UNIVERSITY OF OKLAHOMA
SOUTHWEST CENTER FOR PRE-EVENT MESSAGE DEVELOPMENT

Final Report
Agent: Chemical (VX)

INTRODUCTION

Recognizing that the very real threat of terrorist action requires the design, development, and dissemination of technically accurate and timely information to the public health workforce, many community agencies and organizations, as well as the general population regarding how persons may best protect themselves, their families, and their communities, the Centers for Disease Control and Prevention, in concert with the Association of Schools of Public Health Bioterrorism Council responded through supporting the "Pre-Event Message Development Project". The project provides funding to four primary schools of public health (University of Alabama-Birmingham, St Louis University, University of California at Los Angeles, and the University of Oklahoma) along with partnering schools to develop and evaluate through audience testing, pre-event message content appropriate to a variety of formats. The areas of primary focus included chemical, biological, radiological and nuclear event content area with the content and message structure format varied to meet the tailored needs of a variety of audiences, including but not limited to, the public health workforce, the general population, first responders, state and local authorities, as well as population segments of low literacy, that are non-English speaking, and/or minorities. Each of the four programs serving in primary roles bring special strengths and expertise to the process, and by using formative research with exploratory focus groups followed by evaluative audience testing, critical information related to what audiences want to know has been developed in parallel with the information that the research team, CDCP and the ASPH Bioterrorism Council recognizes needs to be known.

CONSENSUS PROCESS

Since its inception the PEMD project has been carried out as a collaborative endeavor, with input and effort from the four collaborators, as well as from colleagues at the CDC. This consensus-based approach has taken the shape of mutually agreed upon goals, methods and measures, as well as shared effort. From the first meetings, collaborators agreed to the benefits of a common approach. One benefit was that common tasks could be divided up among the partners (such as writing the introductory section of this Year 1 report). Most significantly, opportunities for building scale into a project using standardized focus group methodology could produce greater confidence in the validity and generalizeability of the findings: results from fifty focus groups are more compelling than results from ten.

The accomplishment of specific benchmarks in the workplan, such as the development of the focus group discussion guide, take place more or less as follows. The conceptual

framework for the focus groups was laid out in broad strokes at the first two meetings of collaborators. SLU took the lead on drafting the conceptual framework, and preparing the first draft set of questions based on the framework. The partners reviewed the draft, and shared their comments in a conference call. SLU revised the guide and again submitted the draft for review. Final revisions were made after a final round of reviews, and collaborators approved the result in a conference call. At that point, we could all move forward with preparation of protocols for ethical review, and commence the research itself.

Such an approach can be time-consuming, especially when participants are located in five or more locations spread across four time zones. The *modus operandi*, consequently, has called for weekly conference calls, and periodic (quarterly) in-person meetings. The meetings are necessary to reach agreement on decisions of consequence, such as preparation of workplans; the calls keep work moving forward. Typically one school will take the lead on a particular task, but the final version is the one agreed to by all. The pace of the consensus building process has become faster with time, as basic elements have fallen into place. For example, much of the project relies on the conceptual framework. Once the difficult work of achieving consensus on the framework was accomplished, later elements were easier to complete. All key deliverables in the project have been benefited from this approach, including the coding guide for the analysis; the preliminary presentations of results in Sept., 2003; and the application for renewal of the project.

METHODOLOGY

Design

The two specific aims of the project activities were 1) to obtain insight into the general public's current knowledge, attitudes, and potential responses to terrorist threats and 2) to pre-test agent-specific informational materials developed by the CDC. To achieve these two aims, qualitative research methods were employed and focus group interviews were conducted with two primary audiences, public health professionals (frontline public health workers, fire fighters, emergency medical technicians [EMTs] and police) and the general public. Focus group interviews have become an important means of collecting data to address message and campaign creation, as they can be done relatively quickly yet still capture opinions and sentiments of selected groups or segments within a population.

Data Collection

The data collection tool was comprised of a set of open-ended questions (focus group guide) designed to elicit information pertinent to designated domains of interest relevant to pre-event messaging. Focus group guides were also customized to include agent specific scenarios and informational materials. The development of the guides was a collaborative effort between the UCLA, University of Alabama, University of Oklahoma, and St. Louis University.

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

1. Introduction & ice breaker
2. Current knowledge and attitudes about the national color alert system and different types of terrorist threats
3. Three part scenario rollout based on specific type of agent - radiological, chemical (VX), or biological (plague or botulism)
4. Confidence in the government's ability to respond to a terrorist event of the type described
5. Part four of the scenario in which participants are asked to review agent-specific educational materials / information

The focus group guide for the public health professionals was similar in structure, but did not include the section on the national color alert system, knowledge about different types of terrorist threats, or confidence in the government's ability to respond to a terrorist threat or event.

Fifty-five focus groups were conducted by the partner universities, in the public and professional sectors. The focus groups were conducted in places convenient for the participants and designated by the subject recruiters. Focus groups were audio taped and responses to questions were transcribed. In addition to public and professional groups within the U.S. mainstream population, the partner universities conducted groups within minority groups to include the American Indian, Hispanic, African American, and Asian populations, as well as groups conducted with person to which English is a second language. Some Hispanic groups were conducted in Spanish.

Measures

Table 1 below lists the constructs of interest for the two different audiences with which the focus groups were conducted.

Table 1: Constructs studied in each population	
Public health professionals and first responders	**General public audience segments**
Formative research questions: • Professional and public information needs • Professional and public information seeking behavior • Preferred channels for terrorism information dissemination Materials pre-testing questions: • Comprehension • Emotional response • Believability • Intention to use materials • Recommendations for improvement	Formative research questions: • Pre-event knowledge, attitudes and response • General knowledge about basic health science as it relates to different threats • Confidence in the government and public health response to a potential attack • Terrorism information needs • Terrorism information seeking behavior Materials pre-testing questions: • Comprehension • Emotional response • Believability • Self-efficacy and response-efficacy intention to follow advice • Recommendations for improvement

HUMAN SUBJECTS PROTOCOL

Protocol development and IRB submission

Over the course of several months, representatives from each member institution provided input on the content and wording of a joint human subjects protocol to be submitted to each institutions' review board. Drafts were circulated between the institutions and changes were noted until a final document was agreed upon. In addition to the protocol, each institution prepared consent forms and packets under the guidelines of their review board for submission. After submission, each institution provided an approval letter to the funding agency.

Study Groups

The cooperative agreement under which the work was carried out was awarded by the Association of Schools of Public Health and the Centers for Disease Control and Prevention. Four institutions served as project partners: Saint Louis University; the University of Oklahoma at Oklahoma City; the University of California at Los Angeles; and the University of Alabama at Birmingham. Tulane University and the University of South Florida were awarded subcontracts by the University of Alabama at Birmingham and the University of North Texas was awarded a subcontract by the University of Oklahoma at Oklahoma City. As requested by the CDC, each of the four schools, along with subcontract institutions held scenario-based focus groups and pre-tested messages for different audience subgroups. Messages were tested among various elements of the US population (White, African American, Hispanic, Asian and Native American) as well as professional groups (first responders and public health professionals).

Role of subjects

The cooperative institutions accepted best practices of qualitative research to inform message development and pre-testing. Table X sets out the populations, sample sizes, and areas of study, or constructs, that will be studied.

The purpose of *formative research* in this study was threefold: (1) to gain a clearer understanding of the information needs of each target population as it relates to bioterrorism threats; (2) to identify likely applications of such information; and (3) to learn how best to present and deliver terrorism messages to each target population. To gather this information, focus group discussions with audience segment from both professional and general public populations were held. The purpose of *pre-testing* was to get feedback about draft or prototype materials from members of audiences of interest, for the purpose of enhancing the clarity and quality of materials. Focus groups were led by moderators trained to guide discussions in non-directive, and non-judgmental ways, and to elicit responses from all participants.

For the *pretesting portion* of the focus group discussions, a set of core content was developed into fact sheets. The fact sheets were read and given to participants to respond to and to use for reference in answering the interview questions, as they assess their quality. Specifically, participants in the focus groups were asked to assess these materials in the areas of: (1) Clarity of the material and information conveyed; (2) Comprehensibility of the information; (3) Adequacy of the level of detail; and (4) Recommendations for improvement.

The following matrix represents the breakdown of groups conducted

Exploratory Focus Groups (Number of Groups)

	By Agent Type				By University	
	Bio-Plague	Bio-Bot	Radiological	Chemical	SLU*	UAB/Tulane/USF
Urban African Americans	SLU (1) Tulane (1)	SLU (1)	SLU (1) UAB (1)	SLU (1) Tulane (1)	**4**	**3**
Rural African Americans	SLU (1)	UAB (1)	UAB (1)	SLU (1)	**2**	**2**
Urban Hispanic	UCLA (1) USF(1)	UCLA (1)	UOK (1) USF (1)	UOK (1) USF (1)	0	**3**
Rural Hispanic	UOK (1)	UOK (1)	UOK (1)	UCLA (1)	0	0
Asian Urban	UCLA (1)	UCLA (1)	UCLA (1)	UCLA (1)	0	0
English as a Second Language	UCLA (1)	UCLA (1)	UCLA (1)	UCLA (1)	0	0
Urban White	SLU (1) UCLA (1)	SLU (1)	UOK (1) UCLA (1)	SLU (1) UCLA (1)	3	0
Rural White	SLU (1)	SLU (1)	UOK (1)	SLU (1)	**3**	0
Native American	UOK (1)	UOK (1)	UOK (1)	UOK (1)	0	0
First Responders	SLU (1)	OAK (1)	UAB (1) UOK (1)	SLU (1)	**2**	**1**
Frontline Public Health	UAB (1)	UAB (1)	UAB (1) UOK (1)	Tulane (1)	0	**4**
Total	**14**	**11**	**16**	**14**	**14**	**13**

*Plague First Priority

Inclusion and exclusion criteria

For some project partners, focus group participants were limited only to adults from the specific audience segment. Other partners used more stringent criteria. As a collaborative effort, the combined study sample of all participating institutions is intended to draw on the principal population subgroups in the United States, as well as public health and emergency professionals. In drawing the convenience sample for the general public audience segments, every effort was made to balance representation of both sexes. Only adult populations were examined , so only individuals who have attained the legal age for consent under the applicable law in the state in which the focus groups will be conducted should be considered for participation in focus groups (45 CFR 46.402). For all institutions involved, the age of twenty-one years was decided. Consequently, children were excluded from the study. An informed consent document was reviewed by each participant before the group began, and in some cases where IRB protocol required it, signed by participants.

In an attempt to minimize risk to study participants, individuals with a history of trauma were excluded from the study. Exclusion criteria included , but was not limited to, combat experience, violent crime, terrorist incident, motor vehicle accident, disaster (natural or manmade), domestic violence, or sexual abuse. Individuals with a history of a psychiatric illness including, but not limited to, anxiety disorder, depressive illness, bipolar disorder, posttraumatic stress disorder, psychosis, alcoholism, or substance abuse should also be excluded from focus group participation. Additionally, individuals who have had relatives or friends killed or injured in a terrorist incident were excluded. A subject self-report checklist to assess the presence or absence of the above features was devised.

Subject recruitment

Participants in focus group activities were drawn from a convenience sample of members from each target population. Each university established community and professional contacts, or used existing databases to derive a sample. Although groups were already delineated by race for general public and specific jobs for the professional groups, there was an attempt to consider age, SES, and gender while recruiting.

Focus groups were also stratified using an urban vs. rural distinction. Rural counties having less than 12,000 adults over the age of 16 were considered. Gender representation will be approximately half male / half female. Different literacy levels were included as well. This difference was important to consider in the development of pre-event messages so that messages are appropriate for all literacy levels.

Individual participants from all research segments were paid for a formative research session in which they were involved. Exceptions were those whose professions would not allow for the acceptance of compensation. Total focus group time was approximately 11/2 -2 hours in length.

Focus group procedure

As part of the focus group introductions, the focus group moderator reviewed issues related to confidentiality and risk/benefit. Participants were told that their participation is voluntary and that they may choose not to complete the study or any part of it without penalty or loss of benefits to which they are otherwise entitled. They were told that the materials they review and discuss may be potentially distressing and that they may 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 signed by each participant before the group began.

Referral information was readily available. The conducting institution contacted potential clinicians before focus groups begin to secure their willingness to assist in case a participant requires 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.

ANALYSIS

Data Coding and Analysis

Focus group transcripts for both public and professional groups were entered into the various qualitative data analysis programs (university choice) for coding using the designated coding protocol. 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 (Strauss & Corbin, 1994). Themes elicited for each focus group are presented in the Topline Summary Reports. The Summary Reports were presented to the partner universities for utilization in the crafting of Final Topic Specific Creative Briefs for designated content areas, and Final Focus Group Reports.

The coding analysis process was generated from 1) literature on the theory of the Cultural Construction of Realities, 2) literature of 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 simultaneously 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" will be referred to as "domains."

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).

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 manuscripts several days later. The processes of check-coding increase definitional clarity and validate reliability, and are also an assessment of internal consistency in individual coders (Miles and Huberman, 1994).

Inter-coder reliability (inter-rater reliability) was computed in the following manner:

$$\text{Reliability} = \frac{\text{\# of agreements between coders}}{\text{Total \# of agreements and disagreements}}$$

Inter-coder reliability was assessed by the partner universities for each of the focus groups conducted. Inter-coder reliability was considered to be acceptable when it equaled or exceeded 70%. Code-recode reliability was computed utilizing the same formula. However, for code-recode reliability results equal to or exceeding 80% must be obtained. The coding of focus groups by the partner universities achieved acceptable levels of inter-rater and/or code-recode reliability. 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.

RESULTS

Demographics (per agent)

Male Female	41 49
Less than high school	13%
Some high school	10%
High school diploma or GED	20%
Some college	36%
College degree	13%
Graduate degree	7%
Less than $10,000	20%
$10,000-$19,999	25%
$20,000-$29,999	20%
$30,000-$39,999	9%
$40,000-$49,999	6%
$50,000-$59,999	5%
$60,000-$69,999	3%
$70,000-$79,999	2%
$80,000-$89,999	3%
$90,000-$99,999	0
$100,000 or more	5%

Focus Group Findings: Public Sector

Pre-event Knowledge

General Issues:

Accurate knowledge about best response to BT events is nearly absent. Moreover, this knowledge vacuum is coupled with a fatalistic response characterized by inaction and acceptance of presumed death. This is based on beliefs that BT events are so completely devastating that nothing can be done to save lives. There was also voiced a perception that BT attacks are both sufficiently heinous and unprecedented in this country to cause the issue to be seen as surreal, bizarre, and difficult to accept as a reality. Lastly, the absence of information appears connected to high levels of anxiety and fear, which is manifest as particularly noxious personal behavior including gross profiling of

people as likely sources of terror and anticipation of and willingness to kill others for self-protection.

Color Alert System:

The "Color Alert System" (CAS) was generally known to participants, yet it was pervasively seen as only vaguely usable since there were no known specific precautionary steps to take in accordance with each color. There was some concern that the effectiveness of the CAS was comprised due to its perceived vagaries and resultant impotence. There were also some colors that were imagined, such as purple being the highest color and the notion that the CAS should all be brown in color since darker skinned people are the ones being targeted as sources of terrorist activities.

Pre-event Knowledge:

Participants desired knowledge about where to get information prior to an attack and specifics about preparations needed to effectively shelter in place. There were mentions of television, newspapers, the internet, the Centers for Disease Control, the Red Cross, and authorities such as police and fire personnel. Presumed actions to take in preparation for sheltering-in-place included stockpiling water, food, flashlights, battery powered radios/TV's, blankets, and gas masks. There were also statements related to acquiring weapons, retreating from dense population areas, and engaging in armed self-defense.

Pre-event Education:

The lack of and desire for education within the community about pre-event preparation, prevention of exposure, and treatment of exposure was apparent. Pre-event education was conceptualized as deliverable by various means including, television/radio, newspaper, internet, and, of particular importance to those not proficient in English language reading, video education with full use of visual and vocal instructions. For those not proficient in English language comprehension, instructions in ethnic-specific languages was desired.

In addition to broadcast media, education using print-materials within communities was considered an appropriate way to communicate with large numbers of people. Locations for such materials included grocery store check-out areas, laundries, schools, and, via mail, free postcards with information.

Special Population Issues:

The focus group data provide some tantalizing insight to the variances of perception and life experience that are unique to the special populations sampled. This population-specific heterogeneity of life experience produce some populations that can be characterized as particularly vulnerable in a BT event due

to many factors including ethnic minority status, American Indian status , rural dwelling locations, and non-English speaker language barriers. There is some indication that ethnic minority groups perceive the government as less forthright in dispensing full and accurate information and, consequently, are not to be trusted. American Indian participants similarly felt less confident that the United States government would be a full and accurate source of information and more confident that their own tribal authorities would be their trusted information sources. Illiterate and non-English speaking participants were anxious that they would be distanced from the Federal government's information simply due to language barriers.

Response to Hypothetical Attack

Emotional Response:

Reactions to a hypothetical event included themes of anxiety, fear, and panic. These themes were cross-group validated as primary and pervasive reactions to first hearing about a BT event. This means that each group, albeit conducted independently of the others, elicited these emotional responses. This suggests an extremely strong finding. Also, these emotions were increased by the lack of knowledge. The consciousness of being confronted with "an unknown" exacerbated the emotional response since the nature of a BT threat was universally considered horrifying, although without specification. References to immediate death were common. Death elicited commentary regarding performing various religious rituals such as prayer, seeking church as a refuge, and emotionally steeling oneself for confronting mortality and one's ultimate destiny.

Other emotions included shock and anger. Shock was represented as disbelief that such an event could possibly be a reality. Anger was aimed at the perpetrators of havoc. However, there was no specification of mechanisms of retribution.

Distrust of government regarding information dissemination and withholding of information were other themes apparent across groups. The theme of futility of preparing for such perceivably catastrophic events was apparent in some groups.

Sense of security increased with additional knowledge and ability to communicate with family members and, ideally, to be together with family. However, there was intense concern that family togetherness would not be possible.

Special Population Issue: Trust in the federal government for protection was lacking in the rural groups due to a fear that they would not be regarded as sufficiently important to warrant help in the event of an attack.

What information is sought?

Much of the information sought can be categorized as into 1) status of attack, 2) protective actions, and 3) medical facts of exposure. Status of attack involved wanting to know the current location and spread of the attack, if the attackers are still active, wind direction, and the direction of the attackers' movements. Protective actions involved wanting knowledge of steps to be safe for themselves and their families including shelter, communication with family, consolidating family together, and maintenance of information updates from the media. Medical facts of exposure involved recognition of signs and symptoms of exposure as well as detailed information regarding the efficacy of treatments relative to variables such as, concentration of exposure, body location of exposure, spreading exposure by personal contact with others, and dose/duration of exposure relative to treatment success.

Where is information sought?

The broadcast media is primary among the first sources used to gather information. Television and radio are the two most frequently mentioned media types. This response also has cross-group validity. Other sources include government agencies (including CDC), local officials, churches, and the Red Cross. There were also mentions made of National Public Radio and Public Broadcasting System. Other mentions included the Emergency Broadcasting System. The use of internet is commonly mentioned but many participants reported not having computers due to high cost of equipment. Also, participants reported seeking the local television news station first because of more immediate and on-site coverage compared to the national outlets.

The matter of *who* would deliver the news elicited a desire for a dual spokesperson approach. One person would be a respected and well-known public figure with another person who would be a BT expert. Each would endorse the other's credibility by the very fact of their teaming to convey information to the public.

The preference for television news as the first source used to gather more information is coupled with a conflicting perception: television news is rampant with sensationalism as part of selling the news. It was exceedingly clear that participants considered the factual reporting of disaster news like a BT event to supercede any commercial interests of news media. However, there was great skepticism regarding the realization of this wish.

Special Population Issue: In rural areas, local television stations are located hours away. However, some have cable television and note that CNN is a primary source of important news. Moreover, radio is very important due to its availability in vehicles and for those in rural areas without cable or satellite connections. Also, police scanners and "ham" radio fills another information

system gap. Other non-broadcast means of communications includes calls or personal visits to the local hospital, fire department, EMS workers, police, and county health departments. Among non-English speakers, there was a need expressed for verbal delivery of information rather than print information. The delivery system for verbal instruction was reported to be best at venues like the workplace, churches, and community meetings called for educational purposes. However, there was mention of the language-specific newspapers as places for BT information dissemination. Compounding the language barriers is the report that Spanish speakers would turn to the English speaking news media first due to a perception that the Spanish language broadcast media is slow to receive the news, tend to exaggerate, and add too much drama to the facts.

What are Perceptions about Government and Preparedness?

There is a very significant amount of cynicism and doubt that officials would act in the best interests of the public. However, there is the admonition that government *should* react quickly, definitively, and honestly. There is also the perception that government is prepared and emergency response is effectively in place, yet this is less represented than the opposite perception.

Special Population Issues: American Indian participants reported that their tribal Chief and other tribal officials would be trustworthy and be present with them during a crisis in contradistinction to the Federal government and its officials. An African-American rural group reported the perception that the Federal government would not help their community. Contrary to the perceptions noted above, a group of people characterized as "English as a second language" considered the Federal government trustworthy to quickly and effectively respond to a BT event. However, a Spanish-language group worries that most officials ranging from police to health care workers are not bilingual.

What are Perceptions about the Role of the Media?

Media is generally considered biased due to sensationalism and inaccurate reporting, yet considered the media the first place to go for information. There is also a widespread conviction that the media and government will not disclose full and complete information. Although the rationale for information withholding was to prevent panic, there was still a wish for full and complete information.

Special Population Issues: Bilingual speakers want news information in multiple languages. There was also concern than many people will be too poor for televisions, that Spanish language newspapers are too infrequent, and migrant fieldworkers are not going to have access to immediate news.

Materials Pre-test Response

How well do preliminary materials address information needs?

Participants generally agreed that the information on the fact sheets was clearly presented. However, there was some concern that information was being withheld purposively.

Special Population Issues: Participants in Hispanic, Asian, and those to whom English was a second language worried that the materials would only be presented in English, and all groups were concerned that the materials would not be easily understood. There is concern from a Spanish-language group that messages be carefully phrased because of heightened emotionality of Latin culture compared to Anglo culture.

What are unmet information needs?

There was a concern that specific action steps were needed that directly derived from the facts presented. There was also a concern that information about access to medial care and long-term effects of exposure were not given. Concern for safe water was noted as well as what to do to decontaminate water. There were also questions about disposal methods for contaminated clothing and other times.

How do participants respond to message materials?

There was no significant upset noted and most people felt more secure after reading the materials.

How credible are the materials?

There was a general consensus that credibility was high. There was also a wish to have citations to the facts as a means of conveying credibility.

How successful are the materials in fostering self-efficacy?

The materials did not make participants feel safer, although they reported being better informed.

What are participants' recommendations for improving the materials?

Action steps should be added and recommendation to highlight the number of action steps needed for a particular objective to be reached. Also, the materials are too long and wordy. There is a need to explain some of the technical information.

What are participants' recommendations for preparedness?

Distribute bulletins stating what and what not to do for self-protection. The places for distribution included libraries, schools, grocery stores, and community centers. There should also be attention to non-English language needs.

Focus Group Findings: Professional Sector

Pre-event knowledge

The desire for copious amounts of information was strong in the responders, inclusive of self-protection. Most felt that they had had insufficient training in responding to bioterrorist events. Responsibility and knowledge was noted as variant across emergency responders. For example, it was recognized that the Hazmat unit would have the primary responsibility, and that Hazmat personnel had received more training than the general fire department personnel. It was also noted that extrapolating from local common disasters (e.g., hurricanes) is not a proper model for BT type events.

Response to Hypothetical Attack

Respondent were fearful that the public would panic and make poor decisions in the event of a chemical attack. The primary desire was for information regarding what, when and where the event occurred, although responders realized that initially they would have to do the best they could with little information. Participants stated that they would seek information from wherever possible. Information sources included the supervisors, the person reporting the emergency or from provided manuals. It was recognized that they would have to access more specialized organizations for additional information. Some firefighter participants in the sample reported feeling that they were behind technologically when compared to other departments. Some respondents felt that they would be competent to handle a bioterrorism attack (actions were elicited), however, some felt that an attack would best be handled by special units, and that these should be trained by the government and response would be a government or military responsibility. At the present time, fire departments are limited to setting up isolation zones and assisting the Hazmat team. It was stated that the fire departments did not have protective gear suitable for response to an attack in which VX was used.

There was also non-chemical agent information needed, such as issues related to chain of command and command in the presence of multiple agencies present.

Sources of information included the internet, CDC website, WebMD, Homeland Security, and the FEMA web site. On-line articles and continuing education were

noted as sources of information that would be useful in preparing for a chemical attack. There was a comment regarding use of international internet sites due to a concern that the Federal government would withhold information.

Materials Pre-test response

Participants felt the information packet to be useful, although some stated that although it was understandable, it was difficult to read. The participants felt that the materials were very complete. Additional information sought included zones of safety (hot vs. cold) and information regarding isolation and evacuation of civilians (size of the perimeter). Use of the materials in responding to an attack would be dependent upon knowing what agent was used, and following guidelines specific to that agent. They felt a need for refresher courses regarding Hazmat training received in the fire academy, and that the Hazmat units were most likely to use the materials. There was also a need for information regarding symptoms, speed of progression through symptoms, and modes of exposure. This information was viewed as critical to being able to properly triage patients.

There was the recommendation to split the information into two sets of fact sheets: one for pre-hospital care and one for hospital/emergency room care. Also, there was concern about the way that the information on the fact sheets was displayed. The format of the fact sheets was troublesome and would be improved by placing the information into a graphic format, such as a flow chart.

<u>Other recommendations:</u>

- Creating separate fact sheets for different types of providers, thus reducing the amount of information on the fact sheets.
- A logo should be placed on the fact sheets for verification that the materials are from a reputable source.
- Adding a section on how to protect one's self when responding to an attack.
- Using bold text or underlines in the fact sheets.
- Acronyms would also be helpful in improving the materials.
- Including a concise list of actions that they should not do when responding to a chemical attack.
- Listing references as an added resource for those interested in reading the source material used to create the fact sheets.
- Adding a list of contact numbers.

- Including this information in the standard field guide available to EMTs across the nation.

DISCUSSION

Comparison of Themes: Public Sector and Professional Sector

Themes elicited in public groups centered about the lack of information/education regarding bioterrorism and bioterrorist events. Anxiety, fear, and panic were increased by lack of information. There was a theme in professional groups which also identified lack of adequate information as a major need. Also elicited was the decrease of fear in relation to amount of information received and amount of preparation done before an attack occurs.

It may be useful to consider the three reactions of anxiety, fear, and panic, noted above, as discrete entities rather than one monolithic conceptual block of "upset." The usefulness of viewing them as discrete entities is that each conveys a different level of concern ranging from concerned (anxious), to scared (fear), to loss of rational control (panic). The list comprises a trajectory from less to more severe. This may be useful in the development of message materials and their evaluation.

`There was doubt in the public groups that all information would be provided to the public. In the professional groups, this was not elicited as a theme. It was felt that it remains the government's responsibility through the military or other organizations, to effectively provide needed responses to terrorist attacks.

For both public and professional groups, the need for easily understandable materials emerged as a theme, easily validated across groups.

Limitations of the Study

The participants in the study represent a non-random convenience sample of the population. However, there is much discussion in the literature about the use of non-probabilistic sampling techniques. In probability samples, each member of the population has an equal chance of being included in the study. The most common uses of a probability sample are to determine distribution in a population and to test the relationships between variables. However, a primary limitation of this type of sampling is that it cannot easily be used to obtain information about the meaning of a construct (Morse, 1986).

The assumption underlying the use of non-probability sampling is that not all subjects experience the phenomenon of interest in the same ways. In qualitative research, sample size is dependent upon the purpose of the inquiry. In-depth information from a small target population is the desired outcome rather than dilute information from a large

number of subjects. In a project such as this one, the researcher's main emphasis is on understanding and identifying explanatory models and cultural constructions which will in turn facilitate the crafting and delivery of messages important to the continued health and well-being of the public. In addition to other issues, the validity of the study after its completion depends upon the richness of the information obtained, and the observational and analytic skills of the researcher (Patton, 1990).

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 groups are particularly valuable prior to initiating a social marketing campaign for the purpose on addressing designated population groups.

In order to insure validity, the findings must be grounded in the focus group data, inferences made from the data must be logical, analytic strategies applied correctly, and alternative explanations 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 external validity is limited in that the findings cannot be generalized to the entire US population. They can, however, be generalized to the populations that were accessed 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.

CONCLUSIONS AND RECOMMENDATIONS

Public Sector

The public need for information/education encompasses three categories: 1) pre-event, 2) intra-event, and 3) post-event.

Messages should convey that although VX can cause death, protection and survival are possible, through avoidance or reduction of exposure, decontamination, and the use of antidote medication.

Messaging should be calm, factual, and authoritative without sensationalism. Information should not be withheld. Information is needed in various languages and reading level should be sufficiently low to insure understanding by most segments of the population.

Media should include TV, radio, and the Emergency Broadcast System, as well as all other modalities. Use of tornado sirens or existing warning systems as initial alert is suggested. Use of trusted media individuals such as weather broadcasters may be effective, as well as teams of recognized and trusted spokespersons. Dissemination of information may include supermarkets, postcards, schools, laundries, and libraries, and should be by every available means.

Within minority groups and non-English-speaking groups, there was an apparent need for audience-specific information/education. It was also apparent that there is a need for materials specific to geographic area (urban vs. rural).

Regarding audience- specific messaging, the recommendation is for further focus group analysis (second level analysis) specific to ethnicity and geographic location. This will be performed in the second year of the project. Additional focus groups may have to be conducted to meet external validity criteria.

Creative or non-intuitive recommendations:

- Use weather broadcasters as spokespersons. Typical news anchors were perceived as the sources of sensationalism about news. There was a sense that weather broadcasters were less subject to political whims of local media outlets and their commercial interests. Also, they used objective information that is fact and science-based. Consequently, a sense of heightened trust was attached to them due to their insulation from politics and their scientific approach to information.

- Identify a team of spokespersons: There was a strong concern about the credibility of information from the media. Independently across groups, there was an approach that was stated in which a duo of spokespersons was used. The duo would be composed of 1) a well-recognized and respected public figure, coupled with 2) an expert in the topic area. People wanted expertise, but considered the need to have confidence that the specific expert being used was "the definitive" one. The recognized and respected public figure served to convey an endorsement of the technical expert.

- Use tornado or other existing warning sirens as an initial alert system. Since most communities have existing alert systems, it was common to hear ideas about developing a unique audible siren blast code that would be specific to bioterror alerts. This code would be a signal to immediately seek more information from the media.

- Use of wild or domestic outdoor animals as sentinels of active agent presence. Some people considered their local animal populations to be potential sentinels regarding the impact and presence of a chemical agent.

- Protection of pets and livestock. Personal and commercial interests in animals were strong concerns to participants. Additionally, there was concern about exposed animals transferring contamination to humans. Regarding pets, there was a strong desire to have information providing assurance that their safety could be maintained.

Other general items included:

- Use of all communication means to alert communities about an event.
- Concern about land and cell phone "lines" being overloaded.
- Messages should be clear, include graphics when possible, and consider reading level and languages other than English.
- There is a strong need for information about where to get more information about protective actions to take in response to an event.

Professional Sector

Professional information needs, while more complex and extensive than public information needs, still serve the purpose of decreasing fear and anxiety and insuring sufficient self-efficacy. Provision of refresher courses regarding Hazmat procedures, education and training (to include drills) in regard to specific agents, and the provision of adequate manuals for reference and use in the field are recommended. Clear delineation of response team actions and responsibilities is necessary, as well as information regarding the command and responsibility chain, in responding to an attack.

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APPENDICES

1. Creative Brief/Agent Specific
    i. Audience specific finding to be explored in detail in 2nd level analysis
2. Chemical pre-testing materials
3. Focus Group Moderator Guides
4. Individual Focus Group Reports
5. Overall Project Demographics
6. Coding Guide