
20 Message Development

20.1 INTRODUCTION

To be a successful risk communicator, you need to be able to prepare an effective message. Risk communication is not an incidental task, and successful risk communication is never accidental. Everyone involved in a risk management activity needs to know something about risk communication if for no other reason than to keep colleagues from shooting themselves in the foot. There may not be risk communication experts on every organization's staff. Some organizations are unaware of the importance of the task. That means there may be times when you may have to bring some of this knowledge to the table.

Risk communication presents unique challenges to communicators for two very specific reasons. One of these is that the content of the messages is often difficult material. Risk, uncertainty, probability, and science are not the easiest things for even eager and interested parties to understand. These are often the subjects of risk communication messages. The other reason risk communication is especially challenging is that the audience is often upset and frightened, experiencing strong emotional noise during the communication process.

If risk communication is to succeed under these circumstances, someone needs to know how to develop an effective message. Developing that message is the focus of this chapter. It begins with a brief review of a basic communication model, so we can consider how the risk communication model differs from it, especially during high-stress situations. From there we consider the need for risk communication strategies and then turn our attention to crisis communication strategies during the four stages of a crisis. This is followed by a practical review of message mapping and consideration of some risk communication message templates. The chapter concludes by considering impediments to risk communication before the final summary and look forward.

20.2 COMMUNICATION MODELS

After all of humanity's time on the planet, communication remains as our greatest challenge. In the arena of risk analysis, information is often mistaken for communication. Information is almost a by-product of risk analysis; risk communication is a thoughtful and intentional primary product. George Bernard Shaw said, "The single biggest problem in communication is the illusion that it has taken place." Understanding a bit about the basic communication model is a good starting point for understanding how risk communication differs from basic communication.

There is a very rich literature describing a great variety of communication models. David Berlo (1960) offers a simple and influential model that suits the current purpose well. Described as the source-message-channel-receiver (SMCR)

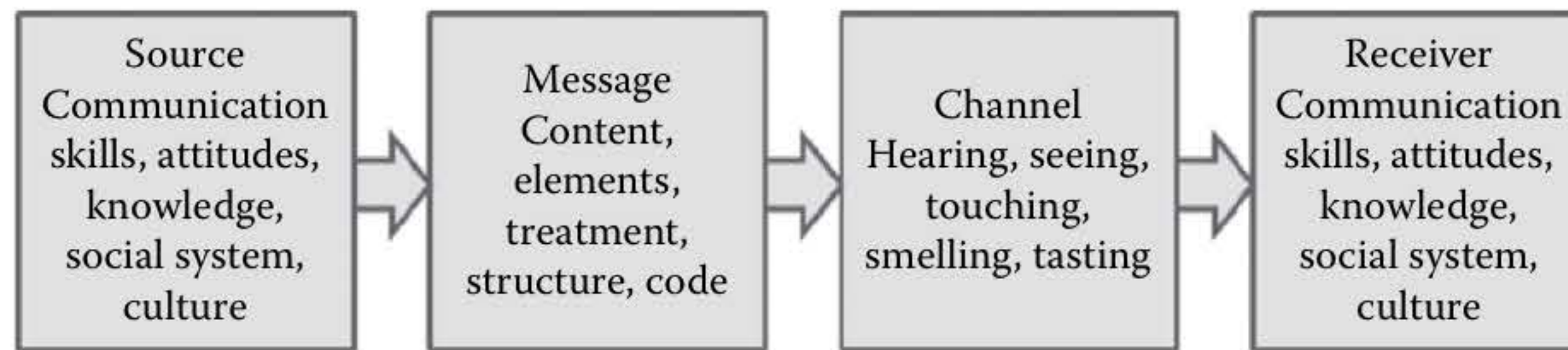


FIGURE 20.1 Berlo's SMCR communication model.

model, it has the four major components shown in [Figure 20.1](#). The source is a person, organization, or any generator of messages. Berlo offers the message as the central element of his model, which stresses the transmission of ideas. Meaning is encoded into messages. Messages are transmitted through a channel and are then decoded by a receiver. That the message received is not always identical to the message sent is a common basis for many situation comedies and undoubtedly a good portion of the divorce rate.

In risk communication, this model is tested at several points. If the source has not used a good risk management process, the purpose for communication may not even be clear. The perceived trust and credibility of the sender will be critical. Multiple channels must be used to reach the multiplicity of audiences for risk information. Perhaps most significantly, the receiver may be highly stressed. People in these situations can lose up to 80% of their ability to effectively process information. The message, which may have already been challenging because of its content, needs to be simplified. It is harder for people to hear, understand, and remember in stressful situations. In other words, risk communication, is not well-served by the basic communication model.

The developing field of risk communication offers a model that addresses these and other concerns. Two of the most important differences in the risk communication model are that it is a multidirectional model and it actively involves the audience as an information source. Risk communication is often more than two-way communication because of the complexity of the issues and the number of interested parties. It is an audience-centered form of communication because it often addresses situations of high stress, great concern, or low trust. These situations call for as much attention to the methods of communicating as to the messages. Those who are not risk communication experts are likely to have more input in the development of key risk messages than in any of the other subtler nuances of risk communication strategy and methods. Hence, this chapter focuses on message development.

20.3 RISK COMMUNICATION MESSAGE STRATEGIES

The need for message strategies abounds in the risk communication community of practice and not just for crisis communication. Internal risk communications between risk managers and assessors would be enhanced by some simple message strategies for clearly communicating problems and opportunities, objectives and constraints, as well as the questions to be answered by risk assessment. Another significant risk communication stumbling block has been the lack of strategic attention given to how to communicate the findings of risk assessments most effectively to its varying

audiences. The general practice seems to be to do the work and document it all in a risk assessment; add an interpretative or executive summary for those whom we know will not read it all, which is virtually everyone; and then make it available to anyone who wants it, that is, information = communication.

That last thought needs to be amended to information $\neq$ communication. There is a pressing need for message development strategies for reporting the results and relevance of risk assessment for several key and recurring audiences that include risk managers, industry, those responsible for implementing the risk management option, consumers, the media, special-interest groups, and the general public, especially those most affected by the risk. How do we explain complex scientific subjects that are highly uncertain or results that are based on probabilistic methods to these audiences in ways that are meaningful to them? Message strategies are needed for risk management decisions. How do we best convey how trade-offs were made, how decisions were arrived at, as well as what those decisions are and who has what specific responsibilities for managing the risks?

Flood risk management provides an excellent example of the need for risk communication strategies in noncrisis/low-stress situations. Although many flood risk management investigations are initiated in response to flood events, they often take a long time to complete, and the public's attention may have been long since diverted elsewhere. These extended planning periods can produce audiences that are often closer to the low-stress, low-interest circumstances than to the high-stress, high-interest conditions that follow a damaging flood. In addition, the topics are complex and rest on probabilistic concepts we now know are not intuitive.

In the past, the U.S. Army Corps of Engineers, which has primary authority for addressing flood problems in the United States, has done their planning investigations and then "sold" them based on the "protection" they were expected to provide. A typical situation would have had a damaging flood of record followed by identification of a flood risk management option that would protect the community against a recurrence of such a flood.

A simple schematic, shown in [Figure 20.2](#), illustrates the situation. A person living in the so-called 10-year floodplain for a 75-year lifetime (no mitigation) is virtually certain to experience one or more floods in that time.* The darker shading indicates the probability of one or more floods in a lifetime. A flood with a 1% annual exceedance frequency has, in the past, been called a 100-year event, because in the very long run there would be such a flood on average once in 100 years. (Perhaps you begin to see why message strategies for noncrisis/low-stress situations like this one are needed!) If protective works, say a levee, are constructed to prevent flood damages from the recurrence of such a flood, that reduces our lifetime resident's risk by the amount of the lighter shading in the second column (100-year). That reduction in risk is what the people living in the floodplain were "sold" in the past. The positive effects of the protective works were the focus of the conversation. What was not adequately communicated was the residual risk, the risk that remains even with that levee in place. There is still a 53% chance a person will be flooded one or more times in a lifetime behind this levee.

* To get that value, calculate one minus the binomial probability of zero successes with $n = 75$ and $p = 0.1$.

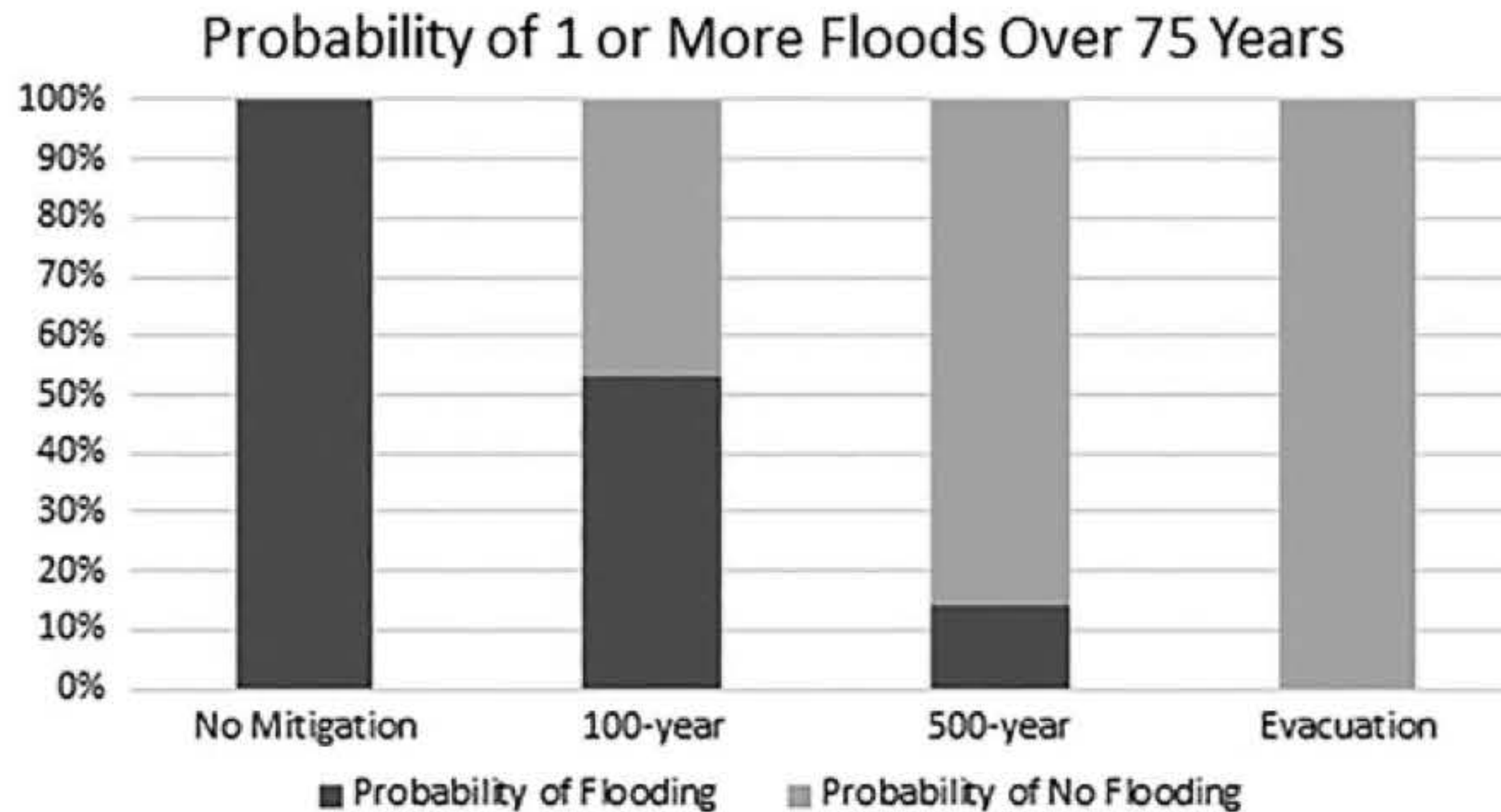


FIGURE 20.2 Residual flood risk for selected risk management options.

If the flood of record had an annual exceedance frequency of 0.2%, it has a recurrence interval of 500 years ($1/0.002$) and has been called the 500-year flood. Protection from a flow of this magnitude could require a much higher levee. The risk reduction provided by that levee is shown as the light shading of column three (500-year). Even though living behind a very high levee, there is still a 14% chance of one or more damaging floods in a lifetime. Permanent evacuation of the floodplain is the only effective way to eliminate the risk of flooding to its residents. This simple discussion does not even consider how a flood risk is transformed when catastrophic failure of protective works, as occurred in New Orleans, is now a possibility. So, it is not difficult to appreciate the complexity of the message flood plain residents need to absorb.

Let us return to the residual risk (the darker shading) of columns two and three for a moment. What can be done to manage the residual risk, and whose responsibility is that? These are important additional risk messages to craft and communicate. One of the principle reasons the so-called 100-year flood has been targeted as a minimum level of flood protection is that if the 100-year floodplain is confined, say to between the levees along a river, then residents no longer live in the 100-year floodplain and are no longer required to buy flood insurance. The figure shows the foolhardy nature of this strategy. The chance of a house fire over 75 years is far less than 53% and everyone with a mortgage is required to have fire insurance, yet flood insurance remains an option.

Residual risks can be addressed in a variety of ways. Homeowners could be required to purchase flood insurance, agree to evacuate when an order is given, and provide a trapdoor escape hatch on the roof of their homes. A great many people who drowned in New Orleans had moved to the highest floor or attic of their homes only to become trapped and drown in rising water. This is all part of the message those at risk of flooding should hear and understand.

Not only do we need to formulate management strategies, but we need to formulate message strategies for a great many noncrisis risk communications. Too often there is no effective strategy for communicating complex information to laypeople in a risk management activity. Strategies for communicating about residual, new, transformed, and transferred risks could be used in a great many situations.

20.4 CRISIS COMMUNICATION

Crisis communication strategies, by contrast, have received a great deal more attention. The National Center for Food Protection & Defense's (NCFPD) excellent free teaching resources form the foundation for this section, and the work of the NCFPD is gratefully acknowledged (Food Insight 2010). Their communication model consists of a sender, receiver, channel, message, feedback, noise, and an environment, that is, a time and place for the communication. For normal situations, where there is little to no stress, audiences tend to base their trust in the communicator on his or her level of competence and expertise. During a crisis or in other high-stress circumstances, trust factors change, as discussed in [Chapter 5](#). Listening, caring, and empathy become far more important than competence and expertise.

Stress interferes with the function of the basic communication model. The choice of the best sender of a message may change from a low-stress to a high-stress situation where the communicator's effectiveness depends more on credibility and trust. The audiences (receiver) have a reduced capacity to process complex information, so the messages must be simplified to be effective. Feedback to gauge the public's response becomes more important than ever. Noise, that is, barriers that interfere with the receiver's ability to process information, can increase during a crisis. Communications systems may be compromised, and even when they are not, stress levels and emotional responses to the situation can present significant barriers to the normal communication model.

DIFFERENCES BETWEEN COMMUNICATING DURING LOW- AND HIGH-STRESS SITUATIONS

Low: Receiver processes an average of 7 bits of information

High: Reduced to 3 information bits

Low: Information processed in a linear order (1,2,3)

High: Information processed in order of primacy (1,3,2) or recency (3,2,1)

Low: Information is processed at an average grade level (local newspapers written at 8th grade reading level)

High: Information is processed at 4 grade levels lower (e.g., from 8th grade to 4th grade)

Low: Focus is on competence, expertise, knowledge (title, credentials)

High: Focus is on caring, empathy, compassion concept (metamessages)

Source: NCFPD Training Module 3 Message, Delivery and Development

This mental noise disrupts the listener's ability to process information to such an extent (see box) that overcoming the noise must become an explicit counterstrategy for risk communication. This means we need to simplify the message: offer no more

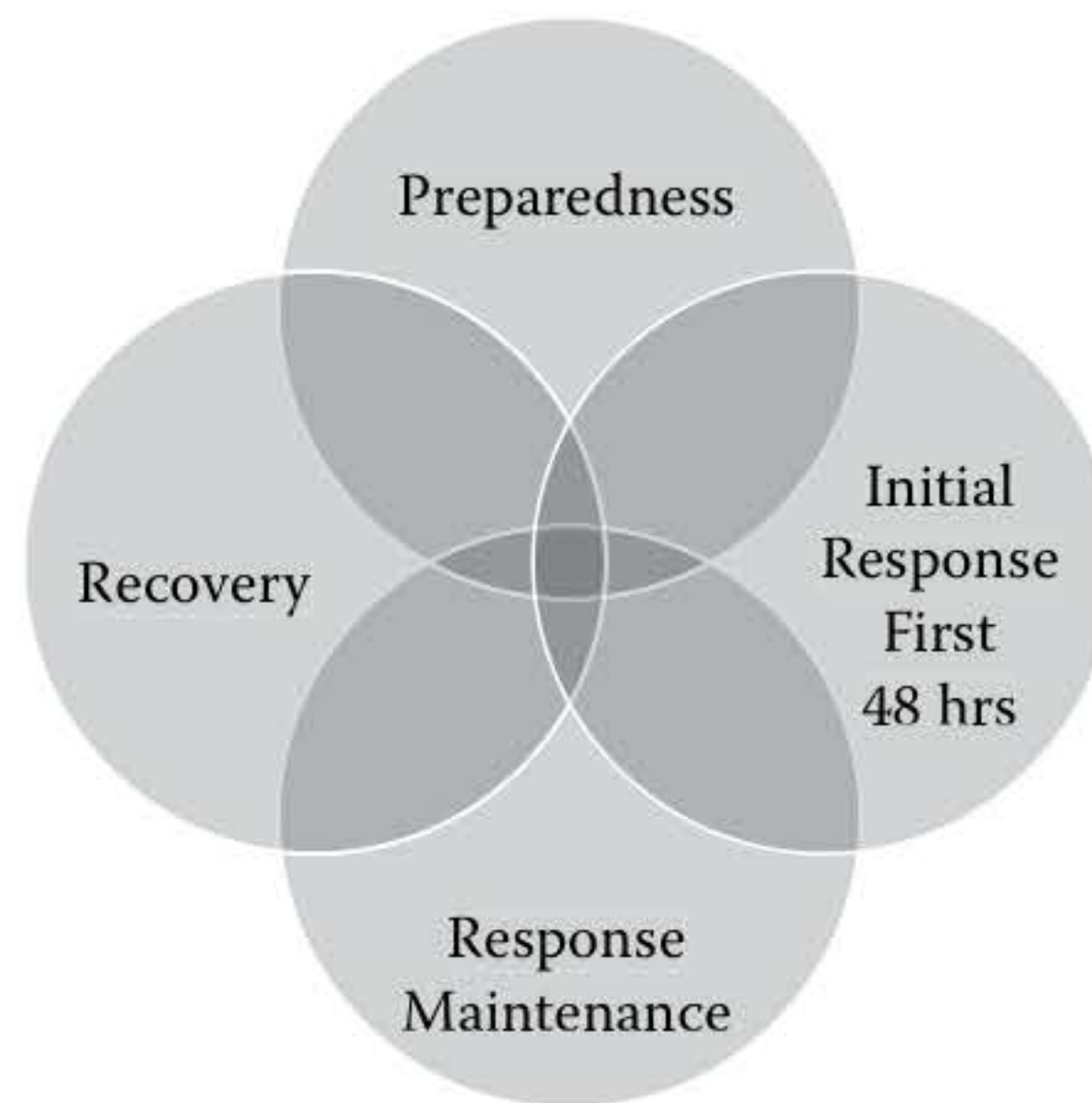


FIGURE 20.3 Reynolds and Seeger's four stages of a crisis.

than three message points and use short sentences. Numbers should be used sparingly and carefully. Ideas are often more effectively presented through pictures or graphics during high-stress situations.

Reynolds and Seeger (2005) have identified four stages of crisis communication, shown in [Figure 20.3](#). The preevent planning for a crisis response takes place in the preparedness stage. Credibility and trust cannot be readily established in the midst of a crisis. They are slow to build and so must be strategically cultivated as part of an organization's crisis preparedness. Educating and informing the public about more complicated information is also better initiated during low-stress times. The preparedness stage is the time to develop message maps, a subject touched on later in this chapter, and risk communication strategies. Messages that may be needed in a crisis can be tested with stakeholders and the public during this stage as well. A crisis is not the time, for example, to begin looking for a translator to reach your multicultural audiences, nor is it the time to start wondering what to say or to whom to say it.

The initial response to a crisis spans the first two days of the event. During this time there may be a lot of unknowns. Uncertainty or "mystery" intensifies the fear during this period. Effective risk communication must begin immediately. You cannot wait until you have all the answers to communicate.

The first 48 hours is a time for responding, not for planning. This need to respond quickly makes the preparedness strategies very important. It is that preparedness that enables you to respond.

Reynolds and Seeger (2005) offer several principles for the initial response:

- Be first, be right, be credible
- Acknowledge the event with empathy
- Explain the risk and inform the public; tell them what you know, what you don't know, and what you're doing about it
- Commit to continued communication
- Keep communication channels open

The response maintenance phase of the crisis is a time to continue to build on the response to the crisis. It is important to help the public understand the risks they may face and to provide useful information in a way that empowers people to make their own risk/benefit trade-off decisions. These can be simple messages like: “Stay indoors until the spill has been cleaned up”; “If you are worried, don’t eat spinach”; “To be safe, evacuate the area”; and so on.

Subject matter experts may help at this point by providing background information. The risk communication team needs to listen to their various audiences and stakeholders for feedback and to correct misinformation. This is a time to improve understanding of the problem and to build support for the response and recovery plans.

After the event has passed, the recovery stage begins. It is often accompanied by feelings of relief, celebration, and gratitude for getting through the event. Not everyone will share in these feelings, however, and it is important to continue to express empathy and caring for those who have suffered through the event. It is time to listen to the public and the stakeholders to hear how they perceived your effectiveness during the event. It is important to acknowledge any shortcomings and to explain how they will be rectified in the future. Actions must match the messages, or trust and confidence may be irreparably harmed.

COMMON MISTAKES MADE IN A CRISIS

Overreassure

Sound too certain, too confident

Wait too long

Fail to communicate the complexity of decision-making or to acknowledge opinion diversity

Try to appear objective by excluding emotions from our messages and metamessages

Treat the public as though they are children

Downplay the mistakes we have made

Source: NCFPD Steve Venette.

20.5 MESSAGE MAPPING

Many crisis situations can be anticipated by an organization. Floods and other natural disasters, traffic accidents, food-borne disease outbreaks, terrorist attacks, train wrecks, airline crashes, product recalls, bank failures, toxic spills, and the like are expected events for a variety of organizations. Planning the communications response to these events is often as important as planning the first responders’ activities.

Based on how people process information during times of stress, Dr. Vincent Covello (2002) of the Center for Risk Communication has developed the idea of message mapping. Message maps are a good first step for developing risk communication messages during the preparedness stage of crisis communication.

They enable staff to develop effective messages that organize and simplify complex content in a systematic way during periods of low stress. Message maps can also be useful for many of the noncrisis/low-stress events discussed earlier.

Covello describes this tool as “a roadmap for displaying detailed, hierarchically organized responses to anticipated questions or concerns. It is a visual aid that provides at a glance the organization’s messages for high concern or controversial issues.” A message map provides a framework for organizing information and developing clear and concise messages that anticipate stakeholder questions and concerns. Done in advance of a crisis in a thoughtful way, they offer an organization the opportunity to promote a consistent message and voice in the midst of a crisis. Message maps offer a systematic approach for preparing effective risk communication messages. The message map is not the message, however. It is a device that aids in the development of risk communication messages.

Remember, in high-stress situations, people can process three bits of information effectively. So, message maps are based on the “rule of threes.” In high-stress situations it is best to:

- Present three key messages
- Repeat key messages three times
- Prepare three supporting messages for each key message

This rule is supplemented by Covello’s 27/9/3 Rule, which says to use a total of 27 words, delivered in no more than 9 seconds, to deliver three key messages.

These message maps can be used to prepare risk communication messages for emerging or anticipated crises. They are also useful for preparing for media interviews, press conferences, and other public forums. They are a good first step in creating a risk communication message or statement.

The steps for developing message maps are simple. Begin by making a list of all the questions you may be asked to address. Then prepare a message map for each question. In answer to each question you should identify the following:

- The three most important things you would like your audience to know
- The three most important things your audience would like to know
- The three most important things your audience is likely to get wrong unless they are emphasized

A message map template can be used to organize this information. The key messages in a template should be able to stand on their own. The support points for each key message provide factual information, visual aids, citations to credible third-party information, and sources of more information.

The NCFPD provides a sample message map, shown in [Figure 20.4](#), that addresses the question: “What should I know about anthrax?” Note that the three key messages, the top item in each column, are expressed in a total of 22 words. There are also three supporting ideas for each key message; these also total to 27 words or less. The message map content is constructed based on the answers to the bulleted items outlined previously. One such map should be constructed for each significant question; thus, the bulleted items could lead to nine maps. These maps are then used to craft the message.

1. Anthrax is a disease that can affect people and animals.	2. Anthrax occurs naturally in the soil.	3. Anthrax is both preventable and treatable.
1a Anthrax is caused by bacteria that form spores.	2a Anthrax occurs worldwide.	3a Effective vaccines are available for livestock.
1b The spores can be inhaled, swallowed or enter the skin (contact).	2b Spores are resistant to manmade disinfectants.	3b Vaccines for humans are developed and can be used prior to or after exposure.
1c Animals most commonly affected are cattle, sheep, and goats.	2c Anthrax spores can survive for many years in soil without an animal host.	3c Early treatment antibiotics can be effective.

FIGURE 20.4 Sample message map for anthrax scare. (From Food Insight. 2010. Risk communicator training for food defense preparedness, response and recovery: Trainer's overview. http://www.foodinsight.org/Resources/Detail.aspx?topic=Risk_Communicator_Training_for_Food_Defense_Preparedness_Response_Recovery [accessed October 30, 2018].)

20.6 DEVELOPING RISK COMMUNICATION MESSAGES

Developing a risk communication message requires the communicator to integrate all he knows about risk communication. It begins with the goals and desired outcomes of the risk communication. A good message recognizes risk perception as a combination of facts and feelings as well as common human reactions to risk, such as fear, denial, and panic. This necessitates careful attention to techniques for communicating in high-stress situations.

The NCFPD team has developed a risk communication message template, shown in [Figure 20.5](#). The scenario for using this template can be found in any of the four phases of a crisis. The strategy for the communication might include such things as relationship building, partnership responsibilities, trust building, changing behavior, coming to agreement, and so on.

The communicator's role and communication goal identify the who and the why of message development. The who may include such roles as subject matter expert, industry representative, government official, emergency responder, agency spokesperson, university scientist, consultant, and so on. The purposes of the communication are varied and might include increasing awareness of a potential risk, providing background or technical information, executing a response plan, or supporting recovery.

Key audiences need to be identified. Communicators must be aware of the education level, general awareness of the risk or event, as well as relevant demographic and cultural characteristics of the population.

The medium and delivery mode depend in part on the desired impact and influence of your communication. Channels have varying extents of persuasive influence and they reach audiences of varying size (impact) and type. Channel choice often goes back to knowing your audience. Where are they? How do they get their information? How do you reach them? What do they listen to? What do they read? What radio/television stations do they tune into? What other communications do they use? The most commonly used channels include interpersonal communications, television,

MESSAGE DEVELOPMENT TEMPLATE

SCENARIO:
 COMMUNICATOR ROLE:
 COMMUNICATION GOAL:
 PREPAREDNESS STRATEGIES:

Key Audience(s)	Medium/ Delivery Mode	Key Questions and/or Messages	Metamessage Strategies
Message Text			

FIGURE 20.5 National Center for Food Protection and Defense message development template. (From Food Insight. 2010. Risk communicator training for food defense preparedness, response and recovery: Trainer's overview. http://www.foodinsight.org/Resources/Detail.aspx?topic=Risk_Communicator_Training_for_Food_Defense_Preparedness_Response_Recovery [accessed October 30, 2018].)

radio, print, Internet sites, blogs, e-mail, mobile phone, text messaging, tweeting, chat rooms, and other social media. Each has its pros and cons. Multiple channel strategies are often most effective.

The key message grows from the message mapping activity. Metamessages are the nonverbal messages you want to send. The substantive information of your message is only part of the message content. All the other things and ways your message communicates comprise the metamessage. Metamessaging should be an intentional strategy that, among other things, reveals your empathy and caring. Whether you decide to come across as confident or tentative, open or not, how human and how official, your degree of candor, openness, and such: these are all strategies you should consider beforehand. Metamessage strategies do not preclude sincerity. Deciding to be sincere does not make one insincere. Deciding to sound sincere while not being sincere does, however.

Best risk communication practice uses as many opportunities as possible to reinforce the metamessage strategy. If you have decided to be more official, then staging may include flags and podiums with official symbols. Dress will be formal and the attendees will include officials at all relevant levels. A more informal and human metamessage strategy will lead you to choose other nonverbal metamessages.

In a risk communication message's text, you provide information, give people meaningful things to do, and reinforce your metamessage. The information content includes what you know and what you don't know. It should also include what you are trying to do about the situation. The information should also include when you'll provide the next update. The text may come from messages you have mapped.

Your risk message should empower people to make decisions and take actions to help themselves. This is the self-efficacy component of the message. The intent is to help restore a sense of control over an uncertain and threatening situation. You empower audiences by giving people the information they need to make informed decisions and by giving them meaningful things to do.

A good risk message includes three kinds of self-efficacy statements. It tells people the things they must do now. It tells them what they should do to reduce the risk or their exposure to it. Finally, it tells them what they could do to help themselves further. An alternative emergency message development worksheet developed by the Centers for Disease Control is shown in Figure 20.6.

Message Development Worksheet for Emergency Communication

First, consider the following:

Audience:	Purpose of Message:	Method of delivery:
☐ Relationship to event ☐ Demographics (age, language, education, culture) ☐ Level of outrage (based on risk principles)	☐ Give facts/update ☐ Rally to action ☐ Clarify event status ☐ Address rumors ☐ Satisfy media requests	☐ Print media release ☐ Web release ☐ Through spokesperson (TV or in-person appearance) ☐ Radio ☐ Other (e.g., recorded phone message)

Six Basic Emergency Message Components:

1. Expression of empathy:

2. Clarifying facts/Call for Action:

Who _____

What _____

Where _____

When _____

Why _____

How _____

Add information on what residents should do or not do at this time _____

3. What we don't know:

4. Process to get answers:

5. Statement of commitment:

6. Referrals:

For more information _____

Next scheduled update _____

Finally, check your message for the following:

Positive action steps Honest/open tone Applied risk communication principles Test for clarity Use simple words, short sentences	Avoid jargon Avoid judgmental phrases Avoid humor Avoid extreme speculation
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FIGURE 20.6 CDC emergency message development worksheet. (From www.health.mo.gov/living/lpha/toolkit/chap7/01.doc [accessed February 7, 2011].)

20.7 IMPEDIMENTS TO RISK COMMUNICATION

There are many issues that affect our ability to communicate about risk. Covello et al. (1989) offer a dozen factors that complicate risk communication. They are well worth understanding for constructing effective messages. First among these, is that risk is an intangible concept that the general public does not understand. As a result, their risk-taking or risk-managing decisions can be based on bad information. Second, the public likes simple solutions. They are more likely to take effective action when the action is simple, for example, “Don’t eat spinach.” They are less likely to take effective action if the solution is more complex, for example, “Move out of the floodplain.” Third, the public does not like uncertainty or probability. They much prefer concrete facts upon which to base their decisions. People are prone to draw inappropriate conclusions from uncertain and probabilistic information. When the media draw the wrong conclusions, the consequences of that faulty information can be magnified. Fourth, the public can react unfavorably to fear.

A fifth confounding factor is people’s aversion to a loss of control over their personal well-being. Risks perceived as beyond the control of the individual present a special challenge for message development. When the U.S. Army Corps of Engineers described two dams upstream of Houston in need of repair as “extremely high risk” in February 2010, citizens were concerned despite the fact the Corps said not to be alarmed.* Sixth, the public sometimes doubts scientific predictions. Y2K disasters and flu epidemics that did not materialize have taught people that the scientists and experts can be wrong. A seventh factor is that the risk at issue may simply not be one of the public’s priorities. Feelings of invincibility among the young, for example, may render some risk messages ineffective because they cannot imagine their susceptibility to the risk. Related to this is an eighth confounding factor: The public tends to underestimate their personal risk. Bad things happening to other people is not just a defense mechanism of youth.

Ninth, the public hold contradictory beliefs, for example, “I am not going to get cancer”/“Everything causes cancer!” Tenth, a majority of Americans lack a strong future orientation. Some version of “live for today and let tomorrow take care of itself” is a common perspective on the future. It is not easy to get people to change their diet today in exchange for better health in the future. The future is less relevant to those in the lower socioeconomic strata of society.

READABILITY SCORE

For readable messages experts recommend writing for a 7th to 8th grade reading level. Several indices are available for evaluating your written messages.

The Flesch–Kincaid Grade Level

$$\text{FKRS} = (0.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$$

* “Engineers to Update on Addicks, Barker Dams.” <http://www.ultimatekaty.com/stories/4406-engineers-to-update-on-addicks-barker-dams>. These dams subsequently proved to be critical factors in the damages from Hurricane Harvey in 2017.

where FKRS is the Flesch–Kincaid Readability Score, ASL is the average number of words in a sentence, and

ASW is the average number of syllables per word.

Gunning's Fog Index Grade Level = $0.4 (ASL + PHW)$, where PHW = Percentage of Hard Words. Hard words are words of three or more syllables that are not (1) proper nouns, (2) combinations of easy words or hyphenated words, or (3) two-syllable verbs made into three with -es and -ed endings.

The last two factors include the public's tendency to personalize new information. When risks are described at societal or aggregated levels above the individual, people have to translate it into terms that are personal. This invites opportunities for misinterpretation. Finally, the public does not understand science. The models, methodologies, and descriptions of risk can be too technical for many people. The facts that science evolves and changes and that risk assessment is iterated just further confuse people. Many people are poorly equipped to understand scientific messages. Armed with an awareness of these factors that complicate risk communication, careful message development becomes an indispensable skill for a risk analysis organization. It is important to write messages that readers can understand (see box).

20.8 SUMMARY AND LOOK FORWARD

Risk analysis is an effective paradigm for decision making under uncertainty. Communicating about risks and communicating uncertainty are especially challenging tasks. This is in part because the subject matter is difficult and in part because the audience for this communication is often in an emotional state. Risk communication entails a great deal more than providing people with information. Best-practice risk communication necessitates that key messages be developed carefully and, as often as possible, well before they are needed.

Message development strategies are a critical part of effective risk communication. Message mapping is a useful component of these strategies. How do you explain the complex distributions, sensitivity analyses, and other details we have discussed throughout this book? The answer may well be that you do not have to; just remember the "rule of threes." Know the impediments to successful risk communication and develop messages to avoid them.

Continuing down the faulty path of information = communication, people often dump all of their risk data into a more or less coherent document that hopefully meets the needs of that risk management activity's stakeholders. We need to stop dumping data and to start telling effective stories. Story telling is another invaluable skill for those who engage in the risk analysis sciences and it is the subject of the next chapter.

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