BIOTERRORISM PREPAREDNESS BELIEFS AND PERCEPTIONS: ETHNIC AND SOCIOCULTURAL DIFFERENCES

(Pre-Event Message Development Secondary Analysis of Year One Findings)

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I. PROJECT OVERVIEW

A. Background

In the Fall of 2002, the Centers for Disease Control and Prevention, in collaboration with the Association of Schools of Public Health (ASPH) Bioterrorism Council, provided funding to four schools of public health (St. Louis University, University of Alabama-Birmingham, University of California at Los Angeles, and the University of Oklahoma) along with several partnering schools to evaluate and develop terrorism preparedness messages for the general population and selected segments of health professionals, regarding how persons may best protect themselves, their families, and their communities in the event of a terrorist attack.

Research and development funded focused on messages that could be considered critical to maintain health and well being of populations potentially exposed to a threat. Formative research and message testing of informational materials that were from the Centers for Disease Control considered audience perceptions and beliefs, and information seeking needs, tastes and preferences. The first year of the project involved audience and message testing in topic areas of selected biological, chemical, and radiological events. Within each of these broad areas, we focused on specific agents (i.e. plague, botulism, VX and blasts involving radiological materials.)

A qualitative research method of focus group interviews was used with diverse groups of individuals from across the United States. The project's primary target audience was the general population, including non-English speaking and minority population segments. Additionally, materials were tested with selected sectors of the emergency health workforce, such as first responders and frontline public health workers. In order to explore potential differences based on demographic and cultural factors, the two primary audiences were divided into subgroups. The general public audiences were grouped by race/ethnicity and included interviews with audiences that were primarily African American, Hispanic American, Caucasian, Asian American or Native American, or were not native born to the United States, with English as a Second Language [ESL]. The African American, Hispanic American, and Caucasian groups were further subdivided into rural and urban groups. The health workforce groups were subdivided into frontline public health workers (e.g. epidemiologists, nurses, laboratory technicians, environmental health specialists, and community health workers) and first responders (e.g. fire fighters, emergency medical technicians [EMTs] and police).

For Year 1, each university analyzed findings based on specific agents: St. Louis University, plague; University of Alabama-Birmingham, radiological materials; UCLA, botulism; and University of Oklahoma, VX. These results were produced as the Year 1 Final Report from each university. To obtain a copy of the Year 1 botulism report, please contact Deborah C. Glik at dglik@ucla.edu or UCLA School of Public Health- Community Health Sciences, Box 951772, 26-078C CHS, Los Angeles, CA, 90095-1772.

B. Secondary Analysis Report Overview

For the initial part of the second year analysis, efforts have focused on determining unique trends between the different segments of the general public audience. The following report, submitted by the University of California at Los Angeles (UCLA), details the results from focus group interviews conducted among ESL, Urban Asian, and Urban Caucasian participants. In Section II, the report provides a complete description of the methodology used by the collaborative group

to collect and analyze the focus group data. This section also includes information on the specific interview guides and materials used in the groups. Section III of the report details findings from focus group interviews conducted with segments of the general public. Differences between ESL, Urban Asian, and Urban Caucasian participants in regards to a) their knowledge and attitudes about the color alert system, b) knowledge of protective measures, c) knowledge of bioterrorist agent categories, d) reactions to a hypothetical bioterrorist event, as evident by actions, information seeking, and emotional response, and e) response to print materials (fact sheets) about specific agents comprise findings reported. The report concludes in Section IV with discussion and recommendations for future message development and dissemination as they relate to audience specific messaging for any terrorism event involving biological, chemical, or radiological agents. Recommendations follow in Section V.

The results from this analysis, the first year report, as well as reports from the collaborating universities are being used to guide the following current activities: development of messaging content and formats, methods delivery methods developed for specific target audiences.

II. METHODOLOGY

A. Study Aims and Design

The primary aim of this report is to determine whether individuals in English as Second Language (ESL), Urban Asian, and Urban Caucasian respondent categories have divergent or convergent views in regards to beliefs and perceptions of specific types of terrorism agents and events. Focus group interviews have become an important means of collecting data to address message and campaign creation, and were chosen for this study because they could be done relatively quickly, yet still capture opinions and sentiments of selected groups or segments within a population.

Fifteen focus group interviews were conducted with the three primary groups considered in this report. Findings are based on fourteen focus group transcripts, including botulism focus groups conducted by UCLA and SLU, plague focus groups conducted by UCLA and SLU, radiological focus groups conducted by UCLA, and chemical focus groups conducted by UCLA and SLU. We were unable to access the radiological focus group conducted by UOK and thus did not include this in our analysis. Table 1 provides details on the number of groups conducted with ESL (4 groups), Urban Asian (4 groups), and Urban Caucasian respondents (6 groups).

Table 1: Focus groups conducted by each partner university, listed by target audience and agent

Target Audience	Agent				
	# of groups	**Biological (Botulism)**	**Biological (Plague)**	**Radiological**	**Chemical (VX)**
Urban Caucasian	6	SLU	SLU, UCLA	UOK[1], UCLA	SLU, UCLA
Urban Asians	4	UCLA	UCLA	UCLA	UCLA
English as a Second Language	4	UCLA	UCLA	UCLA	UCLA
Total # of groups	**14**	3	4	4	4

[1] Transcript not included in analysis

B. Data Collection

1. Focus Group Guides

The data collection tool for the general public was comprised of open-ended questions (focus group guide) designed to elicit information about a) the color alert system, b) self-protective attitudes and behaviors, c) knowledge of different bioterrorist agents, d) emotional response, actions, and information seeking in response to a hypothetical attack, and d) perceptions about and recommendation for agent-specific educational print materials. [For an overview of the four guides please see Appendix A].

The basic structure of the focus group guide for the general public included the following sections:

- Introduction and icebreaker.
- Current knowledge and attitudes about the national color alert system and different types of terrorist threats.
- Three part scenario rollout based on specific type of agent - radiological, chemical (VX), or biological (plague or botulism). These scenarios were read out loud to the participants, after which a series of questions assessing emotions, behavioral intent, and information needs were asked.
- Confidence in the governments' ability to respond to a terrorist event of the type described.
- Participant review of agent-specific educational print materials that might be disseminated in the event of an attack.

2. Subject Recruitment

Focus group participants were drawn from a convenience sample of persons from each target population. Each university used established community and professional contacts or existing databases to derive a sample of pre-defined race/ethnicity groups of the general public. Within these groups, various recruitment strategies were used to obtain diversity on factors such as age, SES, and gender. Monetary incentives were used to help increase interest and participation in the study. Each focus group member received a small amount of cash or a gift certificate for taking part in the group. Exceptions were made for health professionals who were not allowed to accept compensation.

3. General Focus Group Procedures

Focus group interviews were conducted at times and places convenient for the participants and designated by the recruiters, usually at the site of the collaborating organization. The groups were led by moderators trained to guide discussions in non-directive and non-judgmental ways, and to elicit responses from all participants. Total time for each focus group was approximately 1½ - 2 hours. Focus group interviews were professionally audio-taped, and tapes were transcribed for analysis.

4. Protection of Human Research Subjects

To ensure the protection of the research subjects involved in this study, each university prepared and submitted protocols, consent forms and informational packets under the guidelines of their

institutional review board (IRB). Upon approval from their IRB, each institution provided a copy of the approval letter to the funding agency.

Numerous measures were put in place to ensure that all research participants were protected. For example, only adults (individuals who had attained the legal age for consent under the applicable law in the state in which the focus groups were conducted) were considered for participation in focus groups. Children were excluded from the study. Also, as part of the focus group introductions, the focus group moderator reviewed issues related to confidentiality and the risks and benefits of participation. Participants were told that their involvement was voluntary and that they had the option to choose not to complete the study or any part of it, without penalty or loss of benefits to which they were otherwise entitled. They were told that the materials they were to review and to discuss were potentially distressing and that they had the option to choose not to participate in any part of the discussion, to leave the group temporarily, or to terminate participation completely. Upon request, they were given the name and telephone number of a mental health clinician. An informed consent document was signed by and/or an information sheet given to each participant before the group began.

C. Data Analysis

1. Coding

The coding analysis process was generated from 1) literature on the theory of the Cultural Construction of Realities, 2) literature on Grounded Theory, and 3) code domains identified in collaboration with participating universities, CDC, and ASPH (Glaser & Strauss, 1967; Strauss & Corbin, 1996). As Miles and Huberman (1994) note, the coding process is simultaneous data collection, method, and analysis (Miles & Huberman, 1994). Consequently, code categories are not simply convenient labels facilitating text retrieval; they are crucial data leading to an auditable trail of findings (Strauss & Corbin, 1994; Miles & Huberman, 1994). In this study, "code categories" are referred to as "domains."

Focus group transcripts for ESL, Urban Asian, and Urban Caucasian groups were entered into ATLAS.ti®, a software program designed to assist with qualitative data analysis, and were coded using the protocol developed by the overall project group [see Appendix B]. Coding proceeded from macro domains to smaller units of coded material. Coding and recoding were completed when all portions of the focus group experiences were classified, domains were "saturated," and common themes emerged (Straus & Corbin, 1994). Each transcript was coded by at least two researchers.

Thematic analysis is a process which encodes qualitative information; therefore, themes are generated as the coding proceeds. Research relevant statements were extracted from each interview, coded, and analyzed for meanings. These meanings were clustered into themes which could be analyzed across focus groups (Morse, 1994).

It is important to note that frequency of the response is only one aspect of identification of themes. The significance of meaning as judged by the nature of the subject's discourse could mean that something less frequently mentioned could also represent a theme, provided, for example, that it is mentioned with great emphasis (Valle, 1989).

2. Issues of Coding Reliability

The coding of transcripts proceeded from the first coding of the manuscript to a process known as "check-coding" in which 1) two researchers code the same data set and coding difficulties or disagreements are discovered and/or 2) one researcher codes the data set and repeats the process on an identical un-coded manuscript several days later. The process of check-coding increases definitional clarity and validates reliability, and is also an assessment of internal consistency in individual coders (Miles and Huberman, 1994).

At UCLA, the first coding method was used, whereby each transcript was coded by two persons and coded segments were compared to assess consistency across coders (inter-rater reliability). Coders discussed and resolved the inconsistencies and a third coded transcript was generated to reflect the outcomes of these coding checks. Reliability of results was also confirmed by a process of cross-group validation in which themes were compared and similarities noted. It is notable that cross-group reliability was also achieved in this research.

3. Issues of Validity

Validity is the degree to which the research measures what it is supposed to measure. Krueger (1994) states that the use of focus groups in qualitative research is valid if the focus groups are used carefully for a problem that is amenable to focus group inquiry. The validity depends upon the context in which it is used and the procedures followed in the conduction of the groups (Krueger, 1994). Focus group interviews are particularly valuable prior to initiating a health communications or social marketing campaign, for the purpose of addressing designated population groups (Freimuth, 2001, Witte, 2001, Maibach 1996)

In order to ensure validity, findings must be grounded in the focus group data, inferences made from the data must be logical, analytic strategies must be applied correctly, and alternative explanations must be accounted for (Schwandt & Halpern, 1988). Ideally, the research should have the possibility of being replicated by other investigators. "Transparency" of method addresses the issue of clarity of data and procedures such that the study may indeed be replicated at a later date (Miles & Huberman, 1994). In this study, issues of internal validity were addressed through the development of constructs and analysis methods based on relevant literature and theory, the use of standardized protocols and procedures, and the process of cross-group validation.

External validity in this study is limited in that the findings cannot be generalized to the entire U.S. population. They can, however, be generalized to the populations that were assessed for the focus group participants. Therefore, it is felt that the research contains important and valid information that may be of value to the CDC and ASPH in the crafting of pre-event messages addressing the issues extant in the realities of bioterrorist activity, especially in regard to targeted special populations.

III. RESULTS

A. Demographics

Fifteen focus groups were conducted between May 29th and August 27th of 2003, with at least four (seven in Urban Caucasian group) within each of the study's target audiences. Between four and 16 persons participated in each group, with each target audience containing focus groups

with topic specific agents about botulism, plague, chemical and radiation. It should be noted that the results presented in this report do not include demographic data or focus group findings from the UOK Urban Caucasian focus group as the transcript from this focus group was not available at the time of analysis. Therefore, this report is based on findings from 14 focus groups and 162 individuals.

In the total sample (n=162), ages ranged from 18 to 91 years, with a mean age of approximately 42 years. There was a significant difference ($p<.05$) between the groups in age, with Urban Caucasian respondents being slightly older (mean = 48.34) as compared with ESL and Urban Asian respondents (mean = 34.55 and 39.51, respectively). For all groups, 45.1% of respondents were male and 54.9% were female. There was no statistically significant difference in gender across ethnic groups, although Urban Caucasian respondents were comprised of more females than males (64.4% versus 35.6%).

A majority of ESL respondents identified themselves as Latino/Hispanic (71.1%), followed by Asian/Pacific Islander (22.2%); other ethnicities recorded include one Caucasian, one mutli-national (Asian and Latino) and one Indian. One hundred percent (100%) of Urban Caucasian respondents spoke English as their primary language at home. Only 13.3% of ESL respondents spoke English at home, with a little more than half (57.8%) speaking Spanish; among ESL respondents with primary or secondary languages, the following was recorded: Chinese, Hindi, Indonesian, Japanese, Korean, Farsi, Portuguese, and Tagalog. Approximately 72% of Urban Asian respondents spoke English at home. Among this group, other languages primarily spoken at home included Cantonese Chinese, Mandarin Chinese, Vietnamese, Tagalog, and French.

Education levels significantly varied among groups, with only 1.7% of Urban Asian, and 10.2% of Urban Caucasian having less than a high school degree, versus almost 49% of ESL respondents. Urban Asian respondents also comprised of the highest number of individuals with at least some college (94.8%), followed by Urban Caucasian and ESL (71.2% and 37.8%, respectively).

Among all respondents 48.1% reported being currently employed, with ESL and Urban Asian respondents reporting higher rate of employment (55.6% and 55.25, respectively) as compared to Urban Caucasian respondents (35.6%). Almost 93% of ESL respondents reported incomes of less than $50,000; almost 35% of Urban Asian respondents and 46% of Urban Caucasian respondents reported incomes of $50,000 or more.

Among all respondents, 45.1% were married or living with a partner. ESL groups had the highest number of respondents who were married or living with a partner, Urban Asian groups had the highest number of single individuals, and Urban Caucasian groups had the highest number of widowed respondents. Slightly more than half of the sample (53.1%) reported having children.

The demographic characteristics among ethnic groups varied significantly for age, education, language at home, marital status, current employment, and family income. Table 2 presents the demographic data distributions for all respondents and each individual group under consideration.

Table 2: Demographics (ESL, Urban Asian, Urban Caucasian)					
Characteristic	Category	All groups (N=162)	ESL (N=45)	Urban Asian (N=58)	Urban Caucasian (N=59)
*Age	Range	18 – 91 years	18 – 61 years	19 – 80 years	22 – 91 years
	Mean / SD	42.45 / 18.02	34.55 / 10.28	39.51 / 17.06	48.34 / 20.92
	Missing	<1%	<1%	<1%	<1%
Gender	Male	45.1%	51.1%	50.0%	35.6%
	Female	54.9%	48.9%	50.0%	64.4%
	Missing	-%	-%	-%	-%
*Education	Less than high school	17.9%	48.9%	1.7%	10.2%
	High school diploma/GED	11.7%	13.3%	3.4%	18.6%
	At Least Some college	70.4%	37.8%	94.8%	71.2%
	Missing	-%	-%	-%	-%
*Language in Home	English or Bilingual	66.0%	13.3%	72.4%	100.0%
	Non-English	34.0%	86.7%	27.6%	-%
	Missing	-%	-	-	-
*Marital Status	Single	35.2%	26.7%	50.0%	27.1%
	Married or living with partner	45.1%	64.4%	37.9%	37.3%
	Divorced or separated	11.1%	6.7%	3.4%	22%
	Widowed	8.6%	2.2%	8.6%	13.6%
	Missing	-%	-%	-%	-%
Children	Yes	53.1%	48.9%	44.8%	64.4%
	No	45.7%	46.7%	55.2%	35.6%
	Missing	1.2%	4.4%	-%	-%
*Currently Employed	Yes	48.1%	55.6%	55.2%	35.6%
	No	50%	40.0%	44.8%	62.7%
	Missing	1.9%	4.4%	-%	1.7%
*Family Income	Less than $50,000	68.7%	92.9%	65.2%	54.2%
	More than 50,000	31.3%	7.1%	34.8%	45.8%
	Missing	9.3%	6.7%	20.7%	20.7%
* Group difference (p<.05)					

B. Pre-Event Knowledge

1. Color Alert System

Overall, all respondents were aware of the color alert system. Respondents had a general understanding that the different colors represent different levels of alert or danger, and were most likely to mention yellow, orange and red as the main colors being represented by the system. Respondents did not have a clear understanding of what the different colors were specifically referring to and most did not know the difference between the colors, although almost all attempted to differentiate between them. There was a sense that most respondents had not thought in depth about the differences between the colors, although they were aware that differences existed. ESL respondents tended to attempt differentiating between the colors more than Urban Asian and Urban Caucasian respondents, who made more direct comments about their inability to differentiate. For Urban Caucasian respondents, there was much more cynicism about the purpose of the color alert system; some viewed the color alert system as a "political ploy" rather than a true disaster preparedness system. For these reasons, Urban Caucasian

respondents spent less time discussing the different threat color levels and their significance than both ESL and Urban Asian respondents.

> *"If it is green, I think its fine. No attack, no nothing. When it is kind of getting higher, like when it's yellow or red or orange, it's getting a little dangerous." (English as a Second Language, Chemical Scenario)*

> *"The orange, I don't know what level is the next or the low or what is the color that we should really be concerned with." (Urban Asian, Plague Scenario)*

> *"Well, I don't really know all the colors that are involved in it, like there have only been two. Yellow and orange, it keeps going back and forth and I kind of consider it a joke." (Urban Caucasian, Chemical Scenario)*

Respondents also could not link the colors to specific actions that they should take. Some respondents said that they did not worry too much about the color alert system, while others said that they are very alert to the changing colors. For Urban Asian respondents, most stated that they would be concerned if they heard that the color alert system had raised the threat level, but that they would not take any action until a red alert was announced; the other colors did not warrant a response. For ESL respondents, most were able to distinguish between different colors as being "alert" (i.e. during an orange alert) versus "more alert" (during a red alert). For Urban Asian and Urban Caucasian respondents the fact that the alert system did not recommend individual actions raised more concern than for ESL groups, who didn't question the non-actionable nature of the color alert system, at least at the level of the general population.

> *"What does yellow mean? We are just one step from anything happening. Just one little step and something can happen, blow up. We just don't know where, or ho? But, we have to be alert. Very alert. (ESL, Plague Scenario).*

> *"If it's red, you should stay at home? Or when should we start putting duct tape on our doors and windows?" (Urban Asian, Plague Scenario)*

> *"They don't tell you what you're supposed to do. They just show the color. It goes from one color to the next and it comes down again…what are you supposed to do, panic?" (Urban Caucasian, Biological Scenario)*

There were also some comments on the usefulness of the color alert system, with most Urban Asian (and especially Urban Caucasian respondents) believing that the color alert system was not useful at the individual level. ESL respondents did not comment on the usefulness of the system, but there was a general consensus among this group that one has to be alert at all times and that the next terrorist attack may occur at any time. Urban Asian and Urban Caucasian respondents placed less trust placed on the color alert system in being able to actually predict terrorist attacks. More specifically, the color alert system was seen to be a national alert system, which was for many respondents a distant reality. In contrast, if the threat was local, there would be a lot more attention from respondents.

> *For me, orange is like we have to be very aware of what is going on around us and who's, especially when we're at a place that we're just not familiar with….we have to be aware of exactly who's next to us. Very aware." (English as a Second Language, Plague Scenario)*

"I think I'm a little bit jaded about it. I studied international relations and I have friends in the United Nations that I talk to and so they kind of let me know before an orange alert comes that it's no big deal. It's just a political ploy." (Urban Caucasian, Biological Scenario)

Thus, risk perception among Urban Asian, and especially among Urban Caucasian respondents, was much lower in comparison to ESL respondents. Most Urban Asian and Urban Caucasian respondents did not feel that they needed to be on alert for terrorist attacks. Urban White respondents had the general perceptions that overall national security is well planned and response systems are well-placed, thereby making the necessity of the color alert system irrelevant. Furthermore, for Urban Caucasian respondents, the color alert system was viewed not only as insufficient for detecting terrorist attacks, but also as intrusive to the daily routines of individuals, as it created unnecessary anxiety and fear without the reality of an actual threat. For other respondents, the color alerts system was viewed as creating minor inconveniences, such as delaying travel plans.

"I just feel basically safe. I feel we live in a safe country…and I feel like we do have things under control and that's why we broadcast all this bullshit on TV (laughter) on our local news because you know we pretty much got things covered." (Urban Caucasian, Biological Scenario)

2. Protection of Self from Attack

The types of protective measures against terrorist attacks stated by respondents included obtaining tangible protective equipment (gas masks and duct tape were the two most frequently mentioned), stocking up on food and water, being updated on news, staying away from crowds, and always being on alert. ESL respondents were more likely to put emphasis on preventative methods and obtainment of protective equipment than Urban Asian and Urban Caucasian respondents, although there was still concern among ESL groups about their ability to obtain protective equipment due to cost and knowledge of how to locate the equipment.

"Duct tape. Somebody told us if we got a threat chemically and then it's already late to prepare a chemical threat. Already spread everything so it's late for preparing to wear the gas mask or something like that." (English as a Second Language, Biological Scenario)

"I don't have a gas mask. I don't think we have an anti-biological kit at home. So, I don't know what we would do." (English as a Second Language, Biological Scenario)

"If they have a kind of mask or something to protect, I would buy that kind of protection." (English as a Second Language)

For Urban Asian respondents, stocking up on food and water were the most frequently mentioned preparedness activities, with some respondents stating that they had already begun this process. Some Urban Asian respondents had familiarity with disaster preparedness in their countries of origin; for this group, preparedness activities seemed to be more routine than for those who did not have prior experience with preparedness.

"I think people are more prepared. When I was young, my mom prepared me for a bomb, in 1968, so my mom prepared us. I think it depends. We should be prepared." (Urban Asian, Radiological Scenario)

"The funny thing is one of my friends came two weeks ago and she saw in the bathtub that we stored some of the food there. She said, 'What are these things for?' We said, 'If

there's going to be a terrorist attack and so forth, at least we have something.'" (Urban Asian, Plague Scenario)

For most Urban Caucasian respondents, the idea of preparedness via obtainment of equipment was not viewed as important or serious. Gas masks and duct tape were seen as especially useless in terms of preparedness and were only talked about in terms of their general use, effectiveness, and the population for which they are appropriate; for most of this conversation was laden with cynicism and laughter. Other respondents felt that using the contents of their earthquake kits in the event of a terrorist attack would suffice; some respondents did suggest obtaining "terrorism preparedness kits", but were unsure of what types of equipment were necessary. Despite cynicism about preparedness, most Urban Caucasian respondents are ready to become prepared only if the usefulness of preparedness is made clearer and specific directions about how to prepare are identified.

"So I guess I'd like to know what is really valid and how could I really be prepared without being hyper sensitive and going over boar…. do we really need to have gas masks in our homes or don't we? What should we truly be prepared for? No one is really telling us those things today." (Urban Caucasian, Radiological Scenario)

"If I hear knocking on my door and they said evacuate (laughter) then I'd say' good-bye!' but up until then forget about it." (Urban Caucasian, Chemical Scenario)

For most respondents, education about terrorism was voiced as one of the main general preparedness activities, and many felt under-informed on the nature of this type of preparedness activity.

3. Meaning of Categories of Terrorism Agents

In general, there were no significant differences in respondent knowledge and perceptions about different agent categories. Respondents had a better understanding of biological agents versus chemical or radiological agents. The types of language used to describe biological attacks included anthrax, SARS, "a type of virus", "bacterial viruses", "airborne", "touching someone else", "food-borne", "water-borne", smallpox, nerve gas, and the Tylenol scare. All respondents viewed biological attacks as mainly infectious. Biological attacks were perceived as occurring more slowly, affecting one person at a time (i.e. through person to person transmission), versus a bomb threat, which could affect numerous persons at one time. Biological attacks were also perceived to most likely occur via the air over large crowds. Respondents did state that communicable threats are much scarier than non-communicable threats (even bomb threats), because individual risk is not very well-defined and there is no end or beginning to when the risk has begun or subsided.

Chemical attacks were less understood by respondents in comparison to biological attacks. The types of chemical attacks mentioned included cyanide, gas, and poison. It was generally perceived that the main method of transmission would be dispersion of some kind through the air, food or water.

Radiological threats were the least understood of the three agent categories. Radiation was perceived to be a "form of chemical bomb". Although respondents could not distinguish the specifics of what a radiological threat is, its transmission, or its effects, most perceived it to be

the "the end of the world". Some respondents believed that chemical and radiation agents provide the same type of threat, with one respondent perceiving radiation to be "a form of chemical bomb". Other respondents mentioned that it might be something that "would eat your skin" or "you would breathe in through your nostrils".

In general, respondents felt more comfortable expressing their knowledge of biological attacks, with most believing that these types of attacks are contagious. Contagiousness was also thought to be relevant to chemical and radiological threats, although the exact mechanism of transmission from person-to-person was not well defined or understood. Urban Asian and Urban Caucasian respondents seemed to use a more sophisticated vocabulary to describe radiological threats, indicating that knowledge of the English language may assist in understanding this type of attack.

C. Response to Hypothetical Attack

1. Information Seeking - What Respondents Want to Know

In general, the information that respondents wanted to know were consistent among all agent scenarios. During the first scenario (nonspecific threat), respondents were concerned with obtaining information about how to immediately protect themselves. During the second scenario (symptoms), respondents wanted to know detailed information about the specifics of the attack, including the site and proximity of the attack, who was attacked, the types of food consumed and/or contaminated, symptoms, and transmission routes. During the last scenario (confirmation of agent), respondents wanted more detailed information about the specific agent, including cause of the agent, different methods by which it can be used by terrorists, its transmission and symptoms, and treatment options and availability.

The two main differences evident among groups included perceptions about the vulnerability of the social structure in case of an attack and level of information detail requested. First, ESL respondents were the only group raising questions about this issue. For example, during the radiological scenario, respondents wanted to know information about who would be providing for medical care and what would happen to money placed in banks. These types of questions seem to allude to a lack of understanding about how systems will operate under an emergency. Urban Asian and Urban Caucasian respondents did not raise these types of concerns. Second, Urban Asian and Urban Caucasian respondents were more likely to request detailed information earlier in the scenarios than ESL respondents. For example, the former groups had more sophisticated questions much earlier in the scenario, such as wanting to know symptoms, transmission routes, the proximity of the attack, and how long the effects of the attack would last. Many ESL respondents preferred waiting for further instruction and information rather to ask questions. Delay in asking questions may be due to difficulty in speaking English and hesitancy about being verbal in group settings. The relative lack of questioning by ESL respondents resulted in less dialogue among ESL respondents during the focus groups. This lack of conversation and problem solving (which was more evident in Urban Asian and Urban Caucasian groups) left many ESL respondents (even by the third scenario) confused about the nature and consequences of the agent (especially for chemical and radiological events).

> *"We don't know who is going to help us if this really happens." (ESL, Radiological Scenario)*

"I would want to know everything there is to know about VX." (Urban Caucasian, Chemical Scenario)

2. Information Seeking - Where Respondents Want to Get Information

Respondents typically turned to similar sources to obtain information, and their preferences did not change based on agent or scenario. In general, respondents preferred receiving information through television and radio media channels, with a preference for obtaining information from subject matter experts. First, information seeking practices for each group will be discussed. At the end of this section, differences between the groups under consideration will be further explained.

For ESL respondents, methods of obtaining information included radio, television stations, and the internet. Further, respondents mentioned that they could not always understand radio/television stations and thus may need to rely on friends to get detailed information and/or clarification. Stations of choice included CNN, ABC and most local news channels, KPFK, World Link news, CDC websites, US News websites, ABCC, Mexican radio and television stations, and other foreign media (including newspapers). Some ESL respondents preferred television stations because of the visual content; others did not trust all stations and thus turned to alternate stations. All ESL respondents stated a need for receiving information in their native language. Among individuals that used both English and non-English sources, some stated that they would compare information from both sources. Most acknowledged that using the internet to back up the information on television and radio seemed more trustworthy. Other non-media sources included UCLA, the VA, the hospital, the Red Cross, police stations, 911, 411, fire departments, school libraries, private doctors, and friends and family. Respondents especially stated using English-speaking friends and family to interpret much of the information. The need for interpretation prompted many to desire a 1-800 hotline, preferably with a live speaker, to accommodate them in answering their questions. Respondents also mentioned non-traditional emergency response locations such as an embassy, church, or city councilperson. More vague terms such as "government", "health authorities", and the "city scientific office", were also mentioned quite frequently by ESL respondents.

"I don't have any other way to have any kind of information, so I have to turn on the TV and listen to the radio station." (ESL, Biological Scenario)

"Sometimes we watched TV and we know something happened, but we don't know details and it can be some kind of detail that is very important for us." (ESL, Biological Scenario)

For Urban Asian respondents, methods of obtaining information included television, radio, internet, and "announcement from air" (referring to loudspeakers in places of school or work), and newspapers. Respondents stated that although television was their first choice for obtaining information, in most cases the information provided is very vague. Others also voiced the need to have individuals who are experts in bioterrorism, other than newscasters, state the information. Respondents also mentioned locations, such as local community based organizations serving the needs of Asian-American populations. Like ESL respondents, Urban Asian respondents voiced a need for information in their native language and the availability of a 1-800 hotline. In addition, this group gave recommendations to including information about bioterrorism in white pages, include specific information such as the 'plume' of a chemical attack in terms of radius around the location of the attack.

"They could call a number for free. I think when something is spreading, we would want to know up to what extent, and how many yards, how many feet…so we have to ask." (Urban Caucasian, Plague Scenario)

For Urban Caucasian respondents, methods of obtaining information include television, radio, internet, and emergency broadcast systems. Stations of choice included NPR, PBS, NBC and other major networks, Associated Press, and Reuters. Other respondents stated that they watch non-US stations, such as Canadian and Chinese programming. Still others wanted to listen to local television stations rather than national stations (some noted the redundancy with national stations, as they recalled the repetitive information during 9/11). There was a general belief that television was seen to be mainly entertainment, and about "making news" rather than "providing public service", although in the hypothetical situation described, it was believed that the media would report truthfully. Similar to Urban Asian respondents, Urban Caucasian respondents emphasized that information come from experts rather than just a newscaster. The CDC, FBI, CIA, Emergency Task force, American Red Cross, and other public health officials were mentioned as possible spokespersons. Respondents had a good understanding of who the CDC is and what their role is. There wasn't much emphasis put on officials such as the city mayor, but smaller non-governmental organizations were trusted. Other non-media sources included the police, health departments, doctors, police, county sheriffs, hospitals and churches. A couple of respondents mentioned that they have Community Emergency Response Teams (CERT) that they refer to in cases of emergencies. Some respondents said that the information would have to come from a county (versus city) level.

"I think that a lot of our journalism on television is entertainment…I usually listen to the radio, and use the Internet, as oppose to watching the news." (Urban Caucasian, Plague Scenario)

The three main differences between the groups under consideration included a) different preferences on who to contact for more information b) level of reliance on outside sources to understand the nature of the agent and provide guidance on protective methods and risk, and c) access to media channels. First, it seems that Urban Asian and Urban Caucasian respondents were more likely to know which proper authorities would be responding in the event of an attack and providing information to the general public. This information was more vague for ESL respondents, who tended to mention non-traditional emergency response locations, such as church, city councilman, embassy, etc. ESL and Urban Asian respondents were also more likely to go to familiar community-based organizations and agencies (i.e. an Asian-Pacific Islander community group) rather than disaster appropriate agencies/sites (i.e. the local Community Emergency Response Team). Second, ESL respondents tended to state a need for receiving further instruction and relying on English-speaking family or friends to provide interpretation of given messages. ESL respondents repeatedly stated that they would wait "further instruction" by watching television and/or radio and some stated that they would contact English-speaking individuals to obtain more accurate information. In comparison, Urban Asian and Urban Caucasian respondents were able to easily interpret messages on their own. Lastly, it should be noted that some respondents might not have full access to all media channels. Even though the initial source of information for most respondents is television or radio (with a preference for getting information from health officials rather than just newscasters), some respondents did also prefer internet access. For those that did have access, it was an easy method to obtain information at their worksite and places of residence. Some stated that they did not have access

to internet and were solely relying on television and/or radio. Others, especially among ESL respondents, voiced their concern over potential inability to access information at their worksite. For example, one ESL respondents stated that he did not have access to any media channel (as radios and televisions were banned at his worksite) and was concerned that he would not be able to get information in a timely manner should an attack occur during working hours. Please not that the last difference may be guided more by socio-economic differences between groups rather than any other characterization specific to the groups under consideration.

3. Perceptions of Government and Emergency Response

There were some noteworthy differences between ethnic groups in their perceptions about government and emergency response. These differences centered mainly on the role of government and the emergency response system and trust in government and emergency response systems' ability to respond in the potential event of a terrorist attack.

The term "government" was used widely by ESL respondents and references to specific emergency response systems were scarce (Red Cross, Police and Fire were most frequently mentioned). ESL respondents tended to perceive the government (i.e. the President) as the central responsible entity for providing information about the attack and provide response by giving necessary resources (i.e. emergency supplies, food, water, etc.) to the public if needed. For most ESL respondents, other than the three frequently mentioned agencies, there was a basic lack of understanding of the various emergency response systems, their roles, and how their operational mechanisms.

> *"Government is responsible for giving report to people and providing some food, some special food for people." (ESL, Botulism Scenario)*
>
> *"Maybe you have to hear what kind of advice the government will give to the people." (ESL, Plague Scenario)*
>
> *"Sometimes call 911, you can call 411 and they give out information." (ESL, Plague)*

In comparison, Urban Asian and Urban Caucasian respondents had a better understanding of the different emergency response systems, including local systems. Furthermore, these groups were better able to distinguish between political government systems and emergency response systems.

> *"I wouldn't care as much what politicians say…In terms of helping me not panic, it's the CDC expert not the politician." (Urban Asian, Chemical Scenario)*
>
> *"It's the Centers for Disease Control in charge when something happens; when a certain disease comes out like SARS." (Urban Asian, Botulism Scenario)*
>
> *"It's the Chief of Police, the Fire Department, the ambulance emergency services; they all have this sub-station somewhere downtown…" (Urban Caucasian, Chemical Scenario)*

Due to the emphasis placed on the government, ESL respondents were more likely to trust the government and follow directives. Many respondents stated the need to wait for proper authorities to direct them on what to do. It is important to note, however, that some ESL respondents were aware that the government might not reveal all the information and some respondents stated that they would seek other sources for information. Others were concerned about discriminatory practices and were concerned that they might not receive the needed

resources from the government. Nonetheless, most ESL respondents trusted the government and emergency response systems in being knowledgeable and ready to address potential terrorist attacks.

> *"Listen to the information which the government give to the people carefully and follow the rules." (ESL, Botulism Scenario)*
>
> *"Some information government hides some things. So, I will look for information in the internet….I know that government information always hides something." (ESL, Botulism Scenario)*
>
> *"We don't know if that happened if we're really going to get help or to who they're gonna help. Are they gonna help minorities?" (ESL, Plague Scenario)*
>
> *"The police station, the fire department…they know what to do…I feel that I am being protected by them because they are from the government." (ESL, Chemical Scenario)*

Although Urban Asian and Urban Caucasian respondents were fairly confident that response systems were in place, they were more skeptical than ESL respondents about the intentions of the government. Some respondents believed that the government had alternative intentions for focusing on terrorism, although these intentions were not well understood or described.

> *"And you'd trust the government to give you that sort of information? I'm out of there." (Urban Asian, Chemical)*
>
> *"I have to agree to a certain point about being skeptical of the government." (Urban Asian, Chemical)*
>
> *"I always question the government." (Urban Asian, Radiological Scenario)*

It is interesting to note that even though there was knowledge of the government potentially withholding information from the public, most respondents, particularly Urban Caucasian respondents, did believe that emergency response systems would be functional and the government will be able to address potential attacks efficiently. The main concern about emergency response systems was not a question about their expertise in addressing a terrorist attack, but a question of whether enough emergency response personnel would be available in case of a major attack.

> *"I think that everybody has tremendous confidence in our department. After watching 9/11, they do a wonderful job as first respondents." (Urban Caucasian, Plague Scenario)*
>
> *"If there is an outbreak, there are really a lot of people that will be infected. We are not sure if the firefighters or paramedics can really accommodate such a big outbreak." (Urban Asian, Plague Scenario)*

These perceptions had some indication of the emotional response and actions taken by respondents, as summarized in the following section.

4. Emotional Response

Generally, emotional response was driven by the specific scenario and agent rather than the specific groups under consideration. It is important to note that each agent focus group guide was different and had a different level of danger at each scenario. For example, the first scenario in the chemical focus group began with a number of people injured, whereas the number of

individuals injured or dead was not mentioned until the second and third scenarios in the botulism focus group guide. As such, respondents reactions were more a directive of the severity of the attack, as represented by the scenarios and thus could not be truly attributed to one ethnic/language group. For instance, it was interesting to note that during the first radiological scenario, most respondents were not emotionally responsive and stated that they would wait and see what would happen. It seems that knowledge about the details of a specific incident or agent could raise fear (if the effects are known) or create apathy (if the effects are not known). This lack of initial understanding of what a radiological attack is and its implications created a sense of emotional apathy for most respondents during the first scenario in the radiological focus group.

When slight variations in emotional response between the different groups were noted, it tended to be due to the level of understanding of the emergency response system, communication efforts, and risk perceptions. For ESL respondents, even though most believed that the government is prepared to respond to a terrorist attack, there was concern that even the government would be in a state of pandemonium during the initial stages of the attack. In comparison, Urban Caucasian respondents believed that there are institutions in place and ready to go in the event of an attack. For example, during the chemical scenario, Urban Asian and Urban Caucasian respondents spent some time talking about which proper authorities will be at the scene, what the proper procedures for decontamination were, and the proper roles of the health authorities versus the general public in assisting with addressing the attack. In comparison, the general dialogue among ESL respondents in all scenarios included attempting to determine who the proper authorities were and figuring out what "decontamination" means (information that was known by Urban Asian and Urban Caucasian respondents). Thus, there seemed to be the lack of basic understanding of the emergency response system by ESL respondents, which might give a partial account for why emotional response and sense of helplessness tended to be a little higher within this group. No surprisingly, although Urban Asian and Urban Caucasian respondents revealed similar emotional response to each agent, their emotions had relatively stabilized by the thirds scenario; this was not as evident for ESL respondents.

> *"Scared. Feel bad. Can't do anything." (ESL, Radiological Scenario)*
>
> *"I feel helpless now. I don't have a gas mask. I don't think we have an anti-biological kit at him. So, I don't know what we would do." (ESL, Biological Scenario)*
>
> *"I would feel relief if I heard the word "decontaminated" on-site because I would be worried that they're shipping them to all these different hospitals." (Urban Caucasian, Radiological Scenario)*

In terms of communication, there was concern from all respondents that information might not reach the masses in proper time. ESL and Urban Asian respondents were concerned about obtaining information in their own native languages. Urban Caucasian respondents voiced the belief that not all of the information would be released to the general public because of national security, but this did not raise much concern due to the initial belief that the government will have the situation under control. Thus, even though Urban Caucasian respondents felt that the government was not revealing everything, there wasn't a sense that they were made to be unsafe as a result. Also, Urban Caucasian respondents seemed to express a better understanding of

various channels for obtaining information, thus decreasing the emotional response as a result of a lack of communication by the government.

Urban Caucasian respondents had a much lower risk perception than ESL and Urban Asian groups, with much of the conversation by Urban Caucasian groups laden with cynicism and laughter. As mentioned above, many Urban Caucasian respondents understood how emergency response operates and were knowledgeable of and had access to various communication channels, resulting in a lower risk perception among this group. As such, Urban Caucasian respondents tended to be slightly less emotionally reactive than ESL and Urban Asian groups.

> *"I don't think there's a problem with the emergency system…I think we're really well equipped to deal with it once it happens…" (Urban Caucasian, Chemical Scenario)*

5. Actions

In general, actions undertaken by respondents were dependent on the specific agent scenario, with very slight differences among the groups under consideration. The two main differences were being proactive about taking protective measures and possibility of following recommended actions. ESL respondents were more likely to state that they would wait to see what directives the government would give them versus Urban Asian and Urban Caucasian respondents, who seemed to be slightly more proactive about protective measures. Also, ESL respondents may be more compliant with recommended actions as they tend to be less skeptical of government; willingness to follow recommended actions was not as apparent for Urban Asian and Urban Caucasian groups.

During the initial *botulism scenario*, respondents indicated a wide arrange of actions, including fleeing the scene, locating family members, and searching the internet and television for more information. ESL respondents did indicate that they would need to contact English-speaking relatives and/or friends to be able to interpret the information. In general, most respondents agreed that there was little information indicating the proper actions that needed to be undertaken. For the most part, respondents stated that they will not change their daily routine, but rather await further information and instruction. When a need for taking some protective action, most ESL respondents seemed to not be clear on what the action should be. During the second scenario, most respondents stated changes in their eating habits (i.e. not consuming water) or trying to obtain protective clothing. By the third scenario, respondents stated that they would attempt to get more information; there was some confusion about the safety of food and water consumption. ESL respondents also indicated that they would stay in their homes until safe areas were identified, which might indicate a lack of understanding about communicability of the botulism toxin. This lack of understanding is highlighted by some comments indicating that respondents would stay away from hospitals and clinics for fear of becoming "infected."

> *"Just stay calm at home until exact information comes to us." (ESL, Botulism Scenario)*

> *"It has been confirmed that everyone has been exposed to this agent. Why should I wait here? If it's food born or water born, I'd rather get out." (Urban Asian, Botulism Scenario)*

During the initial *plague scenario*, respondents stated that they would stay at home or go home if they were at work, listen to news for further information and instruction, and/or flee the scene and buy protective equipment (i.e. a mask, duct tape). Urban Asian and Urban Caucasian respondents were more likely to state that they would take proactive measures (such as buying

protective equipment), while ESL respondents stated that they would mainly stay at home and await further instruction. During the second and third scenarios, actions ranged from stocking up on food and water to staying indoors, developing an emergency plan with family members, and/or seeking medical treatment. At this stage, Urban Caucasian respondents seemed more proactive in assessing their own risk (such as checking for symptoms) and taking measures for protection (such as stocking up on food and water and devising a family emergency plan). For most Urban Caucasian respondents, learning that the virus is airborne prompted many to make plans on their own, rather than wait for authorities to direct them on what to do. Urban Asian and ESL respondents stated that they would seek medical treatment to ensure that they have not been exposed, versus assessing their own symptoms and seeking medical treatment if symptoms were present, as stated by Urban Caucasian respondents.

> *"I would go to the doctor's because I am afraid of getting infected." (ESL, Botulism Scenario)*

> *"When you told me that it was in the air, I am not going to wait for the government to say to tell me what I should do…" (Urban Caucasian, Plague Scenario)*

During the initial *chemical scenario*, Urban Asian and Urban Caucasian respondents discussion centered on the pros and cons of fleeing or staying in their homes. For ESL respondents, although fleeing was discussed, the stated comments were not serious and were laden with laughter; most respondents stated that they would stay at home and await further instruction. During the second and last scenarios, Urban Asian and Urban Caucasian respondents engaged in a more sophisticated dialogue about the different reasons to stay or flee, including availability of food and water, possibility of traffic jam, proximity of attack, and direction of plume. Furthermore, Urban Asian and Urban Caucasian respondents discussed seeking further information about VX (mainly via the internet), checking themselves for symptoms, and only referring to a physician if symptoms were present. In general, ESL respondents stated that they did not know how to react and preferred waiting for further instructions from proper authorities.

> *"You know just wait, wait for advice." (ESL, Chemical Scenario)*

> *"I like that idea to get in your car and drive would be based on their own personal informed decision. The more information we have the more we decide to stay or go." (Urban Asian, Chemical Scenario)*

> *"I'd like to find out the symptoms and then just check myself and see if I notice them. If I don't, then stay home." (Urban Caucasian, Chemical Scenario)*

During the radiological scenario, respondents seemed a little more confused about what actions they should take and preferred keeping with their daily activities and listening to the news for further instructions. During the first scenario, ESL respondents tended to be a little more action oriented; with some stating that they would act according to their best judgment rather than risk waiting to be directed on what to do. It should be noted that these actions were also stated by Urban Asian and Urban Caucasian respondents, although they did not occur until the second and third scenarios. Some respondents stated other behaviors, such as sealing doors and windows or staying inside a small room, as these were actions that they had recalled being recommended. Some Urban Caucasian respondents stated that they might not follow orders to shelter in place because they would want to be with their families, especially kids.

"I will take my daughter and go to the bathroom because according to the [thing] you should go to a room with minimum windows. In my house, the bathroom is the minimum windows, taking out my plastic and my duct tape, put plastic on the window that is there, tape the plastic, duct tape the doors and all that stuff." (Urban Asian, Radiological Scenario)

"If they say stay where you are at, well, I may disagree with them. I would still go get my children no matter what because to me that is everything." (Urban Caucasian, Radiological Scenario)

D. Response to Print Materials

After eliciting response for the categories described above, respondents were asked to look at educational print materials developed by the CDC about the agent under consideration, at which point a series of additional questions were asked. The CDC logo and any source identifying information was removed from the materials prior to respondents reviewing them, so as to not bias respondents about the credibility of the materials. These questions elicited responses about comprehension, self-efficacy in following recommended actions, emotional reaction, and recommendations for improvement. It must be noted that respondents were reviewing four different fact sheets with different content about specific agent characterizations. As such, many of the responses were very specific to the agent. Nonetheless, some differences were evident between the groups, which will be noted here.

Overall, ESL respondents were less likely to question the validity or comprehensiveness of the fact sheets. Most ESL respondents believed the fact sheets to be very helpful and comprehensive in terms of providing information. It was assumed by most ESL respondents that the fact sheets were written by subject matter experts; therefore the validity of the fact sheets was not questioned. Where questions did arise, they were more likely to be about terminology in an attempt to better understand and comprehend the print materials. The fact that ESL respondents did not comprehend the materials and at the same time found them to be comprehensive is somewhat contradictory, and may allude to their assumption that the materials are comprehensive because of the belief that they are written by subject matter experts. This fact raises the concern of whether ESL respondents truly understood and comprehended the fact sheets, even with the presumption that the fact sheets are comprehensive and clear. From most ESL respondents, reading the fact sheets tended to ease emotional concern about ability to personally address the terrorist attack, as many found the recommended actions simple and believed that they were able to follow the guidelines if needed.

"I think for me it's very clear, every question. The problem is I don't understand some words." (ESL, Botulism Scenario)

"For me, at the beginning, it was like Botulism was a scary thing, but now it is clear that it is not that dangerous." (ESL, Botulism Scenario)

"What is 'the body's off switch'?" (ESL, Chemical Scenario)

"When they say 'shower and wash your body with soap and water', does it mean that radiation is like a virus?" (ESL, Radiological Scenario)

Almost all Urban Asian and Urban Caucasian respondents comprehended the main messages of the fact sheets, although they were less willing to readily accept them as valid or comprehensive. Most respondents felt that the information was too basic and needed specific details about certain

statements, which from the respondents' perspectives were in contradiction to the respondent's common sense or previous experiences. For example, respondents questioned the usefulness of duct tape and how radiation could be 'washed off'. Furthermore, Urban Asian and Urban Caucasian respondents raised more questions about the recommended actionable guidelines and stated that they needed more information in certain circumstances before they would be able to act. For instance, one Urban Asian respondent didn't know why it was recommended that persons not purge after ingesting VX; from her own knowledge, purging a chemical after ingestion is recommended in other cases. Emotional concern was not alleviated for all respondents after reading the print materials, as it raised more questions for some. This could be due to the relative skepticism about the fact sheets that Urban Asian and Urban Caucasian respondents had as compared to ESL respondents. It should be noted, however, that Urban Caucasian respondents revealed the most favorable emotional response, as most had a lower risk perception about a potential attack and believed emergency response systems to be adequate and ready.

> *"I would like to know the context in which this [fact sheet] is given. Why are we being told about VX? Is there something we should know? Is there evidence that it was recently used?" (Urban Asian, Chemical Scenario)*
>
> *"I didn't feel much better after reading this. I saw the long term effect." (Urban Asian, Chemical Scenario)*
>
> *"I don't believe it. I think that it is funny. Once you get radiation on you, you can wash all you want but the radiation is on you…it really isn't going to help." (Urban Asian, Radiological Scenario)*
>
> *"How do you confirm that you've been exposed?" (Urban Caucasian, Chemical)*
>
> *"It wouldn't bother me that much because at this day and age I have nothing to worry about if I contract something like that." (Urban Caucasian, Botulism Scenario)*

Respondents had slightly different suggestions for improving the fact sheets. ESL respondents' recommendations were mainly focused on comprehension, and included suggestions such as including a glossary of terminology, a toll-free phone number where the public can call and talk to a live operator who can answer their questions, inclusion of pictures to help guide comprehension, and information that is available in different languages. Recommendations made by Urban Asian and Urban Caucasian had more to do with formatting and presentation, with suggestions such as a shorter fact sheet, use of bigger fonts, and use of color to capture attention. Some respondents did suggest using language geared toward the "general public" or "lay audiences" as opposed to professional groups.

IV. DISCUSSION

In considering ESL, Urban Asian, and Urban Caucasian groups with respect to their attitude and knowledge of the color alert system, attitudes about protection from self attack, knowledge of different bioterrorist agents, information seeking behavior, reactions to a hypothetical attack, emotional response, and reactions to agent-specific educational materials, some differences can be noted. It will be argued here that the main differences between these groups allude to differences in language and acculturation rather than ethnicity or race, with ESL groups having the least language capability and being the least acculturated, and Urban Asians and Urban

Caucasians having the strongest language capability and being the most acculturated. While acculturation was not directly measured, based on the nature of groups convened as well as educational and income level differences between groups, we assume that Urban Caucasians represent higher acculturation levels because most speak English as a primary language in the home. ESL respondents represent lower acculturation levels because most are non-native English speakers; Urban Asian Americans fall somewhere in between. The differences within each of the categories listed above and their relevance to language and acculturation will be discussed here.

The significance of language and acculturation are somewhat different. Language skills, mainly a good command of the English language, assisted the respondents in their capability to understand terminology (such as "radiation", "shelter in place", "plume", "decontamination"). This capability was best recognized by Urban Asian and Urban Caucasian and least by ESL groups, as more questions were noted in the ESL focus groups asking for interpretation of these terms. Language skills can also assist in the overall comprehension of the scenarios, thus impacting the ability of respondents to accurately answer the questions asked. It was noted during the ESL groups that scenarios had to be repeated and paraphrased in simpler language in order for the respondents to understand them. In part, weaker language skills resulted in ESL respondents seeking information from English-speaking friends and relatives and/or familiar community institutions such as church. Furthermore, ESL respondents' inability to easily tap into alternate news sources made them more reliant on mainstream television and radio for information, some of which might not be complete, consistent, or accurate. In addition, ESL respondents were less likely to understand the meaning of certain terms (such as "radiation" or "decontamination"), which impacted how they comprehended certain scenarios and bioterrorist attacks. For instance, many ESL respondents were confused about the term "radiation" and had stated that they had never heard of this word before; whether these respondents would have been able to better understand radiation and radiological effects had the focus groups been conducted in their native languages is unknown.

Acculturation mainly refers to the respondents' pre-existing familiarity with social and institutional structures and mechanisms (such as the emergency response system) that aid in the understanding of the color alert system, define the types of emotional response and actions, and explain information seeking behavior of the respondents following the hypothetical attacks. ESL respondents presented the least acculturated group and thus revealed the least understanding of emergency response systems. This lack of acculturation accounted for many of the differences seen between ESL groups and Urban Asian and Urban Caucasian groups within each of the categories discussed above. First, ESL respondents were more likely to perceive the color alert system more seriously and the least likely to question its purpose and validity. The cynicism and distrust of the color alert system demonstrated by the Urban Asian and Urban Caucasian groups may be a reflection of the larger cynicism voiced within American culture as regards governmental institutions over past decades. The level of familiarity with this broader cynicism was not demonstrated by the comments made by ESL respondents. Second, ESL respondents were more likely to take protective measures (especially the purchase of protective equipment) seriously. For Urban Asian and Urban Caucasian groups, protective equipment and protective measures were seen as unnecessary, with many respondents expressing criticism about the purpose of preventative campaigns, especially those encouraging the purchase of duct tape and gas masks. Again, the seriousness with which ESL groups addressed this issue might allude to

the possibility that their attitudes and knowledge are not influenced by the broader mainstream American culture of cynicism regarding terrorism and terrorist attacks.

The issue of acculturation was also manifested in respondent information seeking behaviors and actions. Urban Caucasian respondents were the most savvy in their knowledge of alternate news media and also the appropriate sources to obtain information from, thus having a much more focused range of places and persons to contact in case of an attack. For ESL respondents, there was a wide range of locations and persons mentioned, thus indicating a lack of familiarity with the operation of basic emergency response. Not knowing where to turn for information also tended to result in many ESL respondents' waiting for media or "government" to give them directives, whereas Urban Asian and Urban Caucasian respondents tended to be more proactive to initiate action.

Lastly, the lack of understanding of emergency response systems, not knowing who to contact in case of an attack, and perceived inability to buy protective equipment or understand protective messages may have created higher risk perceptions among ESL respondents at the same time that it has increased a sense of helplessness. Although it was difficult to directly measure the emotional impact of the hypothetical scenarios on the respondents, ESL respondents may have had a higher emotional response to the hypothetical scenarios, as indicated by numerous responses about not knowing what to do and perceptions that there isn't anything they could do to protect themselves. A higher risk perception coupled with a perception of not being able to protect oneself from a potential attack can create adverse emotional responses and/or mental health consequences.

In considering the findings of this research, a few limitations should be noted. First, while Urban Asian and Urban Caucasian groups represent geographically bound ethnic groups, ESL groups constitute a language group and each ESL group is comprised of different ethnic groups. For this reason, similarities and differences noted are not necessarily direct reflections of ethnic-specific or cultural-specific characterizations. Second, both the Urban Asian and ESL groups and half of the Urban Caucasian groups were conducted in California, where perceptions of the likelihood of a terrorist attack might differ from those of populations living in other regions of the country. Lastly, analysis of the findings reveals that other factors, such as age and education, might be guiding some of the responses, versus the responses being guided completely by the specific ethnic or language group differences. To the extent that this was realized, it has been noted in the findings; although, with focus groups, it is difficult to decipher these differences if not previously controlled for in the planning stages of the focus group recruitment.

V. RECOMMENDATIONS

Language skills and acculturation were two main factors associated with the differences between ESL groups and Urban Asian and Urban Caucasian groups in terms of perceptions, attitudes, knowledge and behaviors both preceding and following a hypothetical bioterrorist attack. The implications are that respondents who lack language skills and who are less acculturated might be a) more likely to rely on non-traditional sources for obtaining emergency and disaster information, such as church or school, b) more likely to rely on others (such as English-speaking friends) to interpret messages, c) less likely to understand emergency response systems, d) less likely to know appropriate sources to contact, and e) less likely to be proactive about taking self-protective actions. In turn, these factors decrease the likelihood that proper information will be

obtained and/or understood in a timely fashion. The following recommendations are given to address these issues:

Increase public knowledge of emergency response systems. This may include providing information about the roles of different public health agencies and first responder teams (both before and after a bioterrorist event), and the appropriate contacts. Information should also be provided about the color alert system, including its utility, purpose, and relevance to actionable steps. Easily accessible contact information for appropriate emergency response agencies need to also be identified.

Provide a list of immediate actions that are trustworthy and understandable. Most respondents, especially during the first and second scenarios, repeatedly stated that they did not know what to do, with their initial concern being to flee or stay. Having this information immediately following an attack would assist in lessening confusion and allaying fears.

Provide a list of protective equipment and measures and describe what types of agents they may be used for. There was repeated mention of different protective equipment during all focus groups, without much discussion about their appropriate use. Although most respondents are aware of the existence of different protective equipment, there is a lack of understanding as to when such equipment should be used and where to access it.

Provide messages in different languages. Accessibility to information in native languages was voiced by both ESL and Urban Asian respondents. Language needs may be determined by examining region specific populations and cultures.

Provide messages through trusted and credible individuals. Most respondents voiced the need to hear information from individuals who are experts in the field of bioterrorism (such as a public health official). Newscasters, even if from popular television and radio news outlets, were not considered trustworthy or credible persons to give information in an emergency situation.

Utilize alternative sources of information for disseminating messages. Many respondents mentioned non-traditional sources (such as church) for obtaining information in an emergency setting. These sources may be initial points of contact for some individuals.

Relate educational campaigns to pre-existing knowledge and experiences. Throughout many of the focus groups, respondents referred to their own experiences and knowledge of previous emergency situations (i.e. earthquakes, 9/11, etc.) and compared their reaction to these prior events to the hypothetical event. Utilizing past events as benchmarks for actions in future emergency response situations may provide for a natural method of learning for some population groups.

Provide information for worksites and employers. Some respondents stated that they will most likely be at a place of work if an attack were to occur. It is important that workplaces have the necessary information and training regarding bioterrorism, so that they can readily disseminate to their employees.

Consider mental health as an important outcome of messaging. There was indication that some respondent groups had a high risk perception combined with low self-efficacy to be able to react in a bioterrorist event. This combination has the potential of creating adverse mental health outcomes. For these individuals, messages need to be created to address both risk and self-efficacy in order to alleviate adverse mental health outcomes.

VI. REFERENCES

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VII. APPENDICES

APPENDIX A: FOCUS GROUP DISCUSSION GUIDES FOR GENERAL PUBLIC AUDIENCE SEGMENTS

Appendix A1: Botulism Information Materials Pre-Test

PRELIMINARY FORMATIVE RESEARCH STAGE

Introduction

Hi, my name is «your name»and I work for «UCLA». I'd like to thank you for volunteering to help us. We are developing informational materials regarding possible emergency situations. We have asked you to come here today to think about these situations and look at some of our materials. We are very interested in your opinions. Please note that there are no right or wrong answers, only different ideas. So please be honest and share what you think. I am not an expert in these subjects and I am not the person making the materials — so please do not worry about hurting my feelings! Please note that we will provide materials at the end if you want information about specific topics that come up in the discussion. We will tape record this session to allow us to really pay attention to what you are saying and still have good notes. Nobody will listen to this tape except our staff and we will destroy it as soon as we have made a transcript and notes. Nobody's name will be used in either the tape recording or the transcript.

Are there any questions before we begin?

Icebreaker/introductions

Please tell your first name (only!) and one thing about yourself that you think people might find is surprising.

Pre-Event Knowledge, Attitudes and Responses. Recently there has been news about potential terrorist threats, and President Bush has instituted a color alert system for terrorist attacks.

Questions:

- Has anyone heard of the color alert system?
  - PROBE: What does it mean?
- What are the kinds of things you can do to protect yourself from a terror attack?
  - PROBE: Where do you find information about protecting yourself?
- There are different kinds of terrorist threats. If I told you there was a *chemical* threat, what would that mean to you?
- If I told you there was a *radiological* threat, what would that mean to you?
- If I told you there was a *biological* threat, what would that mean to you?
  - PROBE: What difference does it make if the threat can be spread from person to person?

Scenario Rollout

Instructions: For the remainder of the focus group, please note that we will be talking only about «biological» threats. Now, I am going to walk you through a made up story about what might happen if a «biological» weapon were used right here in «Los Angeles». There are four parts to the story. After each part, we'll talk about your reactions and thoughts. I will read the story out loud. Please remember that what I'm telling you is made up. This is not happening now, and we hope it will never happen.

Scenario, Part 1: Non-Specific Agent

You wake up about 7 am on a Tuesday and turn on the local news to hear that President Bush has raised the Homeland Security Advisory System threat level to severe (red). The president and his advisors report that this change in the national threat level is based on knowledge of a credible threat that a terrorist group may be planning a biological attack in «Los Angeles». Officials suspect that the attack may involve a biological weapon.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
- What would you do?
- Where would you go to get more information?
    - PROBES: Why would you turn to these sources?
    - Who do you think is the best source of information in the event of an attack?

Scenario, Part 2: Symptoms

A week later, early on a Monday afternoon, you turn on the radio and hear that 15 people in «Los Angeles»have presented at local emergency rooms and doctors' offices with blurry vision, heavy eyelids, difficulty speaking and swallowing, weakness, and facial paralysis. Although the cause has not been confirmed, these symptoms are consistent with botulism. Botulism is a toxin that affects the central nervous system and is spread through food and water.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
- What would you do?
- Where would you go to get more information?
    - PROBES: Why would you turn to these sources?
    - Who do you think is the best source of information in the event of an attack?

Scenario, Part 3: Specific Agent + Symptoms + Response

Later that same day, you turn on your TV to find that a local government official has issued a statement. She confirms that there has been a deliberate release of a biological toxin in «Los Angeles» and the agent has been confirmed to be botulism. It was believed to have been released through a food source still under investigation. So far, there are 30 presumed cases, however more persons in «Los Angeles» are potentially poisoned. Local health workers and emergency personnel are working to contain the problem by continuing the investigation outbreak, administering antitoxin, and providing supportive therapy for those infected.

Questions:

- Tell me how you would feel about this.
  - PROBE: Why do you feel the way you feel?
- What would you want to know?
  - PROBE: Would you want to know that there was enough medicine available?
- What would you do?
  - PROBE: If you were NOT exposed, would you still go to the doctor for treatment?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

BT information seeking behavior

Questions:

- How confident are you that there are systems in place that will respond in a way that keeps you safe?
- How confident are you that your elected state and local government officials will respond in a way that keeps you safe?
- What could the medical and emergency responders do to make you feel more secure?
- If you were the mayor of your city or town, what would you tell people in the event of an attack?

FACT SHEET PRETESTING STAGE

Scenario, Part 4: Release of information
****(Note: Using CDC FAQ)****

Local officials release information with recommendations for steps you can take to protect yourself from botulism. Now we are going to show you some materials of the sort that might be released should such an attack like this ever happen. Please give us your honest thoughts, feelings and responses to these materials, responding to questions in a number of areas. Again, please keep in mind that there are no right or wrong answers; we are just looking for your reactions.

Do you have any questions?

Comprehension

Please look at the «fact sheet» with recommendations for what to do in case of an attack.

Questions:

- What do you think are the main points of this fact sheet?
- After reading this message what questions do you have about botulism?
- What parts of the message were unclear or difficult to understand?
  - PROBE: Were there any parts of the message you had to read twice, or that didn't make sense to you the first time you read them?
- Based on these messages, what action would you take in the event of a botulism outbreak?
- Is there any information you would want to know that is not included in the fact sheet?
  - PROBE: How is this agent spread?
  - PROBE : How is a case of botulism confirmed ?
  - PROBE : What would you do to protect your family?
  - PROBE: What would you do if you think you are poisoned?

Emotional response

Questions:

- How does the information we shared make you feel?
  - PROBES: What about these messages makes you «emotional response to previous question»?
  - How could we change this message to make it less (or more) «emotional response» provoking?
  - REPEAT PROBES ACCORDING TO EMOTIONAL RESPONSES RECORDED.

Believability

Questions:

- How believable is the information in this fact sheet?
  - PROBE: Why? Or what makes you say that?
- What, if anything, would make this information more believable?
- Is there anything here that you think is not being disclosed?

Self-Efficacy, Response Efficacy and Behavioral Intent

Questions:

- How confident are you that the actions recommended in the fact sheet will keep you safe?
  - PROBE (if needed): Why or why not?
- How confident are you that you can carry out these recommendations?
  - PROBE (if needed): Why or why not?
- Which, if any, of the recommendations do you intend to follow?

Recommendations for Improvement

Questions:

- Do you have any other recommendations to make this fact sheet better or more useful to you?

Appendix A2: Plague Information Materials Pre-Test

PRELIMINARY FORMATIVE RESEARCH STAGE

Introduction

Hi, my name is «your name» and I work for «UCLA». I'd like to thank you for volunteering to help us. We are developing informational materials regarding possible emergency situations. We have asked you to come here today to think about these situations and look at some of our materials. We are very interested in your opinions. Please note that there are no right or wrong answers, only different ideas. So please be honest and share what you think. I am not an expert in these subjects and I am not the person making the materials — so please do not worry about hurting my feelings! Please note that we will provide materials at the end if you want information about specific topics that come up in the discussion. We will tape record this session to allow us to really pay attention to what you are saying and still have good notes. Nobody will listen to this tape except our staff and we will destroy it as soon as we have made a transcript and notes. Nobody's name will be used in either the tape recording or the transcript.

Are there any questions before we begin?

Icebreaker/introductions

Please tell your first name (only!) and one thing about yourself that you think people might find is surprising.

Pre-Event Knowledge, Attitudes and Responses. Recently there has been news about potential terrorist threats, and President Bush has instituted a color alert system for terrorist attacks.

Questions:

- Has anyone heard of the color alert system?
  - PROBE: What does it mean?
- What are the kinds of things you can do to protect yourself from a terror attack?
  - PROBE: Where do you find information about protecting yourself?
- There are different kinds of terrorist threats. If I told you there was a *chemical* threat, what would that mean to you?
- If I told you there was a *radiological* threat, what would that mean to you?
- If I told you there was a *biological* threat, what would that mean to you?
  - PROBE: What difference does it make if the threat can be spread from person to person?

Scenario Rollout

Instructions: For the remainder of the focus group, please note that we will be talking only about biological threats. Now, I am going to walk you through a made up story about what might happen if a biological weapon were used right here in «Los Angeles». There are four parts to the story. After each part, we'll talk about your reactions and thoughts. I will read the story out loud. Please remember that what I'm telling you is made up. This is not happening now, and we hope it will never happen.

Scenario, Part 1: Non-Specific Agent

You wake up about 7 am on a Tuesday and turn on the local news to hear that President Bush has raised the Homeland Security Advisory System threat level to severe (red). The president and his advisors report that this change in the national threat level is based on knowledge of a credible threat that a terrorist group may be planning a biological attack in «Los Angeles». Officials suspect that the attack may involve a biological weapon.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
  - PROBE: Would you want to know what the agent was?
- What would you do?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

Scenario, Part 2: Symptoms

A week later, early on a Monday afternoon, you turn on the radio and hear that 15 people in «Los Angeles» have presented at local emergency rooms and doctors' offices with fever, headache, weakness, and rapidly developing pneumonia with shortness of breath, chest pain, cough, and bloody saliva. Although the cause has not been confirmed, these symptoms are consistent with plague. Plague is a disease that infects the lungs and is spread from person to person through the air.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
  - PROBE: Would you want to know what else, besides plague, this could be?
- What would you do?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

Scenario, Part 3: Specific Agent + Symptoms + Response

Later that same day, you turn on your TV to find that a local government official has issued a statement. She confirms that there has been a deliberate release of a biological toxin in «Los Angeles» and the agent has been confirmed to be plague. It was believed to have been released at a shopping mall, into the air. So far, there are 30 presumed cases, however more persons in «Los Angeles» are potentially poisoned. Local health workers and emergency personnel are working to contain the problem by shutting down the mall, figuring out who was there, and calling for the potentially infected to seek medical treatment.

Questions:

- Tell me how you would feel about this.
  - PROBE: Why do you feel the way you feel?
- What would you want to know?
  - PROBE: Would you want to know that there was enough medicine available?
- What would you do?
  - PROBE: If you were NOT exposed, would you still go to the doctor for treatment?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

BT information seeking behavior

Questions:

- How confident are you that there are systems in place that will respond in a way that keeps you safe?
- How confident are you that your elected state and local government officials will respond in a way that keeps you safe?
- What could the medical and emergency responders do to make you feel more secure?
- If you were the mayor of your city or town, what would you tell people in the event of an attack?

FACT SHEET PRETESTING STAGE

Scenario, part 4: Release of information
****(Note: Preferable to use CDC Facts sheets and FAQs)****

Local officials release information with recommendations for steps you can take to protect yourself from plague. Now we are going to show you some materials of the sort that might be released should such an attack like this ever happen. Please give us your honest thoughts, feelings and responses to these materials, responding to questions in a number of areas. Again, please keep in mind that there are no right or wrong answers; we are just looking for your reactions.

Do you have any questions?

Comprehension

Please look at the fact sheet with recommendations for what to do in case of an attack.

Questions:

- What do you think are the main points of this fact sheet?
- After reading this message what questions do you have about plague?
- What parts of the message were unclear or difficult to understand?
  - PROBE: Were there any parts of the message you had to read twice, or that didn't make sense to you the first time you read them?
- Based on these messages, what action would you take in the event of a plague outbreak?
- Is there any information you would want to know that is not included in the fact sheet?
  - PROBE: How is this agent spread?
  - PROBE : How is a case of plague confirmed ?
  - PROBE : What would you do to protect your family?
  - PROBE: What would you do if you think you are poisoned?

Emotional response

Questions:

- How does the information we shared make you feel?
  - PROBES: What about these messages makes you emotional response to previous question?
  - How could we change this message to make it less (or more) emotional response provoking?
  - REPEAT PROBES ACCORDING TO EMOTIONAL RESPONSES RECORDED.

Believability

Questions:

- How believable is the information in this fact sheet?
  - PROBE: Why? Or what makes you say that?
- What, if anything, would make this information more believable?
- Is there anything here that you think is not being disclosed?

Self-Efficacy, Response Efficacy and Behavioral Intent

Questions:

- How confident are you that the actions recommended in the fact sheet will keep you safe?
  - PROBE (if needed): Why or why not?
- How confident are you that you can carry out these recommendations?
  - PROBE (if needed): Why or why not?
- Which, if any, of the recommendations do you intend to follow?

Recommendations for Improvement

Questions:

- Do you have any other recommendations to make these fact sheets better or more useful to you?

Appendix A3: Chemical Information Materials Pre-Test

PRELIMINARY FORMATIVE RESEARCH STAGE

Introduction

Hi, my name is «your name»and I work for «UCLA». I'd like to thank you for volunteering to help us. We are developing informational materials regarding possible emergency situations. We have asked you to come here today to think about these situations and look at some of our materials. We are very interested in your opinions. Please note that there are no right or wrong answers, only different ideas. So please be honest and share what you think. I am not an expert in these subjects and I am not the person making the materials — so please do not worry about hurting my feelings! Please note that we will provide materials at the end if you want information about specific topics that come up in the discussion. We will tape record this session to allow us to really pay attention to what you are saying and still have good notes. Nobody will listen to this tape except our staff and we will destroy it as soon as we have made a transcript and notes. Nobody's name will be used in either the tape recording or the transcript.

Are there any questions before we begin?

Icebreaker/introductions

Please tell your first name (only!) and one thing about yourself that you think people might find is surprising.

Pre-Event Knowledge, Attitudes and Responses. Recently there has been news about potential terrorist threats, and President Bush has instituted a color alert system for terrorist attacks.

Questions:

- Has anyone heard of the color alert system?
  - PROBE: What does it mean?
- What are the kinds of things you can do to protect yourself from a terror attack?
  - PROBE: Where do you find information about protecting yourself?
- There are different kinds of terrorist threats. If I told you there was a *chemical* threat, what would that mean to you?
- If I told you there was a *radiological* threat, what would that mean to you?
- If I told you there was a *biological* threat, what would that mean to you?
  - PROBE: What difference does it make if the threat can be spread from person to person?

Scenario Rollout

Instructions: For the remainder of the focus group, please note that we will be talking only about chemical threats. Now, I am going to walk you through a made up story about what might happen if a chemical weapon were used right here in «Los Angeles». There are four parts to the story. After each part, we'll talk about your reactions and thoughts. I will read the story out loud. Please remember that what I'm telling you is made up. This is not happening now, and we hope it will never happen.

Scenario, Part 1:

You hear a news report that planes flying over an outdoor stadium have sprayed something over the crowd attending a football game. The news reports that people are on the field dead or dying. Some people are obviously injured; they are convulsing or seizing. Other people have been injured in the panic as people tried to leave the stadium. This first report speculates that some kind of chemical might have been sprayed on the stadium. The stadium is about 10 miles away from where the participants are at the time.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
- What would you do?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

Scenario, Part 2:

A few minutes later you hear another news report that responders have arrived on the scene wearing protective gear and are transporting the injured to ambulances. The estimated count of dead is about 100, with several hundred injured trying to escape. People are being asked to stay away from the area around the stadium. Anyone who has left the field and thinks they might have been exposed is instructed to remove their clothes, place them inside two plastic bags, shower and wash their hair. The report said that, based on the types of symptoms seen in people in the stadium, the planes may have sprayed a nerve agent, possibly VX. VX is a nerve agent that affects the nervous system and is spread through air, food and water.

Questions:

- Tell me how you would feel about this news?
- What would you want to know?
- What would you do?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

Scenario, Part 3:
About an hour later a follow up report indicates that 150 people are now counted dead at the scene and several hundred more have been taken to the hospital. The report shows people at the scene being triaged into an assessment center. A spokesperson at the scene indicates that people are being decontaminated on site, and reconfirms that the stadium was sprayed with VX.

Questions:
- Tell me how you would feel about this.
  - PROBE: Why do you feel the way you feel?
- What would you want to know?
  - PROBE: Would you want to know that there was enough medicine available?
- What would you do?
  - PROBE: If you were NOT exposed, would you still go to the doctor for treatment?
- Where would you go to get more information?
  - PROBES: Why would you turn to these sources?
  - Who do you think is the best source of information in the event of an attack?

BT information seeking behavior
Questions:
- How confident are you that there are systems in place that will respond in a way that keeps you safe?
- How confident are you that your elected state and local government officials will respond in a way that keeps you safe?
- What could the medical and emergency responders do to make you feel more secure?
- If you were the mayor of your city or town, what would you tell people in the event of an attack?

FACT SHEET PRETESTING STAGE

Scenario, Part 4: Release of Information
****(Note: Using CDC FAQ)****

Local officials release information with recommendations for steps you can take to protect yourself from VX. Now we are going to show you some materials of the sort that might be released should such an attack like this ever happen. Please give us your honest thoughts, feelings and responses to these materials. Again, please keep in mind that there are no right or wrong answers; we are just looking for your reactions.

Do you have any questions?

Comprehension
Please look at the «fact sheets» with recommendations for what to do in case of an attack.

Questions:
- What do you think are the main points of these fact sheets?
- After reading this message what questions do you have about VX?

- What parts of the message were unclear or difficult to understand?
  - PROBE: Were there any parts of the message you had to read twice, or that didn't make sense to you the first time you read them?
- Based on these messages, what action would you take in the event of a VX outbreak?
- Is there any information you would want to know that is not included in the FAQ?
  - PROBE: How is this agent spread?
  - PROBE : How is a case of VX confirmed ?
  - PROBE : What would you do to protect your family?
  - PROBE: What would you do if you think you are poisoned?

Emotional Response

Questions:

- How does the information we shared make you feel?
  - PROBES: What about these messages makes you «emotional response to previous question»?
  - How could we change this message to make it less (or more) «emotional response» provoking?
  - REPEAT PROBES ACCORDING TO EMOTIONAL RESPONSES RECORDED.

Believability

Questions:

- How believable is the information in these fact sheets?
  - PROBE: Why? Or what makes you say that?
- What, if anything, would make this information more believable?
- Is there anything here that you think is not being disclosed?

Self-Efficacy, Response Efficacy and Behavioral Intent

Questions:

- How confident are you that the actions recommended in the fact sheets will keep you safe?
  - PROBE (if needed): Why or why not?
- How confident are you that you can carry out these recommendations?
  - PROBE (if needed): Why or why not?
- Which, if any, of the recommendations do you intend to follow?

Recommendations for Improvement

Questions:

- Do you have any other recommendations to make these fact sheets better or more useful to you?

Appendix A4: Radiological Information Materials Pre-Test

Introduction

Hi, my name is «your name» and I work for «your university». I'd like to thank you for volunteering to help us. We are developing informational materials regarding possible emergency situations. We have asked you to come here today to think about these situations and look at some of our materials. We are very interested in your opinions. Please note that there are no right or wrong answers, only different ideas. So please be honest and share what you think. I am not an expert in these subjects and I am not the person making the materials — so please do not worry about hurting my feelings! Please note that we will provide materials at the end if you want information about specific topics that come up in the discussion. We will tape record this session to allow us to really pay attention to what you are saying and still have good notes. Nobody will listen to this tape except our staff and we will destroy it as soon as we have made a transcript and notes. Nobody's name will be used in either the tape recording or the transcript.

Are there any questions before we begin?

Icebreaker/introductions

Please tell your first name (only!) and one thing about yourself that you think people might find is surprising.

INTRODUCTION/INSTRUCTIONS: Let's begin. I am going to walk you through three parts of a made up story about what might happen if terrorist attack involving radiation took place right here in «location». There are three parts to the story. After each part of the story, we'll talk about your reactions and thoughts. I will read the story out loud as you follow along. Please remember that what I am telling you is made up. This is not happening now, and we hope it will never happen.

SCENARIO, PART I: FEDERAL WARNING:
You wake up about 7 a.m. on a Tuesday morning and turn on the local news to hear that President Bush has raised the Homeland Security Advisory System threat level to severe (red). The President and his advisors report that this change in the national threat level is based on knowledge of a credible threat that a terrorist group may be planning an attack in «geographic area». While the threat isn't specific regarding the type of attack, officials suspect that it may involve radiation or nuclear materials.

FOCUS GROUP GUIDE QUESTIONS:

1. Tell me how you would feel about this.
    a. PROBE: What are your immediate concerns?
2. What would you want to know?
3. What would you do?
4. Where would you go for information?
    a. PROBE: Why would you turn to these sources?

b. PROBE: What do you think the best source of information would be in the event of an attack?

SCENARIO, PART II: NEWS REPORT:

Over lunch, you turn on the radio and hear that there has been an explosion in «geographic area» and that radiation has been detected by initial emergency responders. Hundreds of people have been treated at the site and/or transported to local emergency rooms with injuries from the blast, and burns. People are being advised to "shelter in place" until more is known about whether radiation was involved.

FOCUS GROUP GUIDE QUESTIONS:

1. Tell me how you would feel about this.
   a. PROBE: What are your immediate concerns?
2. What would you want to know?
3. What would you do?
4. Where would you turn for information?
   a. PROBE: Why would you turn to these sources?
   b. PROBE: What do you think the best source of information would be in the event of an attack?
5. Does the following information address any of your concerns?

EXCERPT FROM CDC MATERIALS:

Preparing for a Radiological Emergency

Your community should have a plan in place in case of a radiation emergency. Check with community leaders to learn more about the plan and possible evacuation routes. Check with your child's school, the nursing home of a family member, and your employer to see what their plans are for dealing with a radiation emergency. Develop your own family emergency plan so that every family member knows what to do. At home, put together an emergency kit that would be appropriate for any emergency. The kit should include the following items:

- A flashlight with extra batteries
- A portable radio with extra batteries
- Bottled water
- Canned and packaged food
- A hand-operated can opener
- A first-aid kit and essential prescription medications
- Personal items such as paper towels, garbage bags, and toilet paper

After a release of radioactive materials, local authorities will monitor the levels of radiation and determine what protective actions to take. The most appropriate action will depend on the situation. Tune to the local emergency response network or news station for information and instructions during any emergency. If a radiation emergency involves the release of large amounts of radioactive materials, you may be advised to "shelter in place," which means to stay in your home or office; or you may be advised to move to another location. If you are advised to shelter in place, you should do the following:

- Close and lock all doors and windows.

- Turn off fans, air conditioners, and forced-air heating units that bring in fresh air from the outside. Only use units to re-circulate air that is already in the building.
- Close fireplace dampers.
- If possible, bring pets inside.
- Move to an inner room or basement.
- Keep your radio tuned to the emergency response network or local news to find out what else you need to do.
- If you are advised to evacuate, follow the directions that your local officials provide. Leave the area as quickly and orderly as possible. In addition –
  - Take a flashlight, portable radio, batteries, first-aid kit, supply of sealed food and water, hand-operated can opener, essential medicines, and cash and credit cards.
  - Take pets only if you are using your own vehicle and going to a place you know will accept animals. Emergency vehicles and shelters usually will not accept animals.
- The safest place in your home during an emergency involving radioactive materials is a centrally located room or basement. This area should have as few windows as possible. The further your shelter is from windows, the safer you will be.
- If you are outside when the alert is given, try to remove clothing and shoes and place them in a plastic bag before entering the house. During severe weather, such as extreme cold, remove at least the outer layer of clothes before entering the home to avoid bringing radioactive material into your shelter. Leave clothing and shoes outside. Shower and wash your body with soap and water. Removing clothing will eliminate 90% of radioactive contamination. By taking this simple step, you will reduce the time that you are exposed and also your risk of injury from the radiation.
- Before entering the shelter, turn off fans, air conditioners, and forced-air heating units that bring air in from the outside. Close and lock all windows and doors, and close fireplace dampers.
- When you move to your shelter, use duct tape and plastic sheeting to seal any doors, windows, or vents. After officials are sure the plume has passed over, however, you may wish to open up the windows to ventilate the area.
- Keep your radio tuned to an emergency response network at all times for updates on the situation. The announcers will provide information about when you may leave your shelter and whether you need to take other emergency measures.

FOCUS GROUP QUESTIONS ON CDC MATERIALS:

1. How believable is the information in this fact sheet?
   a. PROBE: Why? Or, what makes you say that?
2. What, if anything, would make this information more believable?
3. Is there anything here that you think is not being disclosed?
4. How confident are you that the actions recommended in the fact sheet will keep you safe?
   a. PROBE (if needed): Why or why not?
5. How confident are you that you can carry out these recommendations?
   a. PROBE (if needed): Why or why not?
6. Do you have any recommendations to make these fact sheets better or more useful to you?

SCENARIO, PART III: ANNOUNCEMENT BY GOVERNMENT OFFICIAL:

About an hour later, when you are watching television coverage of the blast, you see a local government official issuing a statement. S/he confirms that a small nuclear explosion has gone off and that people in the area may have been exposed to radiation. Local health workers and emergency personnel are working to contain the problem by taking seriously injured persons to the hospitals and referring others who believe they might have been exposed to assessment centers near the hospitals, where they can be monitored and decontaminated if necessary. Residents who were not close to the bomb should listen for information about which way the plume is spreading and evacuate or shelter in place according to emergency officials' recommendations.

FOCUS GROUP GUIDE QUESTIONS:

1. Tell me how you would feel about this.
    a. PROBE: Why do you feel the way you feel?
2. What would you want to know?
3. What would you do?
4. Where would you go for information?
    a. PROBE: Why would you turn to these sources?
    b. PROBE: What do you think the best source of information would be in the event of an attack?
5. Does the following information address any of your concerns?

EXCERPT FROM CDC MATERIALS:

Radiation Exposure and Contamination

Radioactive contamination occurs when radioactive material is deposited where it is not supposed to be. Air, water, surfaces, soil, plants, buildings, people, or animals may become contaminated when radioactive materials are released into the environment. Radioactive materials could be released into the environment from a nuclear power plant accident (like the Chernobyl accident in 1986), from an atomic bomb explosion (like the bomb dropped on Hiroshima during World War II), from someone accidentally releasing the material, or from someone intentionally spreading radioactive material in an act of terrorism. Each of these instances could result in radioactive contamination, and the size of the area and number of people affected would vary depending on the event. For example, the Chernobyl nuclear power plant accident caused radioactive contamination that spread thousands of miles and affected hundreds of thousands of people.

When a person has been **exposed** to radiation, radiation has penetrated the body, but has not stayed inside the body. When a person has an x-ray, they have been exposed to radiation, but they have not been contaminated. To be **contaminated**, a person must have radioactive material on them (external contamination) or inside of their body (internal contamination).

Internal contamination occurs when people ingest (swallow) or inhale (breath in) radioactive materials, or when radioactive materials enter their body through an open wound in the skin. Once inside the body, some radioactive materials may leave the body, usually through the urine or feces. Some of the radioactive materials may stay in the body and be deposited in different organs, depending on the type of radioactive material.

External contamination occurs when radioactive materials in the form of dust, powder, or liquid come in contact with people's skin, hair, or clothing. However, once a person is externally contaminated, they can become internally contaminated, as well. If the contamination is not removed from the skin quickly, dust, powder, or liquid may be accidentally ingested or inhaled, or liquid may be absorbed through the skin and enter the blood stream.

Although people who are internally contaminated cannot contaminate others just by being in close proximity, they can expose others to radiation. However, coming in contact with bodily fluids (like urine or blood) from someone who is internally contaminated may result in contamination, depending on the radioactive material involved.

People who are externally contaminated with radioactive dust, powder, or liquid may contaminate other people or surfaces when they come into contact with them. For instance, someone who has radioactive dust on their clothing may leave dust particles behind when he or she sits in a chair or hugs someone.

FOCUS GROUP GUIDE:

1. Is the information contained in the fact sheet helpful to you?
2. What questions do you have about what you've read?
3. Is there anything confusing in the materials?
4. Is there any information not contained in the fact sheet that should have been?
5. Do you have any recommendations to make these fact sheets better or more useful to you?

CLOSING COMMENTS:
This concludes our work for the day. Thank you again for volunteering to help us. Your comments have been extremely valuable. The information you have provided will help us develop better and more useful informational materials, and this, in turn, will contribute to improved emergency preparedness. Meanwhile, if anyone wants additional information about some of the specific topics that came up during today's discussion, we have fact sheets and other information available on the table outside «or other location.» Thanks again!

APPENDIX B: CODING GUIDE

Pre-event Knowledge Parent Code	Definition	Child Code	Definition	Notes
CAS	Color Alert System			
		CAS.K	has knowledge of CAS	
		CAS.A	attitude regarding CAS	
PSA	protection of self from attack			
		PSA.SIP	shelter in place	
		PSA.GI	get information	
		PSA.GM	gas mask	
		PSA.DT	duct tape	
		PSA.O	other	
MBT	meaning of BT categories			
		MBT.C	meanings of chemical attacks	
		MBT.N	meanings of nuclear attacks	
		MBT.B	meanings of biological attacks	
Scenario 1 **Parent Code**	non-specific agent **Definition**	**Child Code**	**Definition**	**Notes**
Emotional Response				
ER.NSA	general emotional response			
		ER.NSA.FL	what participants feel	
Knowledge				
K.NSA	what they know/believe			
		K.NSA.KB	what participants believe	
Actions				
A.NSA	general actions			
		A.NSA.DO	what participants would do	
Information Seeking				
IS.NSA	general info seeking			
		IS.NSA.WHA	what info wanted by respondents	
		IS.NSA.WHR	where would they get info	
		IS.NSA.PFR	info preference (their credible source)	
Scenario 2 **Parent Code**	symptoms **Definition**	**Child Code**	**Definition**	**Notes**
Emotional Response				
ER.SYM	general emotional response			
		ER.SYM.FL	what participants feel	
Knowledge				
K.SYM	what they know/believe			
		K.SYM.KB	what participants believe	
Actions				
A.SYM	general actions			
		A.SYM.DO	what participants would do	
Information Seeking				
IS.SYM	general info seeking			
		IS.SYM.WHA	what info wanted by respondents	
		IS.SYM.WHR	where would they get info	

		IS.SYM.PFR	info preference (their credible source)	
Scenario 3	agent, symptoms, and response			**Notes**
Parent Code	**Definition**	**Child Code**	**Definition**	
Emotional Response				
ER.ASR	general emotional response			
		ER.ASR.FL	what participants feel	
Knowledge				
K.ASR	what they know/believe			
		K.ASR.KB	what participants believe	
Actions				
A.ASR	general actions			
		A.ASR.DO	what participants would do	
Information Seeking				
IS.ASR	general info seeking			
		IS.ASR.WHA	what info wanted by respondents	
		IS.ASR.WHR	where would they get info	
		IS.ASR.PFR	info preference (their credible source)	
Scenario 4	release of information			
Parent Code	**Definition**	**Child Code**	**Definition**	**Notes**
RI.COM	comprehension of materials			
		RI.COM.KL	what was learned or main points	
		RI.COM.AIN	add'l information needed	
		RI.COM.R	understanding of the risk an event	
		RI.COM.WHR	knowledge of where to turn for info	
RI.ER	emotional response			
		RI.ER.MFL	how materials made participants feel	
		RI.ER.FLM	how materials could be changed to trigger fewer emotions	
RI.CR	credibility (believability)			
		RI.CR.PM	credibility of print materials	
		RI.CR.ICR	how can credibility be increased?	
		RI.CR.DC	anything participants feel was not disclosed?	
RI.SE	self-efficacy/outcome expectation			
		RI.SE.FOL	ability to follow recommended actions	
		RI.SE.OE	belief that recommended actions will lead to a good outcome	

Improvement Parent Code	Definition	Child Code	Definition	Notes
RCI				**with the exception of RCI.PM, Improvement codes may used throughout
		RCI.PM	print materials (specific to fact sheets passed out during focus groups)	
		RCI.OM	other methods: dissemination and channels of information	
Perceptions of Government				
Parent Code	**Definition**	**Child Code**	**Definition**	**Notes**
RG				**Perceptions of Gov't codes may be used throughout
		RG.GA	what government agencies are mentioned	
		RG.TC	trust/credibility of elected officials/government representatives	
		RG.GR	response of government systems	
Perceptions of Emergency Response Systems and Media				
Parent Code	**Definition**	**Child Code**	**Definition**	**Notes**
PER				**Perceptions of ERS codes may be used throughout
		PER.RFP	perceptions of first responders (police, fire, EMT)	
		PER.RHH	perceptions of health and human service providers	
		PER.M	perceptions of media	
Miscellaneous				
Parent Code	**Definition**	**Child Code**	**Definition**	**Notes**
GK	general knowledge which is non-specific to presented scenarios or materials			**Knowledge parent code may be used throughout entire transcript if Scenario specific knowledge codes don't apply**