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Public disaster mental/behavioral health communication: Intervention across disaster phases

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ABSTRACT

Background: *Disasters have been found to significantly impact mental and behavioral health.[1] A public health response to disaster seeks to ameliorate this impact by identifying mental/behavioral health effects resulting from an event and by promoting healthy disaster-related outcomes. Disaster communication interventions are effective tools that disaster managers can use to achieve these outcomes.*

Objectives: *Based on a review of the literature, the objectives of this article are to describe disaster communication intervention activities and corresponding outcomes and to place those activities in a multiphase disaster communication framework.*

Results: *The Disaster Communication Intervention Framework (DCIF) is proposed. Outcomes targeted by DCIF include improving individual and community preparedness and resilience; decreasing disaster-related distress; promoting wellness, coping, recovery, and resilience; helping a community make sense of what happened during and after a disaster; and rebuilding the community. Strategies for achieving these outcomes are described.*

Conclusions: *DCIF provides a multiphase framework of public disaster mental/behavioral health communication intervention that can be used by disaster managers to improve mental and behavioral outcomes following a disaster.*

Key words: crisis communication, risk communication, disaster, public health

INTRODUCTION

Disasters, whether they have natural or human causes (or some mix of both), have been found to significantly impact mental and behavioral health.[1] A public health response to disaster seeks to ameliorate this impact by identifying mental/behavioral health effects resulting from an event and by promoting healthy disaster-related outcomes. Competent disaster-related communication (ie, risk or crisis communication) has been touted as a skill that is necessary to support an effective public health disaster response. Additionally, providing information to the public during a disaster has been identified as a command component of US Department of Homeland Security's Incident Command System.[2] However, beyond facilitating the disaster response, disaster communication efforts can constitute public health "intervention" capable of achieving specific public health outcomes across the phases of disasters. Viewed from this perspective, disaster communication interventions constitute effective—yet often overlooked—tools available to disaster planners and managers at all phases of an event. For example, before a disaster, public communication efforts can increase community resilience by helping communities connect to information sources and by engaging communities in discussions of risk and preparedness. Following an event, public communication efforts can provide information to the public about typical reactions to a traumatic event and disseminate recommendations for effective coping strategies to individuals, thereby reducing the anxiety that the individuals experience following an event.

Although disaster communication efforts such as those earlier described are sometimes included in discussions of risk or crisis communication models or best practices, a comprehensive list of disaster intervention activities (and corresponding outcomes) has not yet been fully articulated and incorporated into a multiphase framework. This article seeks to address

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this gap in the literature and to advance the fields of disaster communication and disaster management by proposing a "multiphase framework of public disaster mental/behavioral health communication intervention" (hereafter referred to as "Disaster Communication Intervention Framework" or DCIF). Within DCIF, "intervention" is considered to be "a set of actions with a coherent objective to bring about change or produce identifiable outcomes."[3] An intervention can take the form of strategies, initiatives, programs, or policies; an intervention can be loosely described or fully articulated and packaged for use; and an intervention can consist of individual and isolated activities or can be multifaceted and coordinated. The applied model of DCIF presented in this article supplements and transcends traditional conceptualizations of crisis and risk communication in that it is structured on a public mental/behavioral health approach to disaster intervention. This public health approach to disaster is described in the following section.

Public disaster mental/behavioral health

From a public health perspective, disasters may significantly impact the mental/behavioral health of a large number of the people in a community that experiences a disaster (or in the case of a catastrophic event such as the September 11th terrorist attacks, the impact may be experienced across the entire society where the event occurs), with most community members experiencing mild or infrequent psychological distress or behavioral change and a minority of community members developing severe pathological disorders such as depression, PTSD, or alcoholism.[4,5] The severity and distribution of these impacts may vary significantly among events with different characteristics (eg, amount of warning before event, cause of event, extent of damage, injury, and death resulting from event) although this has not been assessed with much precision. Additionally, over time individuals may have their reactions to a disaster exacerbated by media coverage of the disaster, by problematic or inconsistent communication from public officials, and by the ongoing disorder of and challenges associated with the postdisaster environment.[6]

A public health disaster response seeks to identify and assist individuals experiencing distress following a disaster. Assistance is ideally provided through public mental/behavioral health intervention that is matched to individual levels of distress. Matching appropriate intervention to amount of postdisaster need involves providing public health level intervention to the majority of individuals who exhibit mild disaster responses and delivering more intensive interventions to the minority of individuals who experience severe or pathological reactions. Public health level disaster interventions (ie, interventions intended for most of a population who experience mild symptoms) often focus on education and skill building to help individuals make sense of and cope with their reactions to the event.[7] More intensive disaster interventions include clinical services such as group or individual counseling and medication management.[6] Disaster communication interventions generally belong to the public health level category of disaster interventions, though some disaster communicative efforts can be focused on supporting the disaster clinical response (eg, communication-based outreach activities may seek to connect individuals who are in need of intensive treatment to available clinical services).

Although treating severe, pathological reactions to disasters is an essential component of a public health disaster response, those managing the response cannot overlook or underestimate the nonpathological reactions that may occur broadly across a community or society. Mild disaster reactions may occur among individuals who had some experience with the disaster or they may occur among "secondary victims" who live in the community affected by an event but were not directly hurt or impacted by the disaster.[8] Mild disaster reactions include being afraid, having less energy, becoming more depressed, and having less enthusiasm about life.[5,8] These reactions may occur immediately after an event or may emerge after a postdisaster period of community solidarity gives way to disillusionment.[9]

Public health disaster interventions intended for individuals experiencing mild distress have been called "universal" because they are appropriate for everyone living in a community.[10] Universal interventions may

focus on improving the coping skills of individuals, normalizing individual reactions to the event, providing individuals with opportunities to make sense of the event, rebuilding connections between individuals and the community, providing a forum for community members to discuss their experiences and concerns, and increasing individual and community resilience.[10-12] These types of universal intervention activities are within the scope of DCIF.

Defining and operationalizing the activities within DCIF as mental/behavioral health intervention is important and necessary because it not only expands the role of disaster communication beyond risk and crisis communication but also more accurately describes the outcomes that DCIF activities are intended to achieve in the disaster environment. Although an intervention approach to disaster communication subsumes many of the strategies and approaches commonly touted in the risk and crisis communication literature, DCIF is more directly aligned with the public disaster mental/behavioral health response in that the goal of this framework is to achieve positive and to prevent negative health outcomes resulting from a disaster experience, whereas disaster and risk communication is typically intended to support a public health response. To clarify these differences, a brief review of risk and crisis communication is necessary to understand how an intervention approach to disaster communication builds on but also differs from the risk and crisis communication literature.

Risk and crisis communication

Currently, disaster communication is generally addressed in the risk and crisis communication literature. Risk communication is a persuasive form of communication focused on influencing individual understanding of and behavior related to risk.[13] Sandman describes three kinds of risk communication: warning insufficiently worried people about a risk; reassuring overly worried people about a risk; and helping appropriately worried people deal with a risk.[14] Risk communication is often cited as a central element in public health disaster response.[4,15] Crisis communication differs from risk communication in that crisis communication is typically conceptualized as a public relations activity that is focused on defending and protecting an organization's positions or actions relative to a crisis.[16,17]

Recently, the Centers for Disease Control and Prevention combined existing conceptions about risk and crisis communication into a single model known as Crisis and Emergency Risk Communication (CERC).[16,18] This integrative communication model uses a multiphase framework to combine communication principles focused on defining risk with the crisis and organizational orientation of crisis communication. This single model advances the field of disaster communication by bringing together several communication strategies that organizations need to effectively communicate during a disaster. However, although providing an advancement of the fields of risk and crisis communication, CERC falls short of proposing a communication model that functions as intervention as CERC is focused on supporting the existing public health response. In presenting the CERC model, Reynolds writes that "organizations responding in a crisis will have the following objectives in mind when communicating in the disaster: prevent further illness, injury, or death; restore or maintain calm; and engender confidence in the operational response."[19] However, organizations responding to a disaster may wish to use communication to achieve broader and more robust outcomes than these CERC-related objectives. For example, disaster communication interventions may be implemented in the hopes of increasing recovery, promoting wellness, supporting resilience, connecting distressed individuals to services, reestablishing personal and community connections, and helping a community and individuals make sense of the disaster. Outcomes such as these are central to a public health disaster response and can be accomplished through DCIF. The following section describes a multiphase DCIF that is intended to directly achieve robust mental and behavioral health outcomes in all phases of disaster.

DISASTER COMMUNICATION INTERVENTION FRAMEWORK

Disasters and disaster management are often conceptualized according to phases.[20] A phased approach to disasters is helpful because the disaster experience is marked by an event, such as a hurricane making landfall, a levy bursting, or a bomb exploding. The occurrence

of the disaster immediately creates two periods, the time before the event and the time after the event. The time before the event can be conceptualized in terms of what was done to prevent (mitigation) or prepare for (preparedness) the event, whereas the period after the event can be thought of in terms of the initial response to the disaster (response) and the period of repair and rebuilding (recovery).[20] DCIF focuses on preparedness, response, and recovery in terms of the predisaster, disaster (the acute phase immediately during and after the disaster), and postdisaster time periods.[21] Although a disaster may clearly mark the time before and after an event (eg, the time before and after a bomb explodes marks the time before a disaster and after a disaster), distinctions between disaster phases are not always absolute. For example, it may be difficult to pinpoint exactly when response turns into recovery, just as it may be hard to determine if some activities occurring after a disaster are recovery oriented or preparedness oriented (eg, efforts to increase community resilience following a hurricane may help the community recover from the disaster and may also prepare the community for the next event, thus making such activities difficult to categorize). However, although distinguishing between disaster phases is not always exact, disaster phases are helpful in providing a basic framework for conceptualizing disaster-related needs and actions.

The following sections provide an overview of a DCIF for pre-event, event, and postevent disaster phases. Included in this overview are DCIF objectives for each phase (eg, increase community resilience) as well as several suggested strategies for accomplishing those objectives (eg, engage community in discussion of risks, disaster planning, and disaster response).

Pre-event disaster communication intervention

The ultimate goal of DCIF is to prevent negative health outcomes and to promote positive outcomes among individuals and communities following a disaster. This goal is achieved at the pre-event phase using DCIF to accomplish the following objectives: improve pre-event levels of individual and community disaster "preparedness" and increase pre-event levels of individual and community "resilience" (see Table 1 for disaster communication objectives and strategies for all disaster phases).

Preparedness. Disaster preparedness refers to activities undertaken before a disaster that are intended to help individuals, families, and communities respond to and cope with a disaster when an event occurs.[22] Disaster preparedness includes activities such as determining what to do during and immediately following a disaster; developing disaster plans; participating in disaster drills; acquiring supplies that will be helpful during and following a disaster; becoming familiar with existing local, state, and federal disaster response organizations and procedures; and connecting with organizations and systems that will be active in a disaster response.[22,23]

Resilience. Resilience is "a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance."[24] Regarding disasters, resilience is the ability to respond to a disaster with a generally "stable trajectory of healthy functioning across time."[25] Resilience is a flexible capacity that can be applied to the individual or community and is indicated by wellness following a disaster.[24] Individual resilience to disasters has been found to be associated with the following individual factors: age; education; and level of trauma exposure, life stressors, health, and social support.[26] It has also been suggested that internal locus of control, coping style, psychological preparedness, and family cohesion may contribute to individual resilience.[27] Community resilience has been posited to consist of the following four core capacities: information and communication, community competence, social capital, and economic development.[24] Therefore, efforts to improve individual or community resilience have a variety of possible intervention pathways, such as increasing individual coping skills, improving individual psychological preparedness, and creating community connections.

Pre-event strategies. Several DCIF strategies exist for developing and implementing effective pre-event communication interventions to increase individual and community preparedness and resilience. The first strategy is to provide individuals, communities, and the public with credible, helpful, and current information about existing and potential risk, about individual and community preparedness, and about existing

Table 1. DCIF—objectives and strategies		
Phase	**Objectives**	**Strategies**
Pre-event (preparedness)	Improve individual and community disaster preparedness	Provide information about risk, individual and community preparedness, and existing disaster plans
	Increase individual and community resilience	Develop community connections/ relationships
		Engage community in discussion of risks, planning, and response
		Inoculate against disaster-related distress
Event (response)	Decrease disaster-related distress and unhealthy/unhelpful behavior	Provide information about event and disaster response to reduce uncertainty
	Promote wellness, coping, recovery, and resilience	Provide information about what individuals and community can do to stay safe, and what can be done to help with disaster response
		Provide information on normal reactions and coping skills
		Monitor media and provide corrections to disseminated information
		Address reactions to media coverage of the disaster
		Connect people with social support and community resources
		Demonstrate concern and empathy
Postevent (recovery)	Continue event phase intervention objectives as needed	Continue event phase strategies as needed
	Help community make sense of what happened	Support development of community trauma narrative
	(Re)connect community	Develop and reestablish community connections
		Provide outreach about available services and programs

local, state, or federal disaster plans. Educating the public about risk and threats and promoting preparedness and risk-reducing activities are key elements of pre-event disaster communication.[16]

Another pre-event DCIF strategy is to develop and strengthen community connections and relationships. Community connections are important to DCIF efforts for several reasons. First, connections with the community and community organizations provide a mechanism through which pre-event (and event and postevent) risk and crisis information can be effectively disseminated. Community organizations typically have physical (eg,

newsletters, meetings, and bulletin boards) and/or online (eg, Web sites, forums, and blogs) communication infrastructure through which disaster communication can be distributed to individuals and the community.[28,29] Because participation in community organizations is voluntary, the messages coming from a community organization are often trusted, and organizational leaders can serve as opinion leaders who promote the disaster communication messages.[28] Ultimately, community "organizations are the key intermediaries between a city and its diverse and divided subpopulations"[11]; therefore, such organizations provide an ideal point at which to connect with and provide information to individuals in a community.

Second, establishing relationships and connections with community organizations help develop trust and credibility for the entity-providing DCIF. Credibility is essential when communicating about crises[17,30,31]; therefore, efforts that create credibility and trust are essential to disaster communication efforts. Although community collaborations can be (and should be) developed and nurtured at any phase of a disaster, partnerships and relationships that are established before an event will likely be the most productive during and after a disaster, as pre-existing relationships will already have a developed level of trust and understanding between partners. Public relation activities, which are focused on creating and maintaining relationships with publics, may be particularly useful in establishing a relationship between an organization and a community before a disaster.

Another pre-event DCIF strategy is to engage the community in discussions about existing and potential community risks and about community disaster planning and response.[32,33] A community has a right-to-know about existing risks and public disaster planning,[20] but beyond this basic right, engaging a community in discussion of risks, planning, and response not only increases the likelihood that the community will be aware of existing risks and community disaster plans but also provides an opportunity for community residents to be part of the risk and disaster planning process. Engaging the public in discussions of risk and disaster preparedness allows for a collective review of community risks and disaster planning that can establish a collectively shared perspective on community risk and disaster planning.[28,30] Community participation in risk and disaster planning discussions also provides opportunities for community members to improve local planning and identify ways they may participate in disaster planning or response activities.[14]

Engaging the community in discussion of risk and disaster planning and response may also increase a community's collective efficacy and resilience.[28] Collective efficacy, which is a group's shared belief in its combined ability to undertake a course of action to reach a goal, may help a community respond to a crisis.[34] Engaging a community about issues of risk and planning can also increase the credibility of an organization that will ultimately implement DCIF[28] and this increased credibility may in turn strengthen an organization's ability to intervene postdisaster. It should also be noted that characteristics of a community, particularly the amount of resources available, will impact a community's efficacy and resilience.[24] As such, community discussions of risk and disaster planning and response should include conversation about adequacy of resources. For example, poverty and unemployment may be challenges for a community that potentially impacts a community's ability to deal with a disaster. Discussion of these challenges should be included when talking about disasters, as they are important in assessing a community's ability to prepare for and respond to an event.

A final pre-event DCIF strategy is to inoculate individuals against postevent distress by providing psychological "vaccines" to individuals or a community.[5] Proactively delivering psychoeducational information to children and adults before an event is one form of psychological vaccine.[5] In this approach, individuals are given information about the experience of and reactions to an event like a disaster so that their response to the disaster, when it actually occurs, is more informed and adaptive. Another approach to providing a psychological vaccine is to expose individuals to or ask individuals to consider some aspects of a mock disaster. This exposure may occur through a tabletop exercise or a classroom discussion. Such an experience provides an opportunity for individuals to emotionally and cognitively process potentially traumatizing information and to adjust to a frightening reality before a full-scale crisis occurs. As

Sandman explains, "people who have gone through a fearful 'adjustment reaction' before a crisis begins are better prepared to cope with the crisis, emotionally as well as logistically."[14]

Event disaster communication intervention

The response phase of a disaster includes the acute aftermath of an event. Following a disaster, the immediate focus of a public disaster response will be to ensure safety and meet basic needs such as medical care and shelter. Once safety and protection have been assured, DCIF can focus on the following two key objectives: decreasing disaster-related distress and unhealthy behavior and promoting individual and community wellness, coping recovery, and resilience. In other words, event phase DCIF is intended to decrease bad and increase good public mental/behavioral health outcomes following an event. Focusing on promoting positive outcomes—as opposed to focusing only on preventing negative outcomes—is important because positive health outcomes (eg, resilience and coping) can increase healing and recovery following a traumatic event.[4]

Event strategies. Event phase DCIF strategies include providing individuals and the community with information about the disaster and the disaster response. Providing basic, clear, and accurate information about what has occurred and what is being done to respond to a disaster is a core component of crisis communication.[35] Clear and updated information about what is going on can reduce uncertainty, eliminate rumors, and provide a realistic view of what has occurred, thereby decreasing distress among community members.[7,16] Viewed from an intervention perspective, good crisis communication not only supports the overall disaster response but also can directly decrease worry, anxiety, uncertainty, and fear in the public.

A second event phase DCIF strategy is to provide individuals and the public with information about how to stay safe in the aftermath of the disaster and about what can be done to help or assist with the disaster response. Providing information about how to avoid harm will empower individuals to act in ways that can keep themselves and their families safe and thereby restore some sense of control over the situation.[17] Providing options about what individuals can do to stay safe may be particularly helpful because it not only allows people to do something but also provides them an opportunity to control what they decide to do.[14] Furthermore, providing information on how people can help others or participate in the disaster response (eg, donate blood and volunteer at disaster shelter) can empower people in what might otherwise seem like a helpless situation.[17]

Another event phase DCIF strategy involves providing individuals and the community with information about what constitutes normal reactions to a traumatic event, as well as disseminating suggestions about how to cope with the disaster.[4,16,36] Following a traumatic community event, many individuals may experience fear or anxiety resulting from the event. Disaster communication interventions can inform community members about what types of disaster reactions are normal, about what can be done to cope with the disaster and these reactions, and about what type of reactions might require professional mental or behavioral health assistance. This type of information helps community members to understand and evaluate their own responses to a traumatic situation and also provides strategies for coping with the events, thereby helping individuals who might otherwise not know what to do about their reactions. Disaster communication interventions can also inform the public that a traumatic experience can impair the ability to think clearly.[36] Impaired thinking may go unnoticed by traumatized community members; therefore, a reminder to take time to focus clearly on issues that are important may be helpful.

Event phase DCIF should also account for the impact of disaster media coverage on individuals and the community. Organizations implementing DCIF should monitor media coverage so that corrections to misinformation can be provided and any traumatizing effects of media coverage can be addressed.[37] The relationship between a community's mental and behavioral health and exposure to media coverage of a disaster is complex and may not always be clear. Exposure to media coverage of a disaster may increase anxiety or posttraumatic stress reactions[38] or exposure to media

coverage may reduce uncertainty about the event and thereby decrease anxiety.[12] Despite this complexity, the impact of exposure to media coverage of a disaster should be considered and addressed in DCIF.

Connecting people to community resources is also an important intervention strategy in the aftermath of a disaster.[4] DCIF can provide information on what resources and services are available for community members following a disaster. This information will likely change throughout the response and recovery phases following a disaster; therefore, DCIF should focus on providing complete and accurate information that is continually updated. This can be accomplished using Web sites, radio, television, or other updateable media forms.

All DCIF efforts should be empathetic to the feelings, experiences, and concerns of individuals affected by a disaster. Communicators and disaster communications should be compassionate and validate individual reactions to the events.[17,37] Empathetic and accountable communications can increase how much individuals and community members trust the communicating organization in the postdisaster environment,[19] thereby increasing the potential for DCIF success. In addition to being empathetic and caring, DCIF can promote disaster recovery using language that promotes hope, problem solving, and trust, as opposed to language that is focused on fear, violence, or victimization.[36,39]

Postevent disaster communication intervention

In the postevent phase, the public health emphasis shifts from responding to the emergency, to recovering from and rebuilding after the disaster. Although many of the event phase DCIF objectives and strategies described previously may be continued into the postevent phase (eg, interventions can continue to promote wellness and coping), the recovery focus of the postevent phase provides opportunities for additional, phase-specific intervention objectives such as helping individuals and the community make sense of what happened and reestablishing a sense of community. Additionally, research has documented extensive helping behavior after a disaster even without public health intervention.[40] Postevent disaster communication intervention should focus on fostering and facilitating this helping.

Postevent strategies. Developing a community disaster narrative is a key strategy in helping individuals make sense of what happened during the disaster. A collective sense of trauma resulting from a disaster may negatively affect the sense of community,[1] and one way of overcoming this sense of collective trauma is for a community to collectively develop a story of the community's experience with and response to the disaster.[11,15] Ideally, a community's disaster narrative will be developed in partnership with community organizations and the media.[24,41] A disaster narrative should be realistic and hopeful and also be able to counteract myth, rumor, or conjecture about the disaster.[24] Such a narrative allows community members to begin envisioning a recovered and potentially improved community.[11] A community narrative also allows the community to mourn losses and memorialize what was, even as the community moves toward recovery.[11] What caused the disaster is an important part of the community narrative, and the story of what happened should be constructively critical to help the community move forward.

Postevent recovery DCIF can also focus on developing new and reestablishing old social connections. A resilient community is one with multiple connections, robust social support, and high levels of social capital,[11,24] so DCIF should help foster the social connections that will help a community recover and grow. Disasters often exact a significant toll on social support and social networks,[1] and these connections must be reestablished for a community to recover.

A final postevent DCIF strategy is to provide outreach for available individual and community service and programs. Outreach is focused on providing information about services and programs to individuals and the community through a variety of mediums (eg, television, radio, and print) so that needed services can be used.[42] Outreach can employ a social marketing approach to provide information about services so that community awareness and utilization of services are increased.[43]

Future research

DCIF provides range of opportunities for future research that can advance our knowledge of how best to intervene during all phases of a disaster. For example,

future research should develop and evaluate packaged and standardized disaster communication interventions that address the specific objectives and strategies described in this article. Packaged disaster communication interventions could be appropriate for use in schools or with other community organizations or they could be implemented via the mass media. Standardized interventions that have been properly evaluated can be replicated and disseminated to other communities thereby providing help to a variety of population in different locations. Additionally, packaged communication interventions provide tangible and concrete products that bring increased awareness of the importance and utility of communicative activities during disasters.

Future research should also explore how media coverage of disasters affects both people who have experienced a disaster and individuals who did not directly experience the disaster. A major component of a public mental/behavioral health response is meeting the needs of the large majority of individuals who did not directly experience a disaster but still exhibit mental/behavioral reactions. Many of these individuals will have experienced some or all the disaster through the mass media; therefore, professionals and researchers interested in the public mental/behavioral health response need more information on the nature and scope of the impact of exposure to media coverage of disasters.

Clarifying the domains of preparedness and resilience are also fertile ground for future research. Determining what motivates individuals and communities to prepare for crises is essential to developing effective pre-event interventions. More work is also needed to further clarify what factors constitute and predict personal and community resilience. If resilience is a multifactorial construct, as has been suggested in the literature,[24,27] then factor-specific DCIF approaches to boost overall levels of resilience will need to be identified, developed, and evaluated through future research.

CONCLUSIONS

This article has presented a multiphase DCIF. This intervention approach to disaster communication expands on current conceptualizations of risk and crisis communication by proposing a framework where communication not only supports the public health disaster response but also seeks to produce public mental/behavioral health outcomes in all phases of a disaster. DCIF objectives and strategies provide an overview for organizations that are active in preparing for and/or responding to disasters. It should be noted that it is not necessary for a single organization to take on all the objectives or use all the strategies presented here. Instead many organizations may work together to implement DCIF. In this way, DCIF has systemic application, as it provides a blueprint to guide the efforts of all organizations active in communicating with individuals and communities about disaster preparedness, disaster response, or public disaster mental/behavioral health.

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