Health Security
Volume 18, Number 1, 2020 © Mary Ann Liebert, Inc.
DOI: 10.1089/hs.2019.0073

Communicating Recommendations in Public Health Emergencies: The Role of Public Health Authorities

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Adherence to public health recommendations is critical for public safety and well-being. Effective and appropriate communication plays an important role in whether populations trust government and public health authorities, and the extent to which people follow public health recommendations. Poor trust in communication from public health authorities can pose significant challenges for mitigating public health emergencies and maintaining health security. This study aimed to explore the importance of trust in and understanding of communication from public health authorities in improving adherence to public health recommendations, and how that communication can be improved to develop and maintain public trust, particularly in the context of public health emergencies. To understand which factors are important for public trust in communication from public health authorities, we conducted in-depth interviews ($n = 25$) with a racially and demographically diverse group of individuals living in Baltimore. We found that communication source and communication transparency, such as timeliness, completeness, and clarity of information, were critical constructs of trust in communication from public health authorities. We also found that many participants misunderstood the flow of information from public health authorities to news media, and many were unaware that public health authorities provide the most reliable source of health information and recommendations during a public health emergency. To ensure adherence to public health recommendations, the public needs to trust that public health authorities are providing accurate, practical, and prudent recommendations. Drawing on these results, we provide several recommendations for developing and optimizing communication from various public health authorities.

Keywords: Risk communication, Public health preparedness/response, Public trust

Public health authorities in the United States are defined as agencies or authorities of the US government that are responsible for public health matters and therefore are stewards of protecting the health of the American people through education and health service delivery. Examples of public health authorities include federal agencies like the Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC), as well as state, county, and city health departments.[1]

Public health authorities operate at the local, state, and national levels to mitigate disasters and outbreaks, report health information to the public, and provide health

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recommendations. Adherence to public health recommendations is critical for public safety and wellbeing, underscoring the importance of maintaining public trust in public health authorities. But over the past several decades, public trust in government has steadily declined.[2]

Health emergencies such as disease outbreaks and natural disasters have the potential to cause large-scale disruptions to a health system.[3] Communicating to the general public is a crucial component of effective emergency response following emergency events, and trust is essential in this communication.[4] An open and empathetic style of communication that builds trust with government public health officials is most effective when the population is being asked to adhere to specific recommendations.[5]

Communication from a government authority can have multiple impacts on the public, and 1-way communication influences public trust of government authorities. Effective, accessible, and appropriate communication plays an important role in whether populations trust government entities, including public health authorities, and the extent to which people follow their recommendations. Ideally, this communication can be characterized as a form of dialogue that is iterative and 2-way: authorities provide relevant information to the public, and public preferences influence how information is communicated.[6] Public health emergencies like disease outbreaks or natural disasters present particular challenges to effective communication between public health authorities and the public. Typically, the goal of risk communication is to promote informed decision making, but in public health the goal also includes improving adherence to health recommendations.[7] In addition, the goal of risk communication in emergency contexts is to assist the public in identifying the most relevant information as efficiently as possible.[8-10] One way to explore communication from both public health authorities and the news media in emergency settings is through CDC's Crisis & Emergency Risk Communication (CERC) manual.[11]

The importance of trust in patient-provider communication has been explored extensively, particularly in the contexts of vaccination[12-14] and clinical management of cardiovascular disease.[15] Trust in healthcare providers is essential for patient adherence to health recommendations, and training mechanisms to improve this patient-provider communication have been widely studied.[16] In the same way that providers need to communicate with their patients, public health authorities need to communicate with the general public to convey public health information. While many lessons can be learned from the literature related to patient-provider communication, communication between public health authorities and the general public does not operate at the same individual level, so public health authorities need to provide specific, tailored messaging. Additionally, improved trust in public health authorities could significantly affect the response to major health events and emergencies.

The importance of trust in communication with public health authorities and how that communication can be improved to develop and maintain public trust have previously been explored.[5,7,17-25] The role of communication in trust in public health authorities has also been explored in the context of risk and crisis communication.[7,17,23,26-29] Public trust in public health authorities is crucial for adherence to public health recommendations.[30]

A lack of communication, ineffective communication, or communication through inaccessible channels can all prevent the public from understanding public health issues and trusting public health authorities. Poor trust and communication in public health authorities can also pose significant challenges for maintaining health security in the face of public health emergencies. This study aimed to expand on the existing understanding of the importance of trust in communication from public health authorities in improving adherence to public health recommendations, particularly in the context of public health emergencies. Additionally, we aimed to provide a basis for developing and synergizing communication strategies from different public health authorities.

Methods

Study Design, Sampling, Data Collection

This qualitative study used a cross-sectional design with convenience sampling. In-depth interviews were conducted in Baltimore, Maryland, from June to October of 2017. Two city health clinics and 2 public libraries in Baltimore City were selected as recruitment venues, as they serve a diverse population. At each venue, a recruitment table was set up that contained fliers outlining the study. If participants approached the table and met the eligibility criteria (at least of 18 years of age and able to give consent), we conducted an audio-recorded interview in a semi-private setting.

We chose Baltimore City because it is a large, diverse city with active state and local public health departments. Recruitment ended once data saturation was reached. In-depth interviews were carried out by a member of the study team trained in qualitative interviewing. Interview lengths ranged from 16 to 51 minutes, with a mean time of 35 minutes. Participants received a $25 VISA gift card on completion of the interview. All participants provided verbal consent. This study was approved by the Johns Hopkins Bloomberg School of Public Health institutional review board.

Interview Guide Development

To contextualize the interview, we asked participants about their understanding of public health authorities, asking for examples they knew of or occasions on which they had had

interactions with public health authorities. We also asked questions related to sources of health information generally and during infectious disease outbreaks or natural disasters specifically. Following these background questions, questions were asked related to trust in and communication with public health authorities. We asked illustrative-based questions related to communication during various scenarios. We provided examples focused on infectious disease outbreaks in the context of Ebola and Zika, natural disasters such as hurricanes, lead poisoning, water contamination, and influenza season and vaccines (see supplemental material at www.liebertpub.com/doi/suppl/10.1089/hs.2019.0073). We pre-tested the interview guide with 5 individuals for comprehension and revised accordingly.

Data Analysis

Codebook development was guided by an iterative process in which codes were generated from the interview transcripts and applied to subsequent transcripts. A grounded theory approach was used to identify emerging themes, and open, axial, and selective coding was used.[31] Recorded interviews were transcribed by the study team, and the qualitative software Atlas.ti (Version 8, Berlin, Germany) was used for coding.

Two authors (OKO and RJL) read 2 initial transcripts, creating a list of preliminary codes. The coded transcripts were then compared for discrepancies, and adjustments were made to the preliminary code list. The first 2 transcripts were then re-coded with the new code list. Then, 2 additional transcripts were randomly chosen, and the same 2 team members coded these transcripts independently. The coded transcripts were again compared, and the code list was revised once again. This process was repeated for an additional cycle, until there was agreement and the codebook was finalized. The remaining transcripts were then coded. The authors (TAH, OKO, and RJL) organized the findings into constructs and subconstructs related to communication and trust.

Results

Several themes emerged from the data, including perceptions of respondents related to public health agencies, trust, and communication. We first obtained a clearer understanding of what participants thought a public health agency was, including their perceptions of trust of public health agencies. The primary theme that emerged from the data was the need for transparency in communication, and within this theme, concerns related to timely information and completeness and clarity of information, and recommendations emerged. Finally, we gained a deeper understanding of which communication sources the public seeks information from during a public health emergency.

Understanding Public Health Authorities

A key role of public health authorities includes communicating to the public during a health emergency. However, results reveal a mixed understanding of public health authorities and their roles in the community and participants' level of trust in government and public health authorities. Of 25 participants, 15 (60%) were able to specify public health entities such as CDC, the FDA, the Environmental Protection Agency (EPA), and state and city health departments. Two (8%) participants, while unable to give examples without prompting, were familiar with named agencies; 3 (12%) understood them as interchangeable with hospitals or their primary care provider; 1 (4%) was unable to distinguish public health authorities from other government agencies, such as the city department of housing; and 4 (16%) had very limited understanding.

The scope of services for which individuals believed public health authorities were responsible varied. Some participants recalled issues such as outbreak control, lead monitoring, disaster preparedness, and immunizations. Sexually transmitted disease prevention was the most frequently mentioned issue.

Transparency in Communication

The primary theme that emerged related to trust in public health authorities was the importance of transparency of communication from public health agencies. Within this theme, several subthemes emerged. Participants identified the importance of on-time alerts, completeness and clarity of information in alerts, and clear recommendations. We also obtained information about which information sources participants received information from when a public health emergency occurred.

On-time Alerts

One participant told us that when a health outbreak occurs, information about the outbreak is delayed, and that because a pathogen cannot be seen, it is difficult to know such an outbreak is occurring:

> *Because you don't see it physically or visually. So, you don't know what's going on until you either hear about it on the news or you're suffering from it. They don't tell you nothing, that's why I said they need to go door to door, and say we're going to spray this area today, so keep your pets inside the house.* (#1, Black male, 46+)

Another mentioned that lack of awareness on the part of the CDC led to a delay in information about a health outbreak, referencing the 2014 Ebola outbreak:

> [*Public health authorities cannot provide timely information*] *cause they didn't know it until 24 months later. I don't know it personally, but this is only information I'm getting from the*

news. They knew it was an outbreak, but they didn't inform the public until 24 months later. I mean they're supposed to be the health department, they're supposed to inform people immediately. But that's just like the CDC, they ain't gon' tell you you've got the AIDS virus out here. Before we tell y'all, we got to investigate. So that's what they do, they investigate, and half of the findings sometimes it's right, sometimes it's wrong, but if it ain't on Fox45, it ain't right. (#2, Black male, 46+)

Completeness and Clarity of Information

Participants asserted that information transmitted by public health authorities within the context of a health outbreak may not always be complete, and this can reduce trust in these authorities. When asked about a possible water contamination and guidance from public health authorities, this participant alluded to the fact that public health authorities do not always provide warnings for every incident that may affect health:

I would boil my water and put it in the freezer and then I'd drink it. But at least I got a warning. That's the difference, they don't warn you about everything. It's like this guy right here [gestures to security]*, he won't give me no warning that he's going to shoot me.* (#2, Black male, 46+)

This belief implies that while there are certain issues that will be communicated by authorities, there are other issues for which there is scarce or no information communicated to the public, suggesting that there could be improvements in transparency. This also suggests mistrust in public authorities in general, a sentiment that was shared by other participants:

My honest opinion, I really don't trust none of them because they only tell people what they want to tell people. (#3, Hispanic male, 18-45).

This perception that public agencies restrict the information they share with the public reinforces the importance of completeness of information.

When asked about communication from public health authorities with regards to the 2014 Ebola outbreak, another participant spoke about his concern regarding lack of information completeness related to protection:

There was definitely information missing, that was the whole spin from the news that it was kind of scary, it seemed like that we didn't have a cure or a way to combat it, it was made to seem like anyone could get it, so it was a little scary. (#4, White male, 18-45)

Participants also indicated that a key role for public health authorities included communicating complete information, as this participant spoke about communication during the HIV/AIDS outbreak:

Because look at the HIV/AIDS outbreak, they were doing everything they can, first to assure the public, don't panic, we're on top of this. I wouldn't say it's safe, safe, but as the years went on, they found better treatments, they told the public what was what. I mean I was just blessed to have them and to have the information because, it's after all, all about information. If we don't have information, don't share information, then what's the purpose?" (#5, Black male, 46+)

Clear Recommendations

In addition to information completeness, public health agencies are often responsible for communicating complex information, which may complicate their ability to use simpler language. Several participants indicated they will look for information elsewhere when they do not understand the language used by the public health agency. One participant stated,

I've heard it on the news, the government sent pamphlets, from the BCHD [Baltimore City Health Department] *in my neighborhood. Again, if I want to better understand that, then I would go on the internet.* (#5, Black male, 46+)

This statement indicates that a lapse in effective and comprehensible public health agency communication could cause the public to seek out alternative information sources. This is ubiquitous and normal behavior: In uncertain crisis situations, people tend to seek out additional information from various sources as they determine the best course of action.[8,9] In a similar vein, several participants highlighted the need for public health agencies to better tailor messaging to specific populations to improve understanding, particularly among those who may not be familiar with terms that are commonly used in public health contexts.[8,9] The need to identify and use tailored language was viewed as the responsibility of the public health agencies, rather than as a weakness of the target audience, as illustrated by this participant:

I'm not sure they speak everyone's language … if you are the authority, it's your responsibility to find out that population or individual's language. Even though it's English, if the culture, or perception of the world … you got to tailor it to people. (#1, Black male, 18-45)

Consistency of messaging between public health agencies was also raised as a critical aspect of efficient and effective communication in different contexts:

If CDC is saying one thing and health department is saying another thing, I wouldn't know what to do. Common sense would come into play there. As long as the message is consistent. (#6, white male, 46+)

Building on the importance of timely, complete, and clear information, participants also brought up a critical issue related to trust in public health recommendations in the case of a disease outbreak. Speaking about the 2014

Ebola epidemic, participants spoke about how they did not have information about how to protect themselves:

> *I feel scared and thought some information was missing. That has it traveled to the United States, so I can know … is there a cure for it … how can you contract it, 'cause I definitely didn't know that.* (#7, Black male, 18-45)

This participant talked about how fear was reduced once public health authorities provided information regarding recommendations:

> *I was scared until I got the information. Once I got the information, I wasn't as scared anymore, because I knew signs to look for. I don't travel, but if I do have my loved ones that travel out of the country, I make sure they know the risks themselves.* (#5, Black male, 46+)

In this same vein, another participant spoke about how she felt reassured because recommendations were given:

> *I feel safe because they tell you what to do. They give you the symptoms, if you get the symptoms, then you know you'll go to the department they tell you to go.* (#6, White female, 18-45)

Another participant also reported disseminating the recommendations provided by public health authorities with others:

> *I took the information, and I shared it. We have a close-knit community, probably about 15 houses on my block. I asked everybody else, do they know about it, we just start talking about it. I spread it to my neighbors. And I have another group at my church, and made sure they were aware and gave them the website so they could go on and look if they want to know anything specific.* (#8, Black female, 46+)

This suggests that participants seek out and disseminate information from trusted sources in emergency contexts.

Communication Source

Regarding communication delivery, a theme emerged related to communication source. This refers to which sources participants trusted for information during an emergency. Of 25 participants, all but 1 stated the news or media as their preferred channel of information during disease outbreaks. Other information sources for health issues were primary care providers ($n=12$), "Google searches" (ie, undefined online websites) ($n=9$), health departments ($n=6$), WebMD ($n=3$), academic institutions ($n=2$), social media ($n=1$), medical journals ($n=1$), and religious pamphlets ($n=1$).

Of the participants who identified news or media as their primary information channel, there was a misconception as to public health authorities' role in providing health information and disease statistics. Some participants believed that the news informed public health authorities about outbreaks, which then led to their response and investigation, while others believed the information flow was from public health authorities directly to the public. Here is an example of how participants believed that public health authorities received information from media:

> *They [public health authorities] look for it [news about outbreaks], they watch the news, they hear it on the news, then they try to figure out what to do to take care of it before it gets any worse.* (#7, Black male, 18-45)

In this same vein, another participant asserted that public health authorities cannot provide timely alerts related to possible health outbreaks because they do not have the information, as they are the last to know:

> *They don't have the information. I mean I can tell you, you've got cancer, but until you go see a doctor and a doctor tell you you've got cancer, that's something different. So that's what it is, it's a diagnosis. And a diagnosis is … if it's an outbreak, trust me, the news will know, CDC will know, then the Maryland … then the health department will know. That's how it trickles down. The governor will know, that's where it starts out, it starts with the governor, it starts with the CDC, it starts with the health department, then it comes to you.* (#2, Black male, 46+)

Discussion

Effective communication during public health emergencies, whether disease outbreaks or natural disasters, is vital and must take into account rapidly changing conditions. Public health authorities need to provide easily accessible information in order for the public to carry out appropriate preventive measures, be adequately equipped to mitigate disease, and reach the appropriate health services if they are affected.[11] In order to conserve the health security of a nation in public health emergencies, behavior change (eg, increased handwashing), disruption to normal routines (eg, quarantine rules or the need for evacuation), or new customs and behaviors (eg, not burning corpses) are often required for health promotion or prevention of the spread of infectious diseases. To ensure adherence to sometimes burdensome recommendations, the public needs to trust that public health authorities are providing recommendations that are both accurate and in the best interest of the population.[24] It is also essential for public health authorities to harmonize communication strategies and information disseminated, as the receipt of conflicting or inconsistent information can lead to confusion or distrust in one or more sources and may result in the public's inability or unwillingness to follow recommendations.

In the present study, participants believed that communication can be improved by the provision of information

that is timely, clear, easy to understand regardless of education level, tailored to specific populations (eg, demographic, geographic, or health-risk groups), and useful in preventing disease. This will provide the public with a greater understanding of the public health emergency at hand, make them more likely to implement the recommendations, and improve their trust in public health agencies.

Several participants indicated they often seek out additional information sources in crisis situations, either to obtain more information or to reduce their uncertainty. This behavior is evident from prior literature indicating that information seeking is common behavior among those in uncertain conditions.[8,9] This suggests that making a wide array of information sources readily available to the general public in crisis situations may be useful in bolstering their trust and subsequently improving their adherence to public health recommendations. In fact, the information that is provided to the public is often "fact-checked" by the public through the internet. This ability to check information with various sources may lead to skepticism and reduced trust when communication from different public health authorities and other sources do not align. However, it is often the case that the public is using the internet to "fact-check" without knowing which websites are grounded in verified science.[32]

Our results can be used to inform several recommendations for public health authorities to develop, evaluate, and improve their communications to the general public. As noted in the CDC's CERC manual,[11] the news media is an important tool for disseminating information during public health emergencies. CERC outlines the communication responsibilities of public health authorities in disaster and crisis situations.[26,28] However, as the news media's primary goal is not the same as that of public health authorities in guarding health, information can be sensationalized and the risk to the public can be misrepresented.[33]

Therefore, public health agencies need to ensure that they are also able to distribute information through their own direct channels and through their spokespeople on the media. As evidenced through some participants' misunderstanding of the flow of information from public health authorities to news media, the public is often unaware that public health authorities provide the best source of health information and recommendations. This gap can also be filled with social media. The use of social media in health security crises has been detailed in literature as an efficient and effective channel for both emergency preparedness and response.[34-37] Public health authorities can reach their target audience directly and should take advantage of that to build trust through transparent and effective communication.

Communicating effectively to the public is challenging, and the present study suggests that the general public benefits from the use of clear language. In 2010, the Plain Writing Act was passed, requiring that federal agencies use clear communication that the general public can understand, using a set of federal plain language guidelines.[38] These guidelines are somewhat vague, requiring only that communications must be "clear, concise, well-organized, and follow other best practices appropriate to the subject or field and intended audience."[38] Following this legislation, federal agencies have made efforts to communicate in plainer language. However, this legislation does not apply to state or local agencies, complicating the delivery of communications from different government sources and suggesting a need for more specific guidelines that apply to all public health authorities. Our respondents indicated that public health communications can be difficult to interpret and understand in emergencies, and we recommend that all public health authorities improve their efforts to deliver consistent messaging with plain language.

In addition to simplifying the language used in communicating with the public, it is important for public health authorities to evaluate their communication strategies in relaying information and their target audiences' trust in that information. Seeger et al proposed the Emergency Risk Communication (ERC) model as a framework for developing and systematically evaluating effective instructional messages in crisis and emergency contexts.[28] The ERC model expands on the framework developed in the CERC to better inform public health practice. The ERC model could serve as a suitable framework for developing and disseminating effective messages to the general public during public health emergencies.

This framework is well-supported by our empirical data, as many of our interview participants indicated they did not know how to adequately parse the risk communication to determine the best course of action for themselves and their families. Pairing the ERC model with better implementation of plain language should provide public health authorities with a solid framework for understanding how to improve messaging during public health crises. By means of opinion surveys and tracking of internet engagement, public health authorities can monitor and evaluate how well messages resonate, the resulting adherence to recommendations, and the subsequent effect on health security. Public health authorities will then be better equipped to make changes to influence the public to build, regain, and maintain trust both prior to health emergencies and in real time during an ongoing crisis.

This study has limitations. We collected and presented perceptions of participants' views on public health authorities, trust, and communication. These perceptions, whether accurate or not, are their lived experiences. The cross-sectional nature of the study design provides only a snapshot of the current situation in relation to trust and communication from public health authorities.

Individuals may have been influenced by social desirability bias in that they may have been more inclined to respond in a way that they perceived as favorable to the interviewer; as such we may have overestimated respondents' level of trust in public health. As this work was qualitative, the sample is not representative.

Although this study shows that public health authorities' communication strategies are important in establishing trust, and it elicited potential improvements to communication, systematic testing of the emergent themes is necessary to produce robust knowledge on means to improve the public's perception of public health authorities' communication, especially in health emergencies. Furthermore, while the sociodemographic characteristics of the study participants are representative of Baltimore's population, additional formative work should also be conducted in varying geographic areas to include populations that have been faced with health security emergencies to account for potential differences based on experience.

Acknowledgments

This work was supported in part by the National Institutes of Health R01AI125405 (all authors). The funder had no role in the design and conduct of the study; collection, management, analysis, or interpretation of data; or preparation, review, or approval of the manuscript.

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Manuscript received June 3, 2019;
revisions returned September 9, 2019, and December 3, 2019;
accepted for publication December 17, 2019.

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