

# Health Literacy Insights for Health Crises

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## Introduction

Typically, the authorities and experts on public health practices are public health officials. The public expects these officials to offer important health information and guidelines to prevent disease and promote good health strategies. In times of public health crisis, their authoritative voices become even more important. Those who speak for public health—being interviewed by journalists, preparing public health alerts, producing written materials, using the broad reach of social media, or presenting at community meetings—are clearly conscious of the importance of communication not only for raising awareness and providing needed action steps, but also for earning and maintaining trust. The careful crafting of accurate, consistent, and meaningful messages can calm the public in uncertain times, avoid perceptions of chaos, and build trust. This paper highlights principles of clear communication and insights from several decades of health literacy studies to support such efforts.

A recent *NAM Perspectives* paper, “Improving Collaboration among Health Communication, Health Education, and Health Literacy,” noted the importance of interplay among the disciplines of health communication, health education, and health literacy. This collaboration is particularly important during a public health emergency. Several tenets of health communication—which is defined as “the study and use of communication strategies to inform and influence individual decisions that enhance health”—emphasize clearly knowing your audience; focusing your message; and knowing where, when, to whom, and how to deliver key information [1]. A core element of any good health communication effort is having continuous evaluation built into the design to improve the strategies and tactics.

Health communication efforts in medicine have long focused on the importance of adhering to rigorous standards while embracing developing science. Scientists, researchers, educators, and spokespersons stay in their “lane of expertise” and do not infuse the discussion with hypothetical situations that may cause fear or need to be walked back. The authors’ advice is, in short: Say only what you know for sure and only when you know it. Say it together. Be collaborative.

Communication specialists have highlighted the limitations as well as the strengths of awareness and education efforts [2]. Communications cannot compensate for inadequate health systems or resources, nor can they produce sustained change in complex behaviors without support from a larger programmatic effort. Furthermore, communications may be complicated by an intended audience’s preconceptions about the topic or the communicator. For example, Barry Schwartz notes in *The Paradox of Choice* that people may compare an experience to what they hoped it would be, to what they expected it to be, to other experiences they have had in the recent past, or to experiences others have had and reported [3]. Many of these challenges may arise during a public health crisis. Consequently, it becomes even more critical to understand the intended audiences and to make sure the information provided is credible and accurate.

## Health Literacy Insights That Support a Quality Message

Literacy-related issues are often not at the forefront of communications guidelines. Yet the results of the 1992, 2003, and 2011 surveys of adult literacy in the United States indicate that literacy skills—reading, writing, speaking, listening, calculating, problem solving, and use of technology—are indeed quite problematic for a large proportion of adults. Furthermore, analyses of health literacy indicate that, on average,

US adults have limited health literacy. Consequently, attention to literacy and health literacy is of critical importance to those of us preparing health information, and crafting and delivering health messages. Many insights can be drawn from health literacy studies and practices to enrich our communication efforts. The classic Doak, Doak, and Root workbook *Teaching Patients with Low Literacy Skills* provides a detailed overview of the elements of a text that hinder or ease reading, comprehension, and use of health materials [4]. In addition, several currently used assessment instruments provide not only mechanisms for calibrating the demand that health materials place on individuals but also guidelines for developing materials for the public. The insights noted below are drawn from assessment instruments that are currently in use and actively cited in health literacy studies.

### Tools for Assessing the Health Literacy of Texts

The most frequently cited assessment tools in the health literacy literature are those that calibrate the reading level with a focus on word length—based on the premise that long words in English are likely to have silent letters and are thus difficult for many readers. Among these, the SMOG Readability Formula—a tool developed to estimate the level of education necessary to understand a piece of written material—is attentive to sentence as well as word length [5]. However, Doak, Doak, and Root introduced a new instrument in 1996 that went beyond attention to words to examine and attend to broader issues that impede or ease reading. The Suitability Assessment of Materials (SAM) instrument includes a readability assessment but also provides a mechanism for considering and rating multiple elements related to organization, writing style, appearance, and appeal. Rated items are grouped under categories for content, literacy demand, graphics, layout and typography, learning stimulation/motivation, and cultural appropriateness. SAM elements provide guidelines for development and for assessment.

Seeking shorter tools, research groups developed and tested instruments that draw from SAM. The Centers for Disease Control and Prevention (CDC) Clear Communication Index consists of four introductory questions and 20 scored items representing important characteristics that aid people's understanding of information [6]. The Agency for Healthcare Research and Quality supported the development of the Patient

Education Materials Assessment Tool (PEMAT) and a companion piece—the audiovisual PEMAT-A/V—with a focus on understandability and actionability [7].

In addition, Peter Mosenthal and Irwin Kirsch noted that a good deal of print and online materials are not constructed in prose and cannot be adequately rated by a reading-level tool or the more expansive SAM and similar approaches. The PMOSE/IKIRSCH Document Readability Formula was developed and tested to help graphic designers examine three key components of lists, charts, graphs, and other displays, and rate their level of difficulty. The key elements relate to structure of the text, information density, and the need to look elsewhere in the document for explanation or interpretation of the text. The resulting score offers insight into the complexity level of the documents and is linked to proficiency level on adult literacy surveys as well as to a level for grade or schooling [8].

### Insights for Health Message Development

Even, and perhaps especially, in times of emergency, public health communicators should maintain a high standard of quality for the message. This means that the message must always exhibit accuracy (which requires it to be updated as often as necessary), clarity (with all scientific information rendered into language easily understood by a layperson), and receptivity (which means it has been tested with some members of the audience to ensure its effectiveness and revised before being released to the public).

The authors of this paper have drawn the following insights from the assessment instruments described in the previous section and from health literacy research:

#### Process

- Identify the primary audience. Speak directly to the primary audience, and be certain that the message is made relevant to them.
- Highlight the key message. The opening (introduction) and the closing (summary) should focus on the key message.
- Be certain the health message is actionable. Information for follow-up should be provided. For complex actions, use a time-ordered and logically sequenced list.
- Assess the literacy demand of materials before pilot testing and after revision. Apply known and tested tools such as the SAM, the CDC Index, or

PEMAT, and assess the structural demand of documents such as graphs, charts, and other numeric displays.

*Composition*

- Avoid distractions such as unrelated visuals or discussions.
- Organize information by “chunking.” That is,

place like items together within categories. Use headings and titles to help the reader locate information.

- Simplify the structure. The difficulty of extracting information from displays—whether in the form of lists, graphs, or charts—can be made easier for readers by using fewer columns or rows, reducing the volume of data (the number of headings and listed items), and eliminating

**Box 1 | Example Communication about Contamination of a City’s Drinking Water That Follows Health Literacy Best Practices**

Attention: Everyone living and working in the Middleton and Essex neighborhoods of Anytown in zip codes 44444, 04400, and 00440

The Anytown Department of Public Health has issued a boil-water order for May 11-12. This means that you should **not** drink or cook with tap water unless you boil it first. This order starts today, May 11, immediately and will end at noon (12 p.m.) on May 12.

*E. coli* has been found in the water in these two neighborhoods of Anytown. *E. coli* is a type of bacteria that could cause cramps, vomiting, or diarrhea, according to the Centers for Disease Control and Prevention. The symptoms may appear anywhere from 2 to 5 days after being exposed to *E. coli*. Usually the symptoms go away on their own, but those with fever, bleeding, confusion, or seizures should get emergency medical help.

For now, be sure to boil all tap water before you drink it or use it for cooking. You will know the water is boiling when it is bubbling rapidly and you can see steam rising from it. Continue to boil for 1 full minute. Boiling will kill the *E. coli* bacteria.

The section of broken water pipe has been found and is being repaired. The pipes will be flushed, and the *E. coli* will no longer be a threat, starting early the morning of May 12. On that day, run your water for 5 minutes to flush out any standing water in indoor pipes. The water then will be safe for drinking and cooking.

You can get more questions answered by calling the Anytown Health Department at 1-800-555-1212.

For languages other than English:  
 Русский (Russian) 1-800-555-1213  
 ٩١٤٤٤٤ (Arabic) 1-800-555-1214

For people who are deaf or hard of hearing:  
 TDD number 1-800-555-1313

Who: People in zip codes 44444, 04400 and 00440

What: Bring tap water to a boil for at least 60 seconds before using

Why: The water may contain *E. coli*, a bacteria that can cause stomach cramps, vomiting, and diarrhea if you drink it before boiling the water to kill the *E. coli*

When: The advisory lasts until noon on Thursday, May 12.

SOURCE: Parson et al., “Health Literacy Insights for Health Crises,” National Academy of Medicine.

### Box 2 | Alternate Example Communication about Contamination of a City's Drinking Water That Follows Health Literacy Best Practices

Anytown, USA, is under a boil-water advisory.

**Why is there a boil-water advisory?** The city water may contain bacteria.

**Who is affected by the boil-water advisory?** People living or working in the zip codes 44444, 04400, and 00440 of Anytown, USA.

**What do the people affected need to do?** Before drinking or using the tap water, bring the water to a boil for at least 1 full minute to make the water safe.

**When will the boil-water advisory end?** This is in effect for 24 hours, ending at noon on Thursday, May 12.

**What can happen if someone drinks the water before it is safe to drink?** The person may have stomach cramps, vomiting, or diarrhea caused by the E. coli bacteria, according to the Centers for Disease Control and Prevention.

**When will these symptoms appear?** Anywhere from 2 to 5 days after exposure to E. coli.

**If someone has these symptoms, what should they do?** Usually, the symptoms go away on their own, but those with fever, bleeding, confusion, or seizures should get emergency medical help.

**What can people do if they have more questions?** Call the Anytown Health Department at 1-800-555-1212.

For languages other than English:  
 Русский (Russian) 1-800-555-1213  
 العربية (Arabic) 1-800-555-1214

For people who are deaf or hard of hearing:  
 TDD number 1-800-555-1313

SOURCE: Parson et al., "Health Literacy Insights for Health Crises," National Academy of Medicine.

the need to search elsewhere for explanations or interpretations.

#### Language

- Use an active voice.
- Use plain language, with attention to vocabulary. Avoid or clearly define rare words, and offer explanations and examples of concept terms.
- Be attentive to sentence length. Long sentences often contain multiple clauses and can confuse readers. Complex sentences erect unnecessary barriers to clear communication.
- Be attentive to numbers and math concepts. Use words to explain what the numbers mean. Do the math for the reader or listener.

The authors have developed examples of health literate messaging guided by these insights, as shown in

*Box 1* and *Box 2*. The information alerts people living in a specific area to a hypothetical crisis that is being resolved. Each example offers a clear identification of the intended audience, the problem, and the needed action. The message is presented in an easy-to-follow format. It provides explanations as well as action steps. The zip codes in the examples do not represent areas that correspond with any real geographic regions in the United States. It is important to note, however, that the information offered in messages must be specific to the affected area. For example, the imagined zip codes below are areas assumed to be at lower altitudes, and the instructions for how long to boil the water reflect this. Different instructions would be necessary at higher altitudes, where the water would need to be boiled for a longer time to be potable.

The Doak, Doak, and Root workbook noted earlier highlighted the value of interaction in writing as well

as in speech. Reflecting on this, the authors adopted a question-and-answer format in the second example to enhance engagement. Such questions, of course, need to reflect the interests of the intended audience.

The authors intend for the examples above to provide guidance on crafting a high-quality message in times of public health crisis. Communication from authoritative voices in times of emergency must be developed thoughtfully and tested before they are released to the public. To be high quality, the message must be accurate, specific, actionable, and easy to understand. In the authors' view, this can be achieved through a careful application of health literacy principles.

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## Conflict-of-Interest Disclosures

None disclosed.

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