

# **RADIOLOGICAL EMERGENCY PREPAREDNESS COMMUNICATIONS MESSAGE TESTING PHASE 1 REPORT**

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Submitted To:



Submitted By:

**ICF** **MACRO**

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The findings and conclusions presented are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



## EXECUTIVE SUMMARY

The overall purpose of the Radiological Emergency Preparedness project is to improve public-facing messages about protective actions and responses to radiological emergencies. The objectives of this task were to test multiple sets of messages developed by the Radiation Studies Branch (RSB) of the Centers for Disease Control and Prevention (CDC) and revised by Macro International Inc., an ICF International Company (hereafter referred to as ICF Macro). Before testing, RSB's messages were revised in order to incorporate Crisis and Emergency Risk Communication (CERC) principles, such as reduced reading levels, fewer words and sentences, and fewer "jargon" terms.

Specifically, cognitive interviews were used to

- ✦ test initial responses to messages to determine whether the messages clearly communicated the intended concepts,
- ✦ assess the understanding of terminology used within the messages and discover alternate terminology to convey the intended concepts,
- ✦ determine if the messages provided enough information to guide the audience during a radiological emergency (specifically, a dirty bomb explosion).

A total of 60 one-on-one, in-person cognitive interviews were conducted with men and women between the ages of 18 and 65 who fell into one of the following categories:

- ✦ Individuals who speak English as a second language (ESL), who completed high school or obtained a general equivalency diploma (GED), but who never attended college
- ✦ Native English speakers who did not complete high school
- ✦ Native English speakers who completed college but never attended graduate school

Many of the findings are consistent with previous research findings. In particular, people's understanding of certain terminology, such as "shelter-in-place" and "decontamination," as well as people's strong desire for a rationale for the various protective instructions, was consistent with previous communication research.

While some of the findings are consistent with general CERC principles, the cognitive interview results indicate that participants' understanding of "radiation emergencies" and associated information offers some unique communication challenges as well as opportunities.

Several key findings from the cognitive interviews have implications for message revisions and further testing.



## **KEY FINDINGS—MESSAGE CONTENT AND FORMAT**

- ✦ Due to a basic low level of knowledge about radiation and associated health effects, the key messages, as they were tested, alone are insufficient in communicating effectively and motivating the desired protective action. Participants indicated that they would like more specific information about the event and the harmful agent. Messages should balance the need for brevity with the need for specificity in light of people's lack of basic knowledge and desire for more information about the specific threat and its potential effects.
- ✦ Participants do not like vague instructions, nor do they like messages that convey uncertainty by having “may,” “might,” or “could” in the message. Messages should include as much specificity as possible and should avoid certain auxiliary verbs (e.g., “may,” “can,” “might,” and “could”). More context and specifics of the radiological emergency will increase people's likelihood of complying with instructions.
- ✦ Participants want to be given a rationale for why they are being instructed to do something. This may help with “response efficacy.” Response efficacy is a person's belief that a recommended action will have the desired effect (in this case, health protection). When people have low response efficacy, they are less likely to carry out the prescribed behavior.
- ✦ Written messages were most effective when given in bullet format (i.e., step-by-step instructions).

## **KEY FINDINGS—TERMINOLOGY**

- ✦ The term “radiation,” though not well understood, causes some fear in people and increases the likelihood that they will comply with instructions they might otherwise ignore, such as “seek shelter in the nearest building.” This finding was consistent across age, education level, and native/non-native English speakers.
- ✦ The term “decontamination” is problematic because people do not believe that washing with soap and water will be sufficient to decontaminate. They do not understand this term, and often have dramatized impressions of what it means (e.g., chemical showers, hazmat suits, and oral medications). Therefore, messages that include the term “decontaminate,” and instruct people to wash with soap and water, are perceived as illogical and overly simplistic. This type of perceived incongruence can contribute to mistrust and skepticism.

## **KEY FINDINGS—POPULATION SPECIFIC**

- ✦ There were no apparent differences in responses from participants with higher education (college degree) and lower education (less than a high school degree). In general, those with a college degree asked for more information in response to the messages. The lack of differences by education indicate that there may be a somewhat “level playing field” with respect to segments of the public and their respective knowledge about radiation and associated health effects.
- ✦ People for whom English is a second language have specific communication needs. At times, Hispanic participants, for whom English is a second language, misinterpreted the instructions



given in a message. Persons for whom English is a second language often use “context clues” to interpret messages. That is, they tend to skip the words they do not understand, and try to fit the words they do understand together into comprehensible statements. At times, this can lead to misinterpretation. Also, audio messages were difficult for ESL participants to understand the first time they were heard. There was a need to hear the messages repeated multiple times among these participants, most likely due to the fact that English was not their first language. Because the protective actions for radiological emergencies are so critical, we strongly recommend the development of materials in multiple languages, and Spanish-language materials in particular due to the relatively high number of persons for whom Spanish is their primary language in the United States.

### **KEY FINDINGS—PRE-EVENT EDUCATION**

- ◆ Several opportunities for pre-event education are noted throughout this report. They include basic preparedness education about the importance of having certain supplies handy in case of an emergency (e.g., a battery-operated or hand-crank radio, and baby formula and clean water for nursing mothers), the survivability of radiation exposure in the event of a dirty bomb explosion, the effectiveness of basic decontamination steps a person can take by himself, and local community plans for communicating in an emergency.

### **MESSAGE REVISIONS AND ADDITIONAL TESTING**

Recommendations for revising the messages are noted throughout the report and are summarized in Appendix F. Many of the suggested revisions require further testing in a second round of interviews. Appendix G lists a set of recommended messages based on the results of Round 1 testing. Message revisions should also be incorporated into packaged materials, such as fact sheets and Web content, and then tested in these formats.