy, conflict, drama, negligence, scandal, threat, or the fight between villains and heroes), which leads to a selectivity bias in the general media as to what aspects of a risk are reported which, in turn, has a profound impact on public awareness and perception (Covello, 2010). Newspaper coverage in particular can vary widely when reporting issues of dreadfulness, catastrophic potential, uncertainty, and unfamiliarity (Fung, Namkoong, & Brossard, 2011). While television news is still one of the top two outlets for both routine and crisis communications (the other being physicians, or other trusted, knowledgeable individuals), the accuracy of information is the most important factor desired by publics (Avery, 2010).

Many public and private organizations have adapted to this focus on generalized media. For example, when faced with the SARS outbreak in 2003, the Singapore Ministry of Health created a dedicated SARS television channel, which exclusively played updates and recordings of daily press conferences. The channel allowed for press conferences to begin later in the day, so that Ministry officials could present information without the pressure of a reporter's deadline and without a time limit, which allowed time for every question asked to be answered as best as possible (Menon & Goh, 2005). This adaptable solution to a national crisis proved successful and is lauded as exemplar.

Additional success strategies include crafting multiple messages to reach multiple publics (Benoit, 1997; Clarke, Chess, Holmes, & O'Neill, 2006), even if a frequent recommendation to organizations or institutions is to speak with one voice. If that one voice can cover and address all publics, it can be effective, but most organizations are learning to adapt messages to specific groups (Clarke, et al., 2006). Design and delivery of warning messages become ever more important as communication strategies and technology continually evolve, and suggestions include making sure a message is modern and current, standardized in creation and able to adapt to future uses, and professional in both writing and distribution (Bean & Mileti, 2011). These messages should be tempered with the understanding that publics will interpret them in a large variety of ways, sometimes impacted by history, research, and various other individual factors (Bean & Mileti, 2011).

Another factor to consider when communicating with publics via mass media is how the media covered previous, similar hazards. Perception of future risk will reflect the attention given to various forms of capital (natural, human, social, and built) and their impact on past events (Miles, 2008). Media also play a role when the public is being asked to engage in specific behaviors, such as evacuation, instead of merely receiving information. For example, one study of evacuation warnings during the 2009 Station Fire in Los Angeles County, California, indicated that the more warning messages publics received through diverse communication media, the more likely publics were to evacuate. Messages that were more specific, with information about how and when to evacuate and noting who was recommending it, were also seen as more effective (Smarick, 2010).

Social Media. According to the Pew Internet and American Life Project (2010), social media can be seen as “an umbrella term that is used to refer to a new era of Web-enabled applications that are built around user-generated or user-manipulated content, such as wikis, blogs, podcasts, and social networking sites.” Some aspects of social media will be more effective in risk and crisis situations, such as interactivity, responsiveness, and dialogue between an organization and its publics (Kent, 2010). Moderating and regulating what is posted via social media allows an official communicator to control what is expressed, but publics can add and adapt the posted information to express their views as well (Kent, 2010).

The mobile nature of the Internet and the general ease of access to this technology support communication among geographic communities that have been separated, activate weak ties within those communities, and provide publics with a forum to potentially engage in uncertainty reduction (Procopio & Procopio, 2007). Publics utilize social media to share information (Baron & Philbin, 2009; Heverin & Zach, 2010; Wigley & Fontenot, 2010), to access that information anywhere they'd like (Procopio & Procopio, 2007; Purcell, 2011) and to mobilize based on this information (Murdock, 2010). While the Internet increases and eases information sharing, it can also increase the risk of information overflow for publics (Bucher, 2002), allowing traditional media to continue as a necessary supplement to help publics identify the most important elements of information (Pfeiffer & Zinnbauer, 2010; Taylor & Perry, 2005).

A study of Twitter content during a crisis found that 37 percent of messages provide information (warnings, updates, answers); 34 percent present commentary; 26 percent deal with personal impact or

requests for information; and 4 percent promote available media coverage or products and services (Vultee & Vultee, 2009). A study on developing a commercial mobile alert service in the United States, which would deliver brief text alerts to subscribers, concluded that social media often acts as a second and confirming source of information during an alert or warning (National Research Council, 2011).

Organizations and institutions that engage publics over social media during a crisis are better poised than non-users to understand particular public preferences and expectations (McAllister-Spooner, 2009), which, when factored into ongoing communication efforts, can increase positive responses to a crisis (Yang, Kang, & Johnson, 2010). By following and analyzing social media communication, public officials and communicators can identify when their relevant publics have entered three distinct situational-awareness stages—perception (the simple gaining and sharing of information), comprehension (developing positive or negative reactions to an event), and projection (reflection on what may happen next) (Preston, Binner, Branicki, Galla, Jones, & Ferrario, 2011)—and can act swiftly to provide new information most relevant to the appropriate stage.

Research has shown that social media users are more likely to share information that they find humorous or give them insider knowledge, and they tend to use the form of media utilized by most of their friends or connections, with an eye on privacy concerns (Liu, Austin, & Jin, 2010)—key understandings that can help communicators maximize the potential of social media in a crisis situation. Crisis origin (internal or external to the organization) also has clear impact on from where and how a public prefers to receive crisis information, where external crises increased willingness to accept an evasive response from an organization, and internal crises led to more intensified emotional reactions when publics learned about them via social media (Jin, Liu, & Austin, 2011).

Blog analysis is also a useful tool for public officials to identify criticisms and to design appropriate educational information tailored to respond to alternative media and information actively disseminated via social media tools (Keelan, Pavri, Balakrishnan, & Wilson, 2010). Social media can be employed to mitigate misperceptions resulting from misinformation (Keelan, et al., 2010; Walther, DeAndrea, Kim, & Anthony, 2010). Additionally, an information vacuum in social media has the potential to be filled with inaccurate content (National Research Council, 2011), so risk communicators should take care to inform publics on the status of ongoing disasters using this collection of outlets.

Finally, new media can play a crucial role in disaster resilience of publics, especially if new media are an integral part of publics' pre-crisis communicative behavior (Liu & Briones, 2012). In order to successfully tap into this new media, risk communicators should incorporate new media knowledge and uses into training and education, and know how the publics they are attempting to reach use the media, especially in risk contexts. Risk communicators who feel empowered and involved, with resources for collaboration, are likely to be most successful at integrating new media into their plans for public resilience (Liu & Briones, 2012).

Implications for Risk Communication: Media Usage

- Public belief and confidence in media content and function increase depth of message processing.
- Messages must be timely, accurate, specific, sufficient, consistent, and understandable.
- Risk messages are more likely to be acted upon when delivered through multiple channels.
- Multiple messages should be crafted to reach multiple publics.
- Integral use of social media pre-crisis can increase resilience of publics.
- An information vacuum in the media is likely to be filled, even if with inaccurate content.
- Traditional and social media should work together, as necessary supplements to one another.

Risk Communication Phases

The following section highlights risk-event phases as they relate to publics and communicators alike. These three phases are:

- *Preparedness*: Pre-event risk communication related to preparations that can be taken for various hazards.
- *Response*: Crisis communication immediately prior to, in the midst of, or during the hours following an event.
- *Recovery*: Risk communication needs in the weeks, months, and years following an event.

This section aims to showcase the best practices in each of the three phases of an event (preparedness, response, and recovery), based on developed theories of risk communication and lessons learned from a range of events.

Communication during the Preparedness Phase

Crisis and risk preparedness is an important factor in enhancing community resilience and should involve the development of infrastructure as well as specific messages for publics that may be at risk from a potential threat. Communities that engage in the creation of emergency response systems and inform residents of those systems increase community risk tolerance (Heath & Abel, 1996). Adequate preparedness involves risk communicators creating effective messages, testing their persuasive appeals, and distributing risk messages via the appropriate communication channels (Reynolds & Seeger, 2005). Coombs (2008) encourages risk communicators to develop detailed, threat-specific preparedness plans that publics can easily follow in order to get the attention of publics and to more effectively disseminate essential information. Needless to say, communicators should also ensure that the specific information

they are providing is accurate. Effective crisis training is also critical during this phase, especially given that 80% of crisis managers learn on the job; training is essential for helping crisis managers avoid mistakes that could be extremely detrimental when responding to a crisis (Coombs, 2007). Several training options exist (Coombs, 2012) all of which emphasize experiential learning through crisis simulations (see Appendix C for details).

Institutions and organizations that facilitate relationships within their professional networks can increase trust among organizational decision makers. These effective interorganizational relationships are, in turn, critical for developing and disseminating risk communication preparedness messages. For example, a case study of anthrax attacks in 2001 New Jersey identified how pre-existing organizational and professional networks increased trust among key decision makers and communicators in the midst of the crisis (Chess & Clarke, 2007). Relationship building prior to an event will increase trust and improve communication throughout the network, which can in turn improve communication with more general, external publics (Chess & Clarke, 2007). The consistency resulting from multiple institutions or organizations providing the same, or complementary, messages helps to keep publics properly informed, reduce confusion, and facilitate organizational operations (Chess & Clarke, 2007). Organizations that are aware of their professional networks and are willing to engage them in partnerships before a risk becomes manifest may be able to make a significant positive impact on a threatening situation.

The best practices literature on crisis planning strongly recommends developing crisis management plans, crisis training, and implementing effective warning systems, while providing guidance on key elements of each. Observations from this literature can help organizations and institutions successfully manage risks that become crises.

Public Warnings. It is essential for leaders to develop effective warning systems in advance of a real threat emerging in a community. A large body of applied research has examined the efficacy of public warnings in preparing the public for risks. Public warning studies have focused on specific events such as building fires (Keating, Loftus, & Manber, 1983), alarms in work settings (Häkkinen & Williges, 1984), or organizational aspects of public warnings (Saarinen & Sells, 1985). Warnings that have been studied include those related to sheltering in place, respiratory protection, and evacuating pedestrians and occupants. Appendix E contains a list of different types of public warning systems.

Myths in Public Warnings

(adapted from case studies and Mileti & Sorensen, 1990)

Myth #1: The public is prone to panic

Reality:

- It is rare for individuals to panic until they believe there is no escape from a life-threatening situation (Wessely, 2005).
- However, the public can adapt their behaviors to expose themselves and others around them to a greater risk than the original hazard they seek to avoid or

mitigate exposure to. This is often referred to as adverse avoidance and adaptive behaviors (Sheppard, 2011).

Myth #2: The need to keep messages simple**Reality:**

- The concept of keeping messages short and simple applies to advertising, not public warnings; otherwise warned people will become “information starved” (Mileti, 2010, p. 35).
- If the warning does not contain sufficient information, individuals will seek out information from alternative sources, and confusion may result (Mileti, 2009).

Myth #3: The dangers of crying wolf**Reality:**

- False alarms can be productive for future response if explained although people can ignore sirens if they are sounded or tested frequently (Mileti, 2009).

Myth #4: Public’s general willingness to respond to warnings**Reality:**

- A single warning is not sufficient to get people to believe and respond, and poorly crafted warnings and lack of understanding of how the public may respond to a warning will undermine a warning’s effectiveness

Variations in the nature and content of warnings have a large impact on whether the public heeds the warning. Factors include warning source, channel, consistency, credibility, accuracy, understandability, and frequency (Mileti & Sorensen, 1990).

When developing warning messages, risk communicators should understand the impact of a public’s previous experiences with warning messages and how that may affect current willingness to comply. Publics who have experienced cancelled emergency warnings or messages without adequate explanation are less likely to believe and/or respond to future warning messages (Atwood & Major, 1998; Simmons & Sutter, 2009). Conversely, publics who previously followed warning messages that proved accurate and effective in mobilizing them to action are more likely to follow future warning or evacuation messages (Burnside, 2006).

Communication during the Response Phase

Institutions, organizations, and publics increasingly need to work together to enact effective response strategies. Publics can be valuable partners in risk responses, but it is important to make sure publics have prompt access to practical, helpful information (Schoch-Spana, 2003). Strong organization-public relationships can aid in the understanding of public attitudes, perceptions, knowledge, and potential behaviors (Ledingham, 2003). These relationships will necessarily change over time, but successful ones

will engage in developing shared solutions to common problems and adapt to reflect need and expectation fulfillment (Ledingham, 2003).

Crisis Management Plans. A crisis management plan (CMP) is intended to guide organizations and institutions through preventing a risk from escalating into a crisis or managing an existing crisis quickly and efficiently, with an emphasis on the role that internal and external communication can and should play during the response phase. While CMPs should be developed in advance of the emergence of a threat, they can be vital resources as the threat emerges. Although there is not a one-size-fits-all method for compiling a CMP, research indicates that organizations that develop crisis plans are better equipped to respond to crises effectively and efficiently. For example, Holland and Gill (2006) found that 99% of organizations that developed and implemented crisis management plans found the plans to be effective in helping respond to crises.

Others, however, caution against creating rigid plans that do not allow for flexibility and improvisation during crises (Fink, 1986; Gilpin & Murphy, 2010; Marra, 1998). In particular, plans may be too simplistic, ignoring (1) how people, organizations, and/or networks interact during crises; (2) that organizations and institutions are complicated and constantly evolving; and (3) that some factors cannot be controlled through plans such as how historical circumstances (e.g., discrimination) affect how publics respond to crises (Gilpin & Murphy, 2010). Despite these critiques, most research recognizes the value of CMPs as long as they remain flexible.

Inclusions for Crisis Management Plans

(adapted from Fearn-Banks, 2011)

1. *Cover page* indicating the date that the plan was created and last tested through a crisis simulation.
2. *Introduction* explaining why the plan was created and its purpose.
3. *Identification of the crisis communications team* including responsibilities and contact information.
4. *Acknowledgements* where members of the crisis management team sign to indicate that they have read the plan and are aware of their responsibilities
5. *Rehearsal dates* for when the plan will be tested through crisis simulations.
6. *List of key publics* within and outside of the organization or institution to be notified about the crisis and how to notify these publics.
7. *Identification of the media spokesperson/spokespeople.*
8. *List of emergency personal and local officials* (e.g., hospitals, police, mayor, governor, union officials, etc.) to contact about the crisis.
9. *List of key media* to contact about the crisis.
10. *Location(s) of the crisis communications control center* from where communicators will manage the crisis response.
11. *Communications equipment and supplies* needed to respond to the crisis.
12. *Pre-gathered information* to help respond to the crisis such as fact sheets, press

releases, timelines, public statements, draft letters to stakeholders, biographies, photos, and safety records.

13. *Key messages* to consider disseminating during the crisis that address the who, what, when, where, and how of the crisis.
14. *Sample media Q&A* including trick questions that may be asked of the spokesperson/spokespeople.
15. *List of warning signs* that a risk may become a crisis.
16. *Evaluation forms* to assess how well the CMP worked after a crisis is resolved.

Communication during the Recovery Phase

Risk communicators who have successfully moved beyond risk or crisis situations find themselves in a discourse of renewal, where they can move beyond immediate problems and traumas to innovate, adapt, and dedicate energy toward a new future (Ulmer, Sellnow, & Seeger, 2011). This renewal should include a focus on the future for both the community leaders and publics, characterized by optimistic discourse and reform of failed elements of risk management. Leadership needs to enact and frame the situation's meaning for publics and have a strong sense of where the community is headed beyond the situation (Seeger & Ulmer, 2001). Renewal requires significant resources due to its necessary longevity and the need to view it comprehensively, (Reiersen, Sellnow, & Ulmer, 2009), and if maintaining positive discourse throughout renewal is not possible, organizations and institutions should continue to adapt and work toward achieving new and important post-event objectives (Reiersen, Sellnow, & Ulmer, 2009).

Factors in Moving Toward Renewal

Communication access

For crisis recovery to truly occur, publics must be able to disseminate their own information, rather than relying on one-way communication from the news media (Doerfel, Lai, & Chewning, 2010).

Returning to a “new normal”

Effective crisis managers try to return to functional operations as soon as possible, adapting as needed to the new realities created by the experienced threat, which also moves the crisis out of the media coverage and allows for organizational growth and change.

Rekindling relationships

Affected publics often resume old relationships for emotional support, financial resources, and information (Doerfel, et al., 2010; Dutta-Bergman, 2004), often through new media (Dutta-Bergman, 2006; Coombs, 2008).

Repairing damage

The most fundamental indicator that crisis recovery has begun is when organizations take steps to repair crisis damage such as providing compensation to victims, rebuilding facilities, and cleaning up environmental damage (Coombs, 2012; Fearn-Banks, 2011; Seeger, Sellnow, & Ulmer, 2003).

Recovery, Mitigation and Resilience. Communities become stronger if the appropriate lessons are learned and implemented at the renewal stage following, for example, a devastating hurricane or tornado. First, communities need to develop a compelling vision of what their renewed community should look like from urban planning to mitigation measures (e.g., flood defenses) and develop strategies to achieve their aspirations (FEMA, 2012; Nolen, Bezold, Prochaska, Masel, Sullivan, & Ward, 2010). Second, the vision and strategies need to be communicated to key stakeholders across public and private sector organizations and the public to ensure mistakes of the past are not repeated, and new vulnerabilities are not inadvertently created that generate a less resilient community (Brafman & Beckstrom, 2006). Cross-cutting communication challenges that need to be addressed include the following:

- 1) Building support and confronting apathy
- 2) Building pre-event capacity of network/stakeholder analysis to ready for the next event
- 3) Confronting policies that discourage appropriate planning and mitigation
- 4) Balancing speed versus deliberation to ensure appropriate strategies have been considered
- 5) Engaging in planning that informs how to foster engagement, use social media, and media outreach (START, 2012).

Conclusion

In sum, the research on risk communication best practices presents a variety of interacting factors that affect how publics prepare for, respond to, and recover from crises and disasters. Understanding these factors helps emergency managers effectively craft and execute risk messages for diverse publics in a complex media environment. Publics and risk communicators alike need to acknowledge and understand that factors such as emotion, proximity, severity, tolerability, and prior relationships to risk and to each other can have significant impacts on both parties and on the risk or crisis event itself. Additionally, publics can be segmented into groups that need special attention, like children, the elderly, those with literacy issues, activists, and minority and racial populations. While it is often a complicated process, and one full of options, potential, and relationship evolution, this document has aimed to provide clear and specific examples of how these factors act, interact, and impact risk and crisis situations. Additionally, suggestions for how to improve risk and crisis communication should aid communicators in building, maintaining, and sustaining relationships with their publics in mutually beneficial ways. These insights help communicators in preparing for, responding to, and recovering from a crisis.

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