

UNIVERSITY OF OKLAHOMA
SOUTHWEST CENTER FOR PRE-EVENT MESSAGE
DEVELOPMENT

Verification Analysis
Agent: Chemical (VX)

INTRODUCTION

The emerging global threat of terrorism has stimulated much activity and resource mobilization within the public health community over the past four years, because terrorist acts can have a direct and often serious impact on the physical and mental health of the general population. One concern has been to assure that the health care system has the capacity to respond in an emergency. Establishing drug stockpiles, emergency system improvements, and health provider and first responder training have thus proliferated at national, state and local levels. Another concern has been the preparation of communications plans and materials for the general public. The very real threat of terrorist action requires the design, development, and dissemination of technically accurate and timely information.

Recognizing this, the Centers for Disease Control and Prevention, in concert with the Association of Schools of Public Health (ASPH) Bioterrorism Council, responded by supporting the “Pre-Event Message Development Project” (PEMD). This project provided funding in the fall of 2002 to four primary schools of public health (Saint Louis University, University of Alabama-Birmingham, University of California at Los Angeles, and the University of Oklahoma) along with several partnering schools. The four University teams working on this project were selected because each brought different skills, perspectives and experience to the overall project goals of learning how to best communicate critical information related to what audiences want as well as the information that the research team, CDC, and the ASPH Bioterrorism Council, recognize needs to be known. The basic charge the four Pre-event teams have addressed in the first two years of the project is how to develop and evaluate pre-event messages relevant for bioterrorism events for the general population, using well designed formative research to define, craft, and pre-test crisis communications messages.

What evolved through a participatory, collaborative process was the opportunity to do research on this topic that was groundbreaking, and strengthened by the degree findings can be generalized by using standardized methods across institutions and samples of persons from culturally and geographically diverse backgrounds. Initially the teams debated whether it would be more useful and efficient to focus on generic all-hazards prevention issues and messages to be used to educate the public prior to an event, or to focus the research on different types of agents that could be used for warning systems before during and after an intentional attack. We decided to do agent-specific research since our perception was that other researchers were conducting research on all-hazards

prevention. This is based on literature that differentiates disaster warnings and responses from public hazard education. The latter involves general knowledge that can be transmitted independent of the hazardous event. Disaster warnings and responses are event specific and happen either right before, during, or after an event. (Mileti and Fitzpatrick 1991; Mileti and Sorensen 1988). These messages are important in regard to saving lives, reducing unnecessary service utilization, facilitating relief efforts, and reducing anxiety among the general public.

Thus, each University team was charged with assessing public response to one of the following agents that represented a specific type of threat. These were an infectious agent (plague), a toxin (botulism), a chemical agent (VX), and a radiological agent (dirty bomb). The basic idea was that we would be able to get sufficient information from qualitative formative research to be able to construct prototypes of messages for each of these different types of agents that would be important to communicate to the general public if an event happened. The first year of the project involved open-ended formative research that sought to understand information needs, information seeking strategies, and other responses to hypothetical terrorist emergencies on the part of the public, as well as audience-testing of existing informational materials and messages.

For Year 2, findings from Year 1 were used to craft the messages and materials that made up our initial project activities. Specifically we knew from Year 1 that most persons in the general public had little knowledge about the specific agents we were discussing. Persons had some idea of what to do in crisis and disaster situations, but were not familiar with current terminology, and often had little understanding of disaster response planning that is currently taking place at local, state and federal levels. Levels of trust of media and government were mixed. As well there was a clear “hierarchy of resort” voiced as regards information seeking, with most persons turning to the mass media for initial information and then print, internet and interpersonal sources for more in-depth coverage. However there was also a substantial minority of persons who were more likely to turn to community and interpersonal sources of information first: these were often in more isolated, disadvantaged, ethnic minority or rural communities.

Year 1 data also helped the University teams as regards the framing and organization of messages. Specifically we were reminded of the importance of prioritizing information that addresses the concerns of persons in potential crisis situations. One basic idea is that messages should address survival concerns first, then meaning, then assurance about organized responses to the event. Translated this means messages should first tell persons what to look for, what to do, or how to get help or prevent exposure (problem identification, actions, reconnaissance, symptom recognition, help seeking). The next set of messages explains why they need to do it (epidemiology, transmission, treatment, prognosis). The third type of message is to assure persons that something is being done by someone or some agency (to stop the problem, help the afflicted, find the culprit).

In the first half of Year 2 (January - June 2004) we took Year 1 findings and through an iterative process created sets of messages for each agent. We created four types of message materials: 1) radio scripts, 2) television storyboards 3) fact sheets 4) more in-

depth web-based materials. The first task for all of the four University teams was to write basic message materials for video and radio scripts, a longer web page, and a two-page fact sheet. Content was reviewed CDC Subject Matter Experts (January - February). Then we all participated in a message review process using the RAIN technique to test for readability for the scripted materials. This readability system looks at many factors (words, writing style, grammar, format) that can increase reading level of materials. The goal was to bring materials to a readability level where lower literacy persons could understand them. These materials were revised (March) and then television production began and continued through April and May, with some revision of rough cuts of materials in late May and early June. As well, radio production occurred in June and concurrently fact sheets were finalized and formatted in a standardized manner. Thus we were able to produce prototypes of radio clips, short videos, and fact sheets for pretesting. Scripts for these materials can be found in the appendices of each of the reports: the challenge we found in creating materials such as these was to make them effective and credible tools for communication, balanced with concerns about scientific validity and accuracy. We did not test longer web page materials due to time and technical constraints.

In retrospect the approach we have taken has proven to be highly informative and efficient, as it has provided a rich and multilayered research data base that can be used to help craft both agent specific and all-hazards preparedness messages. That is, even though we were focused on specific agents, much of the information is also relevant to all-hazards preparedness. Information about what persons understand in regards to infectious or toxic agents, chemicals or radiological events and what to do about them not only applies to other similar agents, there was also much information gleaned about information seeking in times of a crisis or disaster, cultural differences in response to disasters, perceptions of the role of government, the media, and first responders, and insight into persons' understanding of basic concepts and terms used in warning and disaster preparedness such as sheltering in place, quarantine, isolation, prophylaxis, immunization, handling food and water, decontamination, coping and stress reduction, and information seeking.

Focus Groups

By Agent Type					
	<u>Bio-Plague</u>	<u>Bio-Bot</u>	<u>Radiological</u>	<u>Chemical</u>	<u>Total</u>
Urban African American	SLU (1) UAB (1)	SLU (1)	SLU (1) UAB (2)	SLU (1), UAB (1)	8
Rural African American	SLU (1)	UAB (1)	UAB (1)	SLU (1)	4

Urban Hispanic	UAB (1)	ULCA (1)	UOK (1) UAB (1)	UOK (1) UAB (1)	6
Rural Hispanic	UOK (1)	UOK (1)	UOK (1)	UOK (1)	4
Asian Urban	ULCA (1)	ULCA (1)	ULCA (1)	ULCA (1)	4
English 2 nd Language	ULCA (1)	ULCA (1)	ULCA (1)	ULCA (1)	4
Urban White	SLU (1)	ULCA (1)	UAB (3), UOK (1)	ULCA (1)	7
Rural White	SLU (1)	SLU (1)	UAB (2)	SLU (1)	5
Native American	UOK (1)	UOK (1)	UOK (1)	UOK (1)	4
Total	10	9	16	11	46

Focus Group and Interview Procedures

As part of the focus group and interview introductions, the focus group moderator or the interviewer reviewed issues related to confidentiality and risk/benefit. Participants were told that their participation was voluntary and that they could 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 reviewed and discussed might be potentially distressing and that they might choose not to participate in any part of the discussion, to leave the group temporarily, or to terminate participation completely. Upon request, they would be given the name and telephone number of a mental health clinician. An informed consent document was reviewed by each participant before the group began, and in cases where the IRB protocol required it, signed by participants.

Referral information was readily available. The conducting institution contacted potential clinicians before focus groups began to secure their willingness to assist in case a participant required attention. The University of Oklahoma mental health team, a partner school, was willing to assist by telephone, in addition to a list of willing potential clinicians for referral purposes at a local level.

Focus Group Demographics

	Category	N = 99	Mean
Age	Range	18-84	
	Mean	46	
Sex	Male	30%	
	Female	70%	
Education	Less than high school	4%	
	Some high school	8%	
	High school diploma or GED	16%	
	Some college	32%	
	College degree	27%	
	Graduate degree	13%	
Ethnicity/race	African American/Black	30%	
	American Indian/Alaska Native	7%	
	Asian / Pacific Islander	20%	
	Caucasian/White	20%	
	Latino/Hispanic	22%	
Language in home	English	83%	
	Spanish	4%	
	Other	12%	
Marital status	Single	33%	
	Married or living with partner	35%	
	Divorced or separated	17%	
	Widowed	14%	
Children	Yes	66 %	
	No	34%	
	Age Range	1-62	
	Mean Age	28	
Currently employed	Yes	65%	
	No	34%	
Family income	Less than \$10,000	25%	
	\$10,000 - \$19,999	19%	
	\$20,000-\$29,999	19%	
	\$30,000-\$39,999	15%	
	\$40,000-\$49,999	9%	
	\$50,000-\$59,999	1%	
	\$60,000-\$69,999	5%	
	\$70,000-\$79,999	2%	
	\$80,000-\$89,999	1%	
	\$90,000-\$99,999	0%	
	>\$100,000	4%	

Purpose

As originally stated, Year 3 activity is to conduct a verification analysis of the focus group findings across all agents and populations by comparing them to the findings extant in the literature that are substantively related to the issues addressed in this project's research. This will result in verification of the focus group results where warranted and in the potential identification of contradictions between the focus group findings and literature-based findings. In the case of contradictions, explanations for the contradiction will be explored by literature review and discussions using the expertise in our research teams. These discussions will be aimed at illuminating the contradiction by use of intellectual tools such as positing extreme cases, deviant cases, contrasting cases, and consideration of methodological effects related to identifying a presumed contradiction. The result would be that a presumed contradiction between the focus group findings and the literature may be understood as an apparent contradiction, not a factual one. On the contrary, a presumed contradiction may come to be seen as a valid disconfirmation of some focus group findings. There is also some "middle ground" in the verification analysis process. Comparison of focus group findings and literature-based findings can produce further insights in cases where direct comparison is impossible and where clear outcomes to the comparison are lacking. Overall, the result will be greater confidence in the focus group findings due to this verification process. Additionally, this cross-validation process will serve to identify gaps in the existing literature on risk communication as well as identify contributions made to the existing body of knowledge by the research conducted in years one and two of this project.

The verification analysis will be done using a specific division of labor but with a standardized process. Each school will be primarily responsible for verification analyses related to the threat topic in which they have become experts. The process for conducting the verification analysis will be developed through use of existing literature on the topic and discussion among all the team players at the various schools.

Pursuant to Oklahoma's findings reported earlier (Final Report: ASPH/CDC Project# A1110/21/23 Southwest Center for Pre-Event Message Development), the purpose of this verification analysis is threefold: 1) identify sources that complement our findings, 2) highlight those that contradict our findings, and 3) note gaps in the current literature. From our previous years' research, the following key areas of concern are the dominant themes: 1) emotional response, 2) information needs/information seeking, and 3) temporal conditions (pre, intra, post-event). Furthermore, we are interested in how these themes are affected by ethnicity, rurality, and language and dissemination. The sections below will be divided into 1) verification, 2) contradiction, and 3) gaps.

Emotional Response

Verification: Across all focus groups fear, panic, and anxiety were nearly universally mentioned as initial reactions to news of an event (it could be noteworthy to consider each of the above items discrete reactions, each with their own behavioral outcomes). In our research we found an information vacuum associated with extreme

anxiety and fear (Becker, 2004; Glik, Harrison, Davoudi, & Riopelle, 2004; Henderson, Henderson, Raskob, & Boatright, 2004; Wray & Jupka, 2004).

This lack of information fueled the willingness of participants to engage in the gross profiling of others as likely sources of terror. Furthermore, when first confronted with the initial terrorist scenarios many participants stated their willingness to kill others for self-protection. The terrorist scenarios also evoked extreme anger. Walker and Chestnut found that Whites were more likely to show anger (11.38%) than non-whites (2.97%) after a terrorist scenario, indicating that emotional responses may vary based on ethnicity (Walker & Chestnut, 2003). Davis et al noted that those with lower Socio Economic Status (SES) are more likely to use prayer and faith as a coping mechanism when dealing with a terrorist scenario (Davis, LaTourrette, Mosher, Davis, & Howell, 2003). Torabi and Seo noted that women and African Americans were more likely than Whites to turn to religion after a terrorist incident (Torabi & Seo, 2004). Also, lower SES and ethnic minority status both result in higher levels of distress in post-disaster outcomes (Norris et al., 2002; Torabi et al., 2004); (Miller & Heldring, 2004). It has also been noted that ethnicity in and of itself can be a factor (Marshall & Suh, 2003).

Additionally, references to death elicited references to ritual behavior—particularly prayer. Walker and Chestnut (2003) found that non-Whites are more likely to provide religious explanations for terrorist events than whites were. Also, non-Whites are more likely to blame the government for terrorist events—usually identifying acts of omission by the Federal government in acting to protect its citizens.

Among ethnic minority participants, fear and anxiety were further compounded by the high levels of distrust displayed towards the Federal government. Minority participants evinced a distrust of government regarding receipt of full information based on past experiences that seem to convey a pattern of purposeful withholding of information or the dissemination of incomplete information. African Americans tend to distrust both medical and public health institutions (Working Group on "Governance Dilemmas" in Bioterrorism Response, 2004; Probst, Moore, Glover, & Samuels, 2004) with less than two-thirds believing the public health system will respond fairly in the event of a bioterrorist attack (Eisenman et al., 2004). Furthermore, many immigrants do not trust the medical/public health community due to both cultural issues and fears of deportation (Working Group on "Governance Dilemmas" in Bioterrorism Response, 2004). Large majorities of immigrants (92%) felt that the terrorist attacks on September 11, 2001 had affected them personally. Those with previous war experiences in their homeland (Vietnamese, Cambodians, Laotians, and Hispanics from war torn nations) were more likely to have pre-existing diagnoses of PTSD and would be especially vulnerable to further terrorist attacks (Miller et al., 2004). Interestingly, in our study American Indian and Hispanic participants tended to have more fatalistic responses than other ethnicities.

Oklahoma also found that, among Hispanic focus group participants, individuals were not strictly mono- or bi-lingual. Most individuals operated along a continuum of understanding that, depending on subject matter and method of delivery, had varying degrees of comprehension. “Those for whom English is a second language or is barely

usable live in fear that they will miss vital communication. Language isolation does not operate on a 'speak/don't speak' English toggle, but rather on a continuum of fluency that is connected to dialects and nuance" (Henderson et al., 2004).

Hispanic focus group participants also identified the individuals they would trust in receiving information and warnings: the President, parish priests and the oldest male child in the family. These individuals, all males, were seen as sources of trusted information. This seems to indicate, among the Hispanic focus groups conducted by Oklahoma, a preference for news and information to be disseminated by a male. Interestingly enough, the television media clips presented to all focus groups had a female portraying the federal government spokesperson giving medical advice and this was not.

Further examples of distrust can be found among participants who lived in rural areas. Across the board, rural participants felt they would receive less than full support from the federal government. Several mentioned the belief that the relative few would be sacrificed to save the many. Because of this shared belief in either full or partial abandonment by the federal government, rural participants tended to have more self-reliance than urban participants. Due to their comparative isolation, and thus perceived decreased likelihood of being targeted for a chemical terrorist attack, rural participants felt lower amounts of stress and worried less about significant life changes. Torabi and Seo (2003) also encountered this reaction when studying national life changes after the 9/11 attacks. Evidence indicates that proximity to a terrorist attack is closely related to the amount of continuing trauma individuals will have in their life. After the 9/11 attacks multiple cases were documented of those afraid to leave their apartments for fear that they would be re-victimized (Marshall et al., 2003).

Rural participants also displayed a higher level of trust among local information/knowledge sources. Personal contacts at fire departments, police stations, emergency rooms, etc. were all felt to be both more trustworthy than federal officials and more likely to have detailed information. Note—many participants, but especially those from rural groups, were concerned about the protection of pets and livestock. Furthermore, rural participants were especially interested in the notion of animals being sentinels of chemical exposure—similar to being a canary in a coal mine.

And finally, the lasting emotional consequences of terrorist attacks range from light to severe. In the 1995 Tokyo subway sarin attacks, many of those involved in the incident suffered physical and or mental effects years later (Iwanami et al., 2002; Okumura et al., 1996; Tochigi et al., 2005; Okumura et al., 2005). While direct cultural comparisons are difficult there is research that suggests that some fundamental perceptions are common. For instance, after a chemical terrorist attack, survivors have several shattered illusions, among them are the beliefs that "the world is safe, the world is predictable, and that bad things do not happen to good people. Operating without these fundamental cognitive assumptions, people are more likely to feel constantly threatened as well as alienated and psychologically distressed" (Beaton & Murphy, 2002). Furthermore, some impacts of terrorism are still extant after nearly decade (Norris et al., 2002; Marshall et al., 2003;

Pfefferbaum et al., 2003) and may never fully fade away. Hyams et al noted “after a community’s sense of well-being has been shattered, there is a tendency for information and reassurance to be met with disbelief and anger” (Hyams, Murphy, & Wessely, 2002).

Contradictions: The Hispanic focus group data did not show a variance of valuing of American culture as a function of length of stay in the United States. However, regarding response to bioterrorism, Eisenman, et al. (2004) found, “As with the Asian/Pacific Islanders, Spanish language was correlated with acculturation in this study, but acculturation appears to be inversely related to perceived fairness. In fact, one study reported that Latinos of Mexican descent became more cynical about American government as they integrated into American society and as they became more aware of racism and discrimination.”

Gaps: Oklahoma’s findings are unique in the fact that, for the first time, responses of American Indians are considered. Like other minorities, American Indians tend to display distrust of the Federal government. However, AI’s have an alternate source of information not available to other minorities—tribal governments. Many American Indian participants felt that in the event of an emergency the tribal administration would be sources of both assistance and information. Nearly all AI participants had a high to very high level of trust in tribal governments.

Non-English speakers had pronounced anxiety that the materials and information would not be available in their native tongues. Additionally, Spanish speakers noted that both the content and the wording of the message were important and could affect the emotional state. Many Spanish speakers expressed a desire for the information to be available over Spanish-language media but at the same time would felt that it would be over-sensationalized Spanish-language media—especially television and radio. Many Spanish speakers therefore would pursue a dual-track approach wherein they listened to both English- and Spanish-language media. In this instance, participants stated they would listen to the English version first, and then compare it to the Spanish version. The idea of high emotionality from Latin media source was present in most Hispanic focus groups. Oklahoma’s findings in this area appear to be unique. To our knowledge, other researchers have not highlighted this information preference in regards to terrorism communications.

Information Needs/Information Seeking

Prior to the focus group terrorist scenarios, we had several questions that we wanted to answer:

- In the event of an attack, what would the public want to know?
- Where will the public turn to get this information?
- Will the public trust the information they get?
- Who does the public trust to deliver messages?
- What will the public do after an attack? Will they follow govt. guidelines?
- Did the prepared materials meet their informational needs?

- How do the different media compare to each other in terms of: utility, understanding, etc.?
- What dissemination methods would the public prefer? What are some unique/creative dissemination methods?

Regarding what the public would want to know in case of a terrorist attack, the results were consistent across all focus group. The public wants information that details where/when/why the attack took place and what/how steps need to be taken to keep themselves and their loved ones safe. Considering the bioterror knowledge vacuum that exists in the general public, participants had strong needs to know where to get information and a strong need for self-protection. Participants indicated they would seek information about the status of the attack including the following:

- location
- range of spread
- attack still underway
- wind direction
- attackers current movements

People will want to know about protective actions they can take, including

- shelter
- communication with families
- consolidating families
- constant information from media

Furthermore, people will seek medical facts, including

- How to recognize the signs/symptoms of exposure
- Treatment efficacy details
- Dose/duration of exposure relative to treatment success

Verification: One of the initial problems that participants identified is that symptoms of VX exposure, as described on the various media presentations they were shown, were not clearly identifiable—a response that others have previously identified (Hyams et al., 2002). Across all focus groups, participants indicated that the messages, as currently configured, do not adequately convey necessary survival information. The inability to differentiate moderate to mild VX exposure from other symptoms could be a major impediment in the public seeking proper medical care. Additionally, many people do not trust the media's estimation of a terrorist threat (Blendon, Benson, DesRoches, & Herrmann, 2001; Blendon, Benson, DesRoches, & Weldon, 2003). And when symptoms are either mild or seemingly ambiguous individuals are often reluctant to get immediate treatment for many of the reason discussed above.

Furthermore, minorities often face challenges when turning to the medical and public health professions. One report found that 22% of Hispanics and 16% of African Americans (compared to 8% of Whites) had “major” problems in dealing with specialized healthcare (Betancourt, Green, Carillo, & Ananeh-Firempong II, 2003). These problems stem from multiple factors: location, SES, language, etc. But they all

indicate that minorities face barriers to the public health and medical systems that need to be addressed specifically for the needs of a chemical terrorist event. And due to VX's high lethality, these barriers could effectively be a death-sentence to many at-risk individuals.

The ethnic groups interviewed by Oklahoma presented several different responses in regards to information seeking behaviors and information needs. Among American Indian groups, participants desired more personalistic forms of communication. Several individuals noted that they would prefer to get their information from a personal contact in an emergency services area, such as a personal contact at a hospital, emergency room, police department, fire department, or a member of the tribal police force.

Communications received from the federal and state governments are not trusted. However, a dual-track of governmental information is available to many American Indians—regular federal/state government pronouncements and those of tribal governments. Among American Indians, high levels of trust are placed in the various tribal governments and tribal employees. In the event of a disaster, many would expect, and in the past have seen, the chief and members of the tribal council on-scene either directing aid efforts or volunteering. However, this preference for personalized forms of communication—directly from tribal employees, personal contacts at police/fire departments, etc.—does contain some overlap with both ethnicity and rural geographic locale. In regards to other research, American Indians have not been the focus of terrorism research in the years since 9/11 and there exists a veritable vacuum of knowledge relating to their attitudes and beliefs about the situations.

In regards to Hispanic focus group participants, clear information needs and preferences were also identified. Foremost was the desire for clear, accurate, non-emotional information to be delivered in Spanish. The prepared television and radio broadcasts presented to them during the focus groups were in English and had not been translated into Spanish. Participants clearly indicated that the materials should be available in Spanish. Furthermore, the information sheets handed to participants were only in English, amplifying their key concern that Spanish-language materials would not be available. This lack of external control is itself a risk factor for negative psychological impacts (Norris et al., 2002; Miller et al., 2004). Regarding more personalistic forms of communication, participants stated that many of them would seek more information from their children, specifically the male children. "Call the son" was a common response focus group participants gave when indicating their preferred methods of getting information.

Aside from mass media, other forms of risk communication and information seeking behaviors often take place (Noy, 2004; Fitzgerald, Sztajnkrzyer, & Crocco, 2003; Peters, Covello, Wojtecki, & Hyde, 2001; Salmon, Park, & Wrigley, 2003). In rural areas personalistic communication is preferred. Separating ethnicity factors from geographic factors is not always possible. Among American Indians there are two distinctive settlement patterns: small towns with a population cluster and remote widely dispersed living patterns. Small towns usually have cable television but they often have small grocery stores and hospitals or clinics. In widely dispersed areas there often is no cable,

no grocery stores, and no hospitals or clinics. This leads to a higher degree of self-reliance and many individuals keep stocks on hand of items such as batteries, canned foods, etc. Furthermore, in widely dispersed areas satellite television may be the only kind of programming that can be received. These areas do not have cable and often are beyond the reach of local stations broadcast over the airwaves. As satellite television often does not have local programming, rural communication preferences are for more personalistic messages. Information is often passed from neighbor to neighbor or via the telephone. Other settings for information dissemination can be the workplace, tribal clinics (for American Indians), and local convenience stores. While mass media formats may be preferred, the simple lack of availability, other than radio, demands that other forms of communication be substituted. Several participants identified that they use, or have access to, police scanners and ham radios and that this eavesdropping was often a valuable source of information.

Several studies have identified the effect that media exposure has on psychological states (Henderson et al., 2004; Pfefferbaum et al., 2003; Stein et al., 2004). There is a correlation between severity of negative psychological events and media exposure. Logic dictates that those in rural areas, being unable to access the sheer volume of media messages, would likely be less impacted than their urban counterparts. Palmer noted “information from trusted sources is vital to counter fear and aid personal and societal recovery” (Palmer, 2004) so it is entirely possible that rural inhabitants, who derive a substantial amount of their information from personal sources, may be at an advantage in recovering from the psychological impacts of terrorism. On the other hand, rural inhabitants may be at a disadvantage. Others have noted that by providing the public with definitive information about the nature of the threat, and discernible action steps they can take to ensure their own safety, will decrease levels of fear and anxiety in the event of a terrorist attack (Davis et al., 2003; Hall, Norwood, Fullerton, & Ursano, 2002; Covello, Peters, & Wojtecki, 2001). This area has not been fully explored and is ripe for further research.

Contradictions: The literature review did not reveal any contradictions to the findings of the Oklahoma research.

Temporal Issues

Verification: Oklahoma’s research indicated that focus group participants’ emotional responses and information needs/information seeking changed over time. This identification of different needs pre-, intra-, and post-event is indicative of the fluid situation such an event would cause. Oklahoma did not engage in significant long-term follow-up of the participants to see how, indeed if, their views and needs had changed.

Pre-event, Oklahoma’s findings do not show any specific deviations. Participants in all groups expressed a desire to have the printed information before an event. Furthermore, it was felt that having the information before an attack would decrease panic and anxiety and increase the chances of individual survival. And in the case of VX, where death can literally be seconds away, understanding protective measures in advance may well be the

only way an exposed individual could survive. It is worth noting that the armed forces drill all new recruits in the means and methods of preparing for a chemical attack before they are sent into combat. It is rightly assumed that the stress of an actual chemical attack would be an inopportune time to impart survival information. It is our belief that civilians should also be informed prior to an event.

Other research has indicated that ethnicity plays a role in the subsequent response to terrorist attacks. As described earlier, non-White ethnicity is, in and of itself, a predictor for substantial stress. Stein noted that immediately after 9/11, non-Whites were about 50% more likely to have substantial stress immediately thereafter and (65% to 44%) twice as likely two months after (28% to 14%) (Stein et al., 2004).

Media exposure after the event can play a significant role in the level of extreme stress experienced after the event has taken place (Marshall et al., 2003; Pfefferbaum et al., 2003). In the Pre-Event project, all focus groups received identical media exposure. This common level of exposure would probably not be found in the real world due to differential levels of access to multiple media formats. As a result of the project's design, we can not actually replicate the effects of a terrorist attack, nor the subsequent psychological sequelae that would follow.

Geography is often an important factor in how respondents view the federal government. After 9/11, every region in the United States except for the most rural region (Rocky Mountain area) saw an increase in support for the Federal government (Cole, Kincaid, & Parkin, 2002)

Immediately after an attack, informing the public of the situation and giving them information that allows them to make their own threat assessment has been shown to be the most viable strategy (Sorensen, Shumpert, & Vogt, 2004; DiGiovanni, Reynolds, Harwell, Stonecipher, & Burkle, 2003; Davis et al., 2003; Hall et al., 2002; Covello et al., 2001). Without this information, the likelihood of maladaptive behaviors increases.

Contradictions: The literature review did not reveal any contradictions relative to the findings of the Oklahoma research.

Gaps: The literature review did not reveal any gaps relative to the findings of the Oklahoma research.

Summary

Overall, much of the research reported here is unique. The project was itself a first-time effort using the multidisciplinary intellectual foundations of the team and the resultant research design that detects meaning-based cognitive categories in response to a simulated VX attack. Moreover, a focus on American Indians populations had not been previously done.

Verification of these data were found in several instances as noted herein. These include edistrust of authorities, such as the Federal government by non0-majority populations, communication isolation by language proficiency variance, and, separately, rurality. Also, heightened perception of vulnerability among non=-majority poulations may fuel excessive, non-adaptative responses.

Contradictions of these data were nearly absent. However, the one notable contradictory finding was related to complex acculturation processes in which Hispanics of Mexican descent become increasingly cynical about American government over time. The data here did not show that phenomenon.

Gaps in verification of these data underscore the unique contributions of this overall project. As such, there is great potential for the approach of this project to be amplified and the new findings to be applied to bioterrorism response strategies.

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