

COMMUNITY HEALTH STATISTICS
OFFICE OF SURVEILLANCE AND PUBLIC HEALTH
PREPAREDNESS

Understanding
Disaster Preparedness
of Linguistically
Isolated Groups

Chinese, Somali, Vietnamese and Spanish
Speaking Communities

Summary Report

Draft

2009



HOUSTON DEPARTMENT OF HEALTH AND HUMAN SERVICES

**UNDERSTANDING DISASTER PREPAREDNESS
OF LINGUISTICALLY ISOLATED POPULATION GROUPS:
Chinese, Vietnamese, Somali and Spanish Speaking**

Houston, Texas

November 2009

Authors

Vishnu P Nepal, MPH

Deborah Scott, MPH

Deborah Banerjee, Ph.D.

Mark Perry, MPH

Suggested citation

Vishnu P Nepal, MPH, Deborah Scott, MPH, Deborah Banerjee, Ph.D., and Mark Perry, MPH, (2009). Understanding disaster preparedness of linguistically isolated population groups. Community Health Statistics, Office of Surveillance and Public Health Preparedness, Houston Department of Health and Human Services. 8000 North Stadium Drive, 8th floor Houston, TX 77054

TABLE OF CONTENTS

EXECUTIVE SUMMARY 4

INTRODUCTION 13

 Our Target Audience 13

 Our Goal 13

 History of Houston Disasters 13

 Disaster Responses 14

 About Immigration in Houston 14

METHODS 15

FINDINGS 19

 Past and present experiences with disasters..... 19

 Understanding Preparedness Using Hurricane Ike Experience 20

 Information resources in times of disasters 27

 What Disaster Supplies/Information Are Important For New Residents? 31

 What Houston Planners and Leaders Need to Know About Immigrant Groups?..... 35

 What Can The City Of Houston Officials Do To Encourage Disaster Preparedness In Linguistically Isolated And Immigrant Communities? 37

 Suggestions From Communities For Disseminating Information About Disaster Preparedness 41

CONCLUSIONS 45

RECOMMENDATIONS..... 47

REFERENCES..... 49

APPENDIX 50

 Appendix 1: Comparison of demographic responses to participants..... 50

EXECUTIVE SUMMARY

The City of Houston, Department of Health and Human Services (HDHHS) initiated a pilot inquiry into the understanding of disaster preparedness in four linguistically isolated communities in Houston, Texas—Chinese, Somali, Spanish, and Vietnamese speaking groups. The Census Bureau defines a linguistically isolated household as one in which no one 14 years old and over speaks only English or speaks a non-English language and speaks English "very well." Chinese, Spanish and Vietnamese speaking groups represent the largest non-English speaking populations, while the Somali-speaking group represents a large refugee population in Houston. The goal of the project was to develop realistic policy recommendations for local emergency response personnel and city, county, state, and federal officials, and to improve information dissemination to linguistically isolated communities. This study utilizes a specific, recent hurricane disaster to explore communication behavior in these groups and to understand the challenges related to public health preparedness of the mentioned population groups. We believe that the findings presented in this report may be applicable to a range of disaster scenarios in which communications with, and out-reach to, linguistically isolated groups may be critical in this country.

Qualitative information was collected through four focus groups and an equal number of key informant interviews with members in each community. Using a community-based participatory research approach, facilitators from each of the communities were

identified through community based organizations and trained to conduct the qualitative inquiries utilizing focus group discussions and key informant interviews. Facilitators were responsible for recruiting participants, seeking those who had been in the US five years or less and/or had a very low understanding of English. Facilitators were also responsible for the logistics of arranging meeting space. Independent observers with proficiency in each of the language offered feedback to staff and facilitators at each of the focus group discussions and assured fidelity to the intent of the study. Proceedings were audio-recorded, transcribed and translated by independent contractors. Using a grounded-theory methodology, data were coded and themes were identified.

Prior to beginning the focus group discussions and key informant interviews, participants completed a written survey in their native language and these data were translated and coded to determine the general demographics and characteristics of focus group discussion participants. A total of 144 people participated in the study and completed surveys—32 from Mandarin/Cantonese speaking countries (Cambodia, China, Taiwan), 36 from Somalia speaking Somali and or May-May, 33 from Spanish-speaking countries in Central America (Mexico, Guatemala, El Salvador, Honduras and Peru), and 39 from Vietnam.

This study was undertaken one year after Hurricane Ike had hit the upper Texas Gulf Coast, and many of the participants therefore referenced that event as the most recent emergency in living memory or experience.

Participant Fast Facts (n=144)

- 57% entered the US since 2001
- 33% had no full-time worker in the household
- 49% had no US citizen in the household
- 48% had no adult with a green card living in the household
- 35% of household providers had education at 8th grade or less
- 36% had income less than \$10,000
- 21% had no health care provider

Preparedness depends on the understanding of disaster

“Preparedness” is directly tied to the understanding of disasters from previous life experiences of the participants. Study participants from Asia and South and Central America reported that they had experienced earthquakes and tropical storms in their home countries. Coming from coastal or tropical countries helped some prepare for weather-related disasters in Houston. Terms such as cyclone, typhoon, tsunami and hurricane were used to describe disaster. Somali speaking participants, from very dry and desert-like homelands, had no context for understanding the meaning of “natural disaster”. Instead, they described man-made disasters such as war, rape and killing, famine, displacement to refugee camps, and intentional arson that destroyed villages as disasters.

Preparedness depends on the perception of risk

The four subject groups were slow to respond to disaster (e.g. Hurricane Ike), primarily due to language barriers and lack of understanding of transmitted information. Watching the news on television did not impart a sense of urgency until there were images of flooding and wind damage. Many said they were not concerned until they experienced high winds, falling tree limbs, and high water or flooding. Others reported seeing people stocking up at the grocery store or nailing wood over their windows, which helped them to realize that a serious storm, was coming. *“I saw someone go to buy water and I joined them.”*

Preparedness depends on acculturation

Preparedness for Hurricane Ike correlated with the length of time that there had been an established community in the United States for the respective linguistically isolated

groups. More established groups had experienced prior storms and had a greater understanding of necessary supplies. Those new to the country were told to “stock up” and unfortunately, some purchased frozen foods or food that required water to prepare and eat. Canned foods are not considered healthy by many Asians and their use is unfamiliar to others; some participants did not know how to prepare or use canned goods.

Asian communities were not at all prepared for the intense wind damage. Coming from countries with frequent typhoons, they have different expectations of housing construction. Homes in many Asian countries are built of concrete rather than wood, and those houses can withstand the winds.

No one from any of the groups was prepared for the extensive power outages, particularly the effect on public transit. Many had no means for evacuation or of traveling to access services and supplies. Others reported job loss—either the company closed or lost business due to the storm or they couldn’t get to work because of the lack of transportation.

Examining preparedness using Hurricane Ike experience

Since all of the study participants had experienced Hurricane Ike, it proved to be a good scenario to examining the preparedness of the linguistically isolated populations in Houston. Nearly everyone reported their lack of preparedness to deal with Hurricane Ike. The feeling of frustration and disconnection was universal, as participants discussed what it was like to be cut off from communication because of the power outage. Many people shared stories about the food in their refrigerators gone bad, and having to stand in very long lines to get ice to pack around whatever food could be salvaged or to keep any new purchases cold. In general, long lines were a recurring theme that hindered participants from getting the resources they needed – the lines were cumbersome and often by the time the people reached the end of the lines, few resources remained. This

was true for ice, for food, for water, and for other necessities distributed at various cooling stations and rest areas throughout the city. Work and school came to a standstill for many of the focus group participants, which posed a bit of anxiety for those who depended on workplace networks for news and information. For many, it was difficult to even get in contact with workplaces, given the power outages.

Lack of Preparedness

Lack of preparedness among study participants resonated in several areas of day to day life, in some cases, with long term consequences. Overall, for the linguistically isolated community, watching the news on television did not impart a sense of urgency until there were images of flooding and wind damage. Several participants highlighted problems with transportation that Hurricane Ike created to these linguistically isolated groups (e.g. people with cars didn't know that they needed to fill their fuel tanks in advance; friends with cars couldn't help because of blocked roads and people without cars were dependent upon the disrupted public transportation). Employment was also an issue for many participants. Concerns ranged from difficulties with getting to work to protect against job loss—a reality for some of the focus group participants. The most difficult decision about Hurricane Ike was whether to evacuate and sheltering in place. Evacuation was predicated upon having a place to go, transportation to get there, funds for fuel and information about evacuation zones and routes. None of the Somali-speaking focus groups participants suggested that they could have been able to evacuate. They had no transportation, no resources, and no place to go. Although, evacuation was not required of most people in Houston, with experience from Hurricane Rita in 2005, some of the Spanish-speaking, Vietnamese-speaking and Chinese-speaking participants recounted confusion about evacuation routes, what zip codes were to leave at what times, and where to go; some just stayed home not having any clue of what others were doing.

In the post disaster period, access to resources, and the need for the resources, varied from group to group. Younger Chinese knew about the cooling stations [cooling stations were established across the City to provide cool environments for residents whose homes were without power, in the aftermath of the storm] but did not use them because the lines were long and such places were believed to be crowded. Older Chinese participants did not know about the cooling stations or rest areas (rest areas were provided in several areas of the city to provide a safe shelter for the residents), and even if they had known, they said they would have been somewhat reluctant to burden others to get to cooling stations.

Some participants spoke about the need for resources in life and death terms. They knew nothing about preparing for a hurricane or the subsequent power outage. They needed water and food, and even though volunteers came to their neighborhood with supplies, the language barrier was so great that victims couldn't make their needs known and could not get the help that they needed. Some reported having no food for seven days. Mothers recounted their fears of losing a child to starvation during that time. Spanish-speaking participants did not know where the cooling stations and rest areas were located.

Nearly all participants talked about extensive property damage. Some took refuge with family members or friends. Key informants mirrored this experience, saying that many of the apartment complexes did not respond quickly to residents' needs and residents sought living quarters elsewhere. Language barriers delayed repairs when tenants could not effectively communicate with apartment management.

Community Connections

The sense of “community” expressed by the participants within the focus groups differed by language group. For the newest residents—the Somali—there was a constant reference to the importance of neighbors and caring for one another and a high level of

sharing of all types of resources—shelter, food, water, power through electric generators, kitchens, transportation, and information.

There was an overarching sense of solidarity and strength within the Vietnamese group concerning post-hurricane survival, particularly following Hurricane Ike. This group shared a feeling of increased community capacity for communication, using informal networks of word-of-mouth.

On the other hand, fear of being a burden to others was a recurring theme across Chinese focus groups and key informant interviews (with the exception of the older Cantonese participants who had high expectations from the government about their care). Chinese-speaking participants described themselves as very self-reliant and as typically seeking out information on their own before asking for help from others even within their own cultural group. This might be interpreted as having a looser sense of “community” than the other groups examined or less dependence upon the ethnic community, and reflects what may be a lower degree of inter-connectedness in the greater Chinese community of the Houston area. Participants reported that they chose to find shelters in cars or hotels rather than ask for assistance. For example, an older couple lived in their car in the parking lot of the Chinese Community Center because they did not want to burden their friends to ask where they could get vouchers for hotels or how to locate a shelter.

Spanish-speaking participants spoke of a lack of connection to others in their community, due in great part to their odd job schedules. Many in this group reported working multiple jobs and having little time to spend with neighbors and friends, and therefore having decreased access to information that may be shared by word of mouth.

Getting linguistically-isolated populations prepared

Getting linguistically-isolated populations prepared to effectively deal with disasters and public health emergencies requires a great deal of effort from the local public health preparedness agencies in terms of communicating with them in a very culturally appropriate way. This study suggests that each linguistically-isolated population group has specific sources of information that they prefer and find credible in times of an emergency.

Credible Information Sources

The most commonly cited source of information by all four groups was mainstream English language news. The ongoing reporting, weather graphics and visual images alerted non-English speakers to a turn in events and the need to gather additional information. Word-of-mouth was the second most reliable and used source of information.

Suggested content of messages

Participants thought the best way to educate others in their respective communities was to teach through their own stories. Participants came up with following suggestions that need to be included into the preparedness messages aimed at linguistically-isolated populations:

- Know about disasters that could happen in the Texas gulf Coast.
- Prepare in advance for a disaster by having the necessary supplies on hand.
- Understand what “evacuation” means, and what you can do if you can’t evacuate.
- Know someone who has command of the English language.
- Know how to protect your property.
- Know that you may need to travel away from home to seek safety.
- Know your neighbors.

Recommendations in preparation for future events

Study participants suggested that emergency preparedness response officials should:

- Provide information in the various native languages.
- Identify information sites in area neighborhoods, preferably within walking distance, and hire staff from within the community to build relationships and a social network with other population-based groups, e.g. civic and social organizations, community based organizations, professional and business groups, consulates, and educators. These sites could be utilized to provide relief service during times of disaster. Policies and procedures should be developed to ensure that the services and supplies are proportionately distributed and account for the more desperate needs of resource-poor communities.
- Provide technical assistance to leaders of immigrant and linguistically-isolated communities to help them develop their own disaster coalitions and community disaster preparedness plans.
- Develop a marketing strategy that engages a variety of community stakeholders, such as local television stations, national weather stations, radio stations, newspapers, power, utility, and waste disposal companies, stores and churches. Visual messages should be image driven, and tailored to the needs of the various communities.

INTRODUCTION

OUR TARGET AUDIENCE

This document has been developed chiefly for Preparedness Planners, Health Educators, Emergency Response and Community Based Organizations.

OUR GOAL

The goal of the City of Houston Department of Health and Human Services was to develop realistic policy recommendations for local emergency response personnel as well as city, county, state, and federal officials with regard to improving disaster preparedness among linguistically isolated populations and to improve dissemination of emergency information and equitable delivery of services to non-English speaking communities in the greater Houston area. In this report, we define linguistically-isolated populations as those individuals residing in households such as one in which no one 14 years old and over speak only English or speak a non-English language and speak English "very well."

HISTORY OF HOUSTON DISASTERS

The history of disasters in the Houston area includes hurricanes, tropical storms, torrential rains, floods, tornados; and chemical plant and pipeline explosions. The Great Storm of 1900 that swept across Galveston was the deadliest natural disaster in US history. Since that time, the area has experienced a series of water-related disasters—Hurricane Carla (1961), Tropical Storm Claudette (1979), Hurricane Allen (1980), Hurricane Alicia (1983), Tropical Storm Allison (2001), Hurricane Rita (2005), and Hurricane Ike (2008). In addition to named storms, Houston regularly experiences heavy rains and flooding and because of the industries located here, is vulnerable to chemical-related disasters such as the deadly Texas City Disaster of 1947.

While sources disagree on the exact number of deaths in the Texas City disaster, it is estimated that 500–600 people died in the explosion. The number of foreign seamen and non-census laborers working at the docks that day are unknown. In today's world, these could have been immigrant workers whose voices would be reflected by responses in this report.

DISASTER RESPONSES

In times of disaster, relief efforts of City of Houston staff and area organizations such as the Red Cross move into action. Their goals are to provide relief and assistance to many people as quickly and efficiently as possible. This usually means that people with an understanding of the experience and knowledge about how relief efforts are organized are able to find resources to meet immediate and short-term survival needs such as shelter, food, and clean water. The recent disaster of Hurricane Ike offered an opportunity to explore how linguistically isolated communities understood, prepared for, and experienced the event. For new immigrants, particularly those with little-to-no English proficiency and from a very different homeland, the entire experience was unbelievable, unpredictable, and beyond understanding.

ABOUT IMMIGRATION IN HOUSTON

Census numbers for Houston in 2006 reported a changing population and for the first time Houston had a minority majority demographic composition-- 36.9% Anglo, 16.45 Black, 38.2% Hispanic, and 6.5% Asian. In 2009, the annual report developed by Rice University's Stephen Klineberg and the Center for Houston's Future, described in greater detail the face of immigrants in Houston. More than 40% of all Houston's Latino and Asian immigrants are recent arrivals, having come here since 1995. Portals for US entry are through refugee status (war in their homeland), through eligibility for preferential status (professionals of exceptional ability or those with desirable occupational skills), and through family reunification programs. Immigrant groups entering the US through preferential status have higher education and more resources while those entering the country as refugees or through family reunification are often without resources or education. The family reunification portal is the primary conduit for immigrants from Spanish speaking countries into the US and 72% of all Latino immigrants in Harris County come from Mexico.

METHODS

Four focus groups and four key informant interviews were conducted in each of the four linguistically-isolated immigrant populations living in the greater Houston metropolitan area—Spanish, Chinese, Vietnamese and Somali. The immigrants and cultures of these groups pose challenges to emergency response personnel in terms of pre-disaster communication and post-disaster response efforts. Our questions focused on general knowledge and understanding of public health disasters and emergencies and highlighted experiences during Houston's most recent disaster, Hurricane Ike. We asked how people gathered news and information, how they made preparations for their families, and their experiences and service access needs during the post-disaster recovery period.

Method: Qualitative method utilizing Focus group discussions and Key informant interviews.

Four language groups were targeted: Spanish, Somali, Vietnamese and Chinese.

The focus groups and key informant interviews were conducted in the language of preference of the participants. A community-based organization was contracted to provide facilitators in Mandarin and Cantonese, in Spanish, and in Vietnamese. An individual from the Somali community facilitated the focus groups in Somali and May-May.

Facilitators from each of the language groups participated in a 6-hour training to review the purpose of the study and the focus of the questions to ensure they could be translated accurately into the various languages. The training also provided knowledge and skills related to facilitating focus group discussions. Facilitators translated the participant demographic survey and the focus group questions prior to the first focus group and key informants' interviews. To ensure fidelity to the process of data collection, an independent observer, proficient in the language of the respective communities, was present for the first several focus group sessions. Two of the HDHHS staffs and two other individuals served as the observers. Based on feedback from these observers, additional meetings were scheduled with facilitators to provide additional training and debriefing of the observational reports. Additionally, four key informant interviews were conducted in each group. Key informants were identified by the partner community based organizations using the provided criterion--that the key informants should be well informed about the community that she or he is representing. Each focus group discussion and key informant interview was audio recorded, transcribed and translated to English by an independent contractor. Additionally, a scribe was present who completed a written report on each focus group. Transcribed discussions were coded using Ethnograph 6.0 software. Major themes were identified and the summations of the focus group discussion and key informant interview findings are reported here in the aggregate and by language group.

Eligibility criteria included inability to speak read and understand English language and using one of the targeted native languages.

Group facilitators were responsible for recruiting focus group participants and key informant interviewees. For focus group discussion participants, the intention was to target separate groups of younger (<50) and older (>50) non-English speakers living in the United States for less than five years. Three questions were designed to screen for these characteristics (age, length of time in the US, and English proficiency). The actual demographics of the participants veered from these targets. A majority of Somali speaking participants were very new immigrants while the majority of those in the Chinese, Vietnamese, and Spanish speaking groups had been in the US more than five years. Both younger and older adults participated in the same focus group discussion in some cases (for example, one Vietnamese focus group discussion had a mixed group of participants with younger and older). The Somali speaking groups had the most young adults (66.7% were 39 years of age or younger) and the Chinese groups had the fewest

(22.6% were 39 years of age or younger). Interestingly, 67% of the Somali participants reported they were just beginning to learn English. In the other, more established groups, the proportions were somewhat higher—87.5% in the Chinese, 80% in the Spanish, and 75% in the Vietnamese.

Chinese and Vietnamese focus group discussions and key informant interviews were conducted at a local community based organization in Houston, Texas. This is a site central to the Asian community and participants were recruited through flyers in local supermarkets, restaurants, community centers and businesses. Some participants were those seeking services at the health clinic run by community based organization itself. Older Chinese and Vietnamese were easier to recruit because they had more time. Younger, working-aged participants were more difficult to recruit and the facilitator went to some work locations to meet with people during recruitment period. Childcare was provided for those working parents with children to allow for their participation. Incentives of \$25 were offered to participants of all language groups for 1-1.5 hours of discussions. Key informants were also provided with incentives of \$ 25 each in case of Somali speaking groups. Key informants of other language groups did not receive any incentives.

Focus group discussions with Spanish speaking participants were held at a local church and participants were recruited through word-of-mouth and outreach with other community organizations, community clinics, local churches, day workers from the Bellaire and Beltway 8 area, restaurants, businesses and the WIC (Women's, Infants and Children's) offices. It was more difficult to get broad participation of younger, working participants for the Spanish speaking group. To ensure a good representation, this facilitator recruited a fifth focus group discussion participants comprised of younger (<50 years of age) adults.

Somali speaking participants were recruited through word of mouth and the focus group discussions were conducted in two locations. Three focus group discussions were held at an apartment complex central to the Somali community in southwest Houston. A fourth was held with community members living in a predominantly African American neighborhood near downtown Houston.

Surprises – There was unanticipated diversity within the Chinese communities. Through the focus group process, facilitators learned that younger, mainland Chinese immigrants cannot read traditional Chinese characters, preferring instead simplified characters. After knowing that the Cantonese speaking participants may not be able to read and

understand Mandarin Chinese, the survey form and focus group discussion questions had to be reinterpreted in Cantonese.

In several instances, the information provided by the focus group discussion was very different from the experiences reported by key informants. The inconsistencies reflect the varying experiences between the more- and less-established community members.

Challenges – There was some initial difficulty recruiting participants within the Vietnamese community—people were still unsure of the focus group discussion process and fearful of disclosing personal information. After the first Vietnamese focus group, the positive experience and word of mouth eased the effort in recruiting for following groups. There were translation difficulties with some of the questions and time was spent repeating and explaining them. People with children were not as engaged in the group discussion. However, the biggest challenge was finding people with time to participate, because of busy work schedules. It was difficult for some facilitators to energize the discussions which points to the need for additional training opportunities for community-based organizational staff. A general limitation was the compacted timeframe within which to complete the focus group discussions and key informant interviews (one month).

Within the Spanish speaking communities, many of the undocumented potential participants were suspicious and fearful about participating in a City of Houston Department of Health and Human Services' project and withdrew or did not show up to the meeting, fearing an immigration services “sting”. The facilitator repeatedly assured participants that the church setting afforded protection and that no identifiable information would be collected and that all responses were anonymous. Participants understood the importance of sharing information to help other non-English speakers and the \$25 stipend was also a motivating incentive.

Somali facilitators had difficulty with the audio recording equipment and two focus groups had to be repeated because the audio recorded discussions were inaudible.

FINDINGS

PAST AND PRESENT EXPERIENCES WITH DISASTERS

Past Disasters

People from Asia and South and Central America have experienced earthquakes and tropical storms in their home countries. Coming from coastal or tropical countries helped some prepare for weather-related disasters in Houston. Terms such as cyclone, typhoon, tsunami and hurricane were used by participants to describe Hurricane. Somali participants, from very dry and desert-like homelands, had no context for understanding the meaning of “hurricane”. Instead, they described man-made disasters such as war, rape and killing, famine, displacement to refugee camps, and intentional arson that destroyed villages.

In the United States, the common disasters experienced by the participants were earthquakes, floods, cyclones or tornadoes, and Hurricanes–Rita, Katrina, and Ike. Terrorism was mentioned in two focus groups. Possible influenza pandemics were also on participants’ minds and H1N1 was mentioned in the focus group discussions conducted with Spanish speaking participants. A focus group participant reported;

“The earthquake that happened in 1999 when I was still in California was the strongest of all. It reached 7 on the Richter scale and knocked down the bridge in Oakland before it hit San Francisco” –Vietnamese speaking participant.

Houston Disasters

The hurricanes left a lasting impression on all participants, especially Hurricane Ike. One focus group was comprised primarily of newcomers to Houston, who had only experienced Ike, while the remainder of the focus groups reported having been through Hurricanes Katrina and Rita, as well. Fear of storms was a motivating factor for people, once they were able to get beyond their immediate anxiety, they began to gather resources and locate the local members of their family. Greatest fears expressed could be applied to any disaster: fear of losing contact with loved ones, fear of property loss or home collapsing, fear of losing lines of communication (and understanding of the information) from credible news sources, fear of robberies, and fear of house fires (complications from power outages and down power lines).

Participants also described Houston disasters on very personal levels due in great part to language barriers and no understanding or proficiency in English. These included family members unwittingly caught up in the US legal systems, lack of medical treatment due to lack of communication and understanding, inability to find employment; and poor-to-no public transportation.

UNDERSTANDING PREPAREDNESS USING HURRICANE IKE EXPERIENCE

Nearly everyone reported power outages and lack of water; the amount of time they were without these resources varied by household. The feeling of frustration and disconnection was universal, as participants discussed about what it was like to be cut off from communication with the outside world. Many

I think that during the hurricane last year, a common problem facing Vietnamese people was that they couldn't get the news on some programs produced by the government, because you couldn't understand English.

-Vietnamese speaking participant

"..my family didn't have any storm experience when the storm hit Houston for the first time. We did not prepare many things"-

-Vietnamese speaking participant

people shared about the food in their refrigerators going bad, and having to stand in very long lines to get ice to pack around whatever food could be salvaged or to keep any new purchases cold. Ice was talked about a great deal; given Houston's warm climate, ice was a valuable commodity and participants discussed about how hard it was to find the cooling stations and how once it became known where to find ice, that often there would be no more left. Since each person was only allowed one bag of ice, more than one family member had to stand in line to get enough ice to keep adequate food and milk cold for entire families. In general, long lines were a recurring theme that hindered participants from getting the resources they needed – the lines were cumbersome and often by the time the people reached the end of the lines, few resources remained; this was true for ice, for food, for water, and for other necessities distributed at various cooling stations and rest areas throughout the city.

Many reported having to fix problems on their own, or with the help of friends and family, that resulted from power outages, lack of water, property damage, and downed trees. People constructed home-made repairs to fences and property. They collected rain water to use in toilets and for bathing. With their friends, they moved limbs and cleaned up debris. They ate with their neighbors and families and used the time without electricity to talk and get to know each other. They spent their time caring for their homes and helping others care for their homes, too.

Work and school came to a standstill for many of the focus group participants, which posed a bit of anxiety for those who depended on workplace networks for news and information. For many, it was difficult to even get in contact with workplaces, given the power outages. A few shared that workplaces put restrictions on the times they could get away before the disaster hit, posing challenges to evacuation plans.

Lack of Preparedness

The linguistically isolated community was slow to respond to Hurricane Ike, primarily due to language barriers and lack of understanding or information. Watching the news on television did not impart a sense of urgency until there were images of flooding and wind damage. Many said they were not concerned until they experienced high winds, falling tree limbs, and high water or flooding. Others reported seeing

*I saw someone go to buy water
and I joined them.”*

- Chinese speaking participant

people stocking up at the grocery store or nailing woods over their windows and then knew a serious storm was coming. Preparedness for Hurricane Ike correlated with the length of time that there had been an established community for the respective language speaking groups in the city of Houston and Harris County. One Somali participant, who was in the country for less than one year at the time of Hurricane Ike, expressed his experience of hurricane very succinctly;

“... we don't know the English language, we are brand new refugees, we don't know the customs of this country, and our children are not accustomed to the American culture. They have been taken to jail at times, so we have witnessed a lot of suffering. The hurricane arrived, and we didn't know where to go. There was so much misery. We slept on the ground. I had no idea that such things happened in America, but now we need education to succeed.”

-Somali speaking participant

Transportation - Transportation is a problem during ordinary circumstances and Hurricane Ike created additional barriers to these linguistically isolated groups (e.g. people with cars didn't know that they need to fill their fuel tanks in advance, friends with cars couldn't help because of blocked roads and people without cars were dependent upon the disrupted public transportation).

Employment - Employment was an issue for many participants. Concerns ranged from difficulties with getting to work to complete job loss—a reality for some of the focus group participants. Paying the bills was as, if not more, important than getting prepared for disaster, “because how could you pay the rent and the electricity if you loose your job?”

Evacuation - The most difficult decision about Hurricane Ike was deciding to stay or leave. This was predicated upon having a place to go, transportation to get there, funds for fuel and in some cases, lodging, and information about evacuation zones and routes. No one in the Somali focus groups evacuated. They had no transportation, no resources, and no place to go. With history from Hurricane Rita, some of the Spanish speaking, Vietnamese speaking and Chinese speaking participants recounted confusion about evacuation routes, what zip codes were to leave at what times, and where to go; some just stayed home not having any clue of what others were doing.

Accessing Resources - Access to resources, and the need for the resources, varied from group to group. Younger Chinese knew about the cooling stations but did not access them because the lines were long and places were crowded. Older Chinese participants did not know about the cooling stations or rest areas, and even if they had known, they said *“they would have been somewhat reluctant to burden others to get to cooling stations”*.

“We should take care of ourselves first and only get support from the government when we have serious damage, because they are already too busy and have to help many other people. The support is too far away from the Vietnamese community.”

-Vietnamese speaking participant

“New arrivals need to know how to prepare preserved food so they won’t lose children, or their children won’t go hungry.”

-Somali speaking participant

The perception in the Vietnamese community was that very little help and information was available, and that people were on their own to find solutions to most of their problems. Word spread that no requests for public assistance were being taken until power was restored to entire areas or until crews moved to specific regions. Few felt that damages were serious enough to ask for insurance reimbursement or public assistance, and they believed that the city of Houston and other officials were so busy taking care of others who were in serious need that self-perceived minor problems were best taken care of by those close to home. Additionally, Vietnamese speaking participants also reported that they did not realize that the services provided by the government were also for them.

Somali immigrants spoke about the need for resources in life and death terms. They knew nothing about preparing for a hurricane or the subsequent power outage. They needed water and food, and even though volunteers came to their neighborhood with supplies, the language barrier was so great that victims couldn't make their needs known and could not get the help they desperately needed. Some reported no food for seven days. Mothers recounted their fears of losing a child to starvation during that time.

Spanish speaking participants did not know where the cooling stations and help centers were located. There were shortages of food, gasoline, water, wood, charcoal, clothing, and resources that were distributed were too spare to cover the needs of families. Participants described fights over food and ice at the stores, and several talked about the need for ice for medicine, and how despite the long lines, ice was a definite necessity that warranted standing in the lines regardless of the inconvenience.

Study participants reported that people observed a preferential distribution pattern between volunteers and community members. For example, participants in this group reported seeing African American workers give fresh food to other African Americans, but gave Latinos canned goods. Focus group participants believe that the government has information, resources, and programs available, but chooses not to implement services; rather, there is a perception that

When watching TV, we only saw foreigners. But we didn't see any Vietnamese come to get ice, so I was afraid that it was not support for Vietnamese.

-Vietnamese speaking participant

We knew nothing about preparing for a hurricane or the subsequent power outage. We needed water and food, and even though volunteers came to our neighborhood with supplies, the language barrier was so great that we couldn't make their needs known and could not get the help we needed.

-Somali speaking participant

Across groups, the greatest need is information about assistance in language they can understand. Without command of the English language, non-English speaking immigrants and refugees cannot access the full range of available services.

-Spanish speaking key informant

officials do not respond until residents begin to demand those services. Participants reported that subsidies and supplies were distributed only to those who could produce citizenship or residency documents, posing an additional hardship for people with indeterminate immigration status.

Power Outages - During Hurricane Ike, the majority of participants experienced power outages and housing damage caused by falling tree limbs and flooding. Participants were not prepared for a lengthy power outage, and after a time, reported feeling very isolated. The duration of the outage (25 days for some) stretched scarce resources.

Trash - Most groups spoke about the storm debris but the problem for Spanish speaking groups was more serious. They talked about extensive sewage and drainage problems, excessive trash and home waste left on the street for weeks, compounded by the decaying bodies of dead animals.

Housing - In Asia, many houses and buildings in the city areas are constructed of concrete and designed to withstand frequent and intense typhoons. This construction practice minimizes concerns for many people from China where their custom is to stock up on food and stay indoors until the storm passes. Participants were ill-prepared for the destruction to their homes caused by gale-force winds and uninformed about how to protect their homes.

The Spanish speaking groups also believe that their housing structures are of sub-optimal quality. Nearly everyone talked about extensive property damage, often described as dismantling of second floor apartments and “flying off” of roofs. Homes had been flooded, destroying carpets and flooring. People took refuge with family members or friends. Key informants mirrored this experience, saying that many of the apartment complexes did not respond quickly to people’s needs and people sought living quarters elsewhere. Language barriers delayed repairs when tenants could not effectively communicate with apartment management.

Community Connections - The sense of “community” within the focus group discussions differed by language groups. For the newest residents—the Somali—there was a constant reference to the importance of neighbors and caring for one another and a high

level of sharing of all types of resources—shelter, food, water, power through electric generators, kitchens, transportation, and information.

There was an overarching sense of solidarity and strength within the Vietnamese, post-hurricane survival, particularly following the Hurricane Ike. The focus group participants shared a feeling of increased community capacity for communication, using informal networks of word-of-mouth.

Fear of being a burden to others was a recurring theme across Chinese focus groups and key informant interviews (with the exception of the older Cantonese participants who had high expectations from the government about their care). Chinese people described themselves as very self-reliant and typically seek out information on their own before asking for help from others. This might be interpreted as having a looser sense of “community” than the other groups examined or less dependence upon the ethnic community, and mirrors the lesser inter-connectedness of the greater community. Many chose to find shelters in cars or hotels rather than ask for assistance. At the Chinese Community Center, an older couple lived in their car because they did not want to burden their friends about asking where they could get vouchers for hotels or how to locate a shelter.

“My community informed me, because I did not speak the language. It was on the TV, and I heard that, but I got the news from my community.”

–Vietnamese speaking participant

Spanish speaking participants spoke of a lack of connection and sense of community, due in great part to odd job schedules, even if they chose not to do so. Many people work multiple jobs and have little time for neighbors and friends.

INFORMATION RESOURCES IN TIMES OF DISASTERS

In times of disaster, the news and information gathering shifted toward three primary information sources—television, word of mouth, and radio.

Television (English) – For all but the Somali speaking groups, the most credible source of information was mainstream English language news channels in television. It was considered to have the most current information and broadcasts throughout the day. Spanish speaking participants reported that they did not trust the information given on the Spanish-speaking television channels because of their tendency to “be sensationalist” and to “exaggerate” the level of danger posed by the hazard. The visual images on American television news broadcasts alerted adults to some change in the environment. Children were often called upon to translate for parents who would then seek out additional, confirmatory information from friends, relatives or community leaders. Mainstream television channels and the cable news and weather channels were most frequently mentioned. New Chinese and Vietnamese digital channels were introduced after Hurricane Ike and are also an important source of information.

Word of Mouth – Within all groups’ responses, and particularly within the Somali, friends were a very important source of information. Those new to Houston or who could not follow television, particularly the younger and employed, consistently consulted with friends

Although I couldn’t understand English, I still found that the foreign channels updated the status of the storm very well.

-Vietnamese speaking participant.

When I saw the hurricane center on the TV I knew how strong the wind was and its direction

-Vietnamese speaking participant

“I will run if my friends tell me that we have to leave.”

-Somali speaking participant

and relatives and kept in touch by telephone and telephone texting. Many depended upon friends with greater English proficiency to provide direction and leadership, or confirm their understanding. If friends thought it important to take action, others believed them and followed suite. If there was no one with information or experience, it threw a small social network into flux.

Information from all sources was triangulated by discussing news with friends, neighbors, and relatives. Informal networks were the method that people depended on to verify information they heard from other avenues, and when they were unable to get to a radio or television or when they did not understand what they were hearing, social network members provided the insights that were needed. Word-of-mouth was the most important mode of communication used by the Vietnamese community. Coupled with radio use, word-of-mouth was how news traveled most effectively and efficiently, and was a trusted source of information.

Radio – Radio was an important source of communication, particularly for those with stations or programming in native languages. For Chinese communities, there is only one radio station. It broadcasts in Mandarin and is a very popular and frequently named source of information. Many people listen to the station regularly. However, they do not view it as the most reliable source of disaster preparedness information because there are only two news broadcasts daily and often the news is not timely – it is translated from English news of the prior day. Cantonese speakers also listen but would like information to be announced in both Mandarin and Cantonese. Vietnamese speaking participants reported that they listen to a Vietnamese radio station and it is viewed as a reliable source of information. One community

“I was in a total mess. We called each other, hesitating to leave or stay. Nobody gave us any advice.”

–Chinese speaking participant

“I think the radio is very useful. It tells us where the hurricane will be going and which streets have traffic jams. The information is very correct and reliable and especially useful for those who can’t understand and are not good at English like me. It also provides us with special phone numbers of offices where we can call for help.”

– Vietnamese speaking participant

based organization has a fixed radio spot, a weekly radio program that is devoted to a specific topic. Spanish speaking participants reported that there are several Spanish radio stations and some people listen to those stations to be informed.

Internet - Younger people and community leaders depend on information from the internet and government websites. Young Spanish speaking participants and almost all the key informants mentioned use of the internet as a means of accessing information but other focus group discussion participants did not talk about internet.

Local Governments -The government is a very credible source of information for the Chinese community and they look to the local government for guidance and direction. In particular, the community leaders (key informants) use the City of Houston website as an information source about current conditions and contact information. Community members also refer to the internet, particularly younger Chinese and this is a good source while there is power.

“We’ve been keeping an eye on the government’s move ever since the wind disaster in Houston several years ago. If the government announces which communities shall have their residents evacuate, we must follow the order and we’ll try to leave.”

-Chinese speaking Key informant

Markets - The Asian markets are a community hub, particularly larger ones. They are sources of information for younger people and Mandarin Chinese; but are not a gathering place for the Cantonese. Somali speaking participants report no specific market hubs for them. Similarly, the concept of market hub did not get reflected among the Spanish speaking participants.

Printed Materials - Newspaper and leaflets were cited by some participants as being important, though fewer tended to rely on printed media as their primary source. Newspapers, particularly, were less of a source for up-to-the-minute reliable news for weather or resources because what you see in print is typically what has “already

“..newspapers often cover news or events that have already happened.”

-Vietnamese speaking participant

happened.” Generally speaking, the focus group discussions with working class participants stated that they had less time to listen to radio and television and preferred to get specific detailed information in printed form so that they could have a long-lasting copy to which they could refer for resource distribution centers, assistance sites, and referral locations (they retain the brochures in English, even if they don’t understand them). Blue-collar workers said that the best places for printed media distribution were churches, temples, markets, and cultural centers. Participants reported that in Chinese communities, the *Southern Chinese Daily News* and *World Journal* are published in Mandarin and are widely read. The Cantonese have no group-specific publications. Although there are few publications in Vietnamese language, Vietnamese speaking participants did not report the printed material as being their preferred means of seeking information. And, it is noteworthy here that there are no any Somali language specific publications.

WHAT DISASTER SUPPLIES/INFORMATION ARE IMPORTANT FOR NEW RESIDENTS?

In each of the groups, people thought it was of utmost importance to share their experiences with others who will be following them to the US. “Let us tell our story.” They also reported on the types of information they thought was important, or wished someone had given to them.

Know About Typical Disasters in the Region

- Know the types of disasters that occur in the community (only weather related events were mentioned).
- Know that hurricane season is June to November and that strong winds, heavy rains and flooding, may happen.
- Understand the dangers of downed power lines.
- Be prepared for extended power outages (mentioned often).

Prepare in Advance

- Develop a family plan that includes a point person who speaks English, who can communicate with English speakers, and who can understand the storm warnings and instructions.
- Determine a location where everyone should meet and a follow-up location where people should plan to go in the event that evacuation is needed. Family plans should be a living document that change according to what is happening during the disaster.
- Dial 211 to pre-register the people who have no transportation. The city will send a vehicle to pick up people in the event of a mandatory evacuation.
- Do not minimize what is happening with disaster preparedness. Get ready in advance.

Understand what “Evacuation” Means

- Follow instructions given on the radio and mainstream television, particularly those that gave detailed information by zip code.
- Pay close attention to city announcements.
- Know the escape routes and alternative roads (not just highways), to take out of the city in the event that an evacuation is needed.
- Get a list of shelters and locations.
- Identify a local place with a friend or neighbor, who has a stable structure where you can stay.
- Identify a hotel or shelter; though be aware of power restrictions (if on a generator, power may be rationed to extend resources).
- Identify an out-of-town location where the family can go if evacuation is needed.
- Talk to family members and friends about how serious the disaster may be and whether or not to evacuate. Make the decision with the head of household.
- Evacuate early before the storm is in full force, rather than waiting until the traffic is heavy and the roadways are blocked.

Know Someone Proficient in English

- Identify source for information – someone who understands English well and who you can call to get information fast.

Preparing Yourself for a Disaster

- Keep cash on hand– when electricity is out, cash machines do not work.
- Make copies of important documents (birth certificates, passports, etc.) and family photos; make sure important documents are put in plastic bags so they are not ruined.
- Save jars in which to store water (especially rain water).
- Stock up on water and other bottled drinks (1 gallon/day/person).

- Freeze gallons/bottles and bags of water to make ice because a large mass of ice will resist melting for a few days; this will keep food and medicines longer.
- Get portable stoves/grills (charcoal) and know how to use.
- Stock non-perishable foods, including instant, dried and canned goods (understand there may be water shortages and know how to prepare canned food).
- Cook food so that it can be stored if there is a threat of power outage.
- Have an old-fashioned plug-in phone that doesn't require electricity to operate.
- Stock up on flashlights/batteries and rechargeable lamps.
- Get portable radio/batteries or get a crank radio.
- Keep a supply of baby items (e.g. diapers, formula, canned milk).
- Stock a First Aid Kit--include medicines for headache, stomach ache, and diarrhea.
- Prepare a toiletry pack for each family member – toothbrush, toothpaste.
- Keep mosquito repellent on hand.
- Keep a hard hat and rain coat.
- Pack a change of clothes, in the event of the need for evacuation.

Know How to Protect Property

- Protect windows with plywood and keep children away from windows.
- Keep trees trimmed.
- Keep area clear of debris that can be tossed about during a hurricane.

Know You May Need to Travel

- Keep your vehicle in good mechanical condition.
- Keep vehicles fueled.

- Get car charger for cell-phone to make sure that communication is maintained.

Know your Neighbors

- Be ready to help other people.
- Invent new ways to amuse yourself and others, new ways to have fun.
- Think about the kids and think about the family.
- Communicate with neighbors.

WHAT HOUSTON PLANNERS AND LEADERS NEED TO KNOW ABOUT IMMIGRANT GROUPS?

Data analysis suggested that each linguistically isolated group has very unique characteristics that are relevant for planners and leaders.

What Houston Leaders Need to Know about Chinese Speaking residents?

- Chinese do not want to burden others.
- Many Chinese people are not comfortable with canned goods and during Hurricane Ike, stocked up on dried foods, which required water. Canned food is not considered as healthy as fresh or dried foods.
- People under 40 understand/prefer simplified characters, older participants preferred traditional characters.
- There are many languages within the Asian community, and each group needs help with interpreting information.

What Houston Leaders Need to Know about Somali Speaking residents?

- Somali speaking residents don't have a context for understanding or explaining hurricanes, don't know how to prepare for Houston's naturally occurring disasters; don't have resources to stockpile supplies for extended power outages.
- Language barriers affect every aspect of life for new immigrants/refugees and there is an urgent need for accessible ESL classes.
- Transportation is very difficult in times of disaster.
- Somali community is very united and committed to helping others.

What Houston Leaders Need to Know about Spanish Speaking residents?

- Spanish speaking residents believe that electricity, food, gasoline, and resources in general, were given out disproportionately in some neighborhoods, on the basis of class.
- There is a perception is that the government has additional resources, but that they are being withheld from the poor and working class.
- Participants' experience did not resonate with FEMA representative's statements and they felt that the federal agencies were lying.

What Houston Leaders Need to Know about Vietnamese Speaking residents?

- The community has experienced a lot of hardships, is strong, resilient, and community focused.
- There was an observed lack of fairness during distribution of supplies during Hurricane Ike.

WHAT CAN THE CITY OF HOUSTON OFFICIALS DO TO ENCOURAGE DISASTER PREPAREDNESS IN LINGUISTICALLY ISOLATED AND IMMIGRANT COMMUNITIES?

Participants within in each focus group discussions had suggestions for City officials to promote disaster preparedness within each of their communities.

Advertising/Promotion

- Buy air time on non-English language radio channels to broadcast weather updates.
- Leverage time with the *foreign language* media enterprise to commit more social service time and news broadcast time.
- Broadcast frequent and repetitive reminders.
- Post notices and flyers in police stations and post offices.
- Assist with a Vietnamese support station closer to the Vietnamese community in Bellaire or Beechnut, with information provided in the Vietnamese language. The support station should distribute critical items of need and should be open beyond the standard workday hours of 8am -5pm.
- Assist with establishing a Somali television station.
- Provide booklets about disaster preparedness in immigrant languages.

Community Outreach

- Know and understand the community structure and then outreach to community leaders – work with different community groups, Chinese, Cantonese, Taiwan, Vietnamese; groups with different dialects and political organizations/factions.
- Partner with national organizations with a presence in Houston such as the *Chinese Christian Herald Crusades, Inc.* that is currently working on earthquake preparedness in California.

- Reach out to ethnic communities and inform them of current events. They will feel less isolated and more included...”I am related, I belong to the city. I am not isolated. I am not the last one to be told.”
- Contract grassroots agencies to help disseminate information about resources and supplies
- Work with churches and pastors who meet monthly and educate them so they can educate their congregations, e.g., 55 Chinese ministers who meet monthly

Information Content

- Instructions before the disasters about how to prepare for disasters, e.g. which items to store in advance (e.g. food, water, medicine) to how to prepare for an evacuation.
- Information about evacuation routes and road closures.
- Contact numbers in languages of the immigrant population (Mandarin, Cantonese, Somali, Spanish, etc).
- Location of resource distribution (cooling stations, rest areas) to get: water, food, immediate health checks and medical treatment, ice.
- Information about elderly and disabled assistance forms.
- Information about low-lying areas and those prone to flooding.
- Instructions for protecting property during disasters (hurricane, windstorms, floods, ice storms).
- Instructions for other types of disasters, e.g., driving in ice and sleet.

Resource Distribution

- Revise resource distribution plan. Some of the problem, study participants believe, comes from the fact that there is a lack of jurisdictional understanding, that no one is clear on who has responsibility, and, as a result, that no action is taken.
- Provide shelters and relief sites in each area or zip code.

- Bring distribution closer to communities.
- People need to be educated on what the intensity of disasters (e.g. categories of storms) actually means. And how do, for example, the categories of storm translate into various levels of risk to electricity and water threats? Is there also an associated evacuation plan that goes along with different levels of disasters? There is not enough information about the basic emergency information.
- Key informants say that the community needs to be better informed about services that are available now, after the most recent storm (Hurricane Ike) passed, known as long-term recovery services. These services are still accessible, but people have no idea they are available. There are case management services, assistance for rent and mortgages, help for light and water bills, assistance if a person has lost a job or income as a direct result of hurricane Ike, and several forms of financial aid for Hispanic immigrant communities. Money is available from funds such as: Amend Needs Fund, Repair and Rebuild, the City of Houston, United Way.
- Use zip codes to provide assistance; in the same way that they used zip codes to instruct people to evacuate to maintain consistency.

Services

- Designate information sites/relief centers (safe places) in each community – a fixed place to get water, food and information. People would know to go to these places, even if there is no power to inform them – centers for Ike were too far away. Apply the same principles to information-sharing about disasters as does the government about elections. Use the concept of precincts and put up information stations where people for key materials or instructions that are needed to help organize preparations and household protection.
- Offer a registration system to collect telephone and contact information about all family members to warn about disaster alerts and to know the number in each household in the event of an evacuation (requested across all groups).
- Develop system to help find lost relatives.
- Offer English classes in neighborhood apartment complexes (new immigrants).
- Ask community agencies to do more about educating people about elderly and disabled assistance forms.

- Have services that are specific for kids. There are so many families in need and there are so few resources geared to children.
- Include services for homeless and pets. “It was hard to see so many people homeless and so many dead pets/animals in the streets.”
- Ensure access to medical care at the resource sites during times of disaster.
- Ensure access to medications, both for infections that arise from the disaster – bacterial infections from standing water and rotting food –, and for chronic conditions like high blood pressure that people suffer from all the time.

Staffing

- Dedicate a person to coordinate services in each immigrant community (e.g. build relationships, staff information booth, coordinate relief efforts in times of disaster).
- Employ community representatives, who know the manners and customs of the immigrant communities, to help get messages out.
- Support for additional native-speaking staff within the immigrant communities to help complete applications for assistance. Many people reported having property damages and calling FEMA, but the communication became muddled and receiving compensation required several back and forth telephone calls, including assistance from an interpreter. Although the application process itself seemed fairly easy, the language exchange was difficult and caused a delayed response.

Technical Support

- Offer training programs for community leaders to help them with strategic planning and creating a disaster preparedness plan in their respective communities (Community leaders understand the need for a disaster response plan, to include transportation planning but need guidance/support from City).
- Provide support in establishing a preparedness group, almost like a neighborhood watch group, at district or neighborhood meetings.

SUGGESTIONS FROM COMMUNITIES FOR DISSEMINATING INFORMATION ABOUT DISASTER PREPAREDNESS

To prepare for future disasters, community participants offered the following suggestions for increasing awareness about disaster preparedness.

Broadcasting

- Develop or advocate for special television commercials with visual images for storm-tracking; personal stories of Hurricane Ike survivors, “I would tell these people [new arrivals] what I experienced.”
- Support local Vietnamese Radio to broadcast any information to the Vietnamese community. Overwhelmingly, the radio was a theme that emerged under virtually every topic of discussion, clearly demonstrating how much the Vietnamese community depends on this medium for news and information.
- Advocate for uninterrupted broadcasting on Chinese radio stations in Mandarin and Cantonese during times of disaster.
- Develop partnerships with grocery stores and markets (HEB, Krogers, WalMart, etc.) to show videos about disaster preparedness on in-store networks to broadcast alerts/warnings in primary immigrant languages.
- Partner with mainstream television to provide trailers in primary immigrant languages to inform linguistically isolated communities about pending events.
- Request broadcasters to make announcements in the immigrant languages.

Apartment/Facilities Management

- Coordinate efforts through a housing association or an apartment manager, housing complex or subdivision head; notices posted on apartment doors in language of tenant, apartment managers know who lives in their complexes, including Mandarin and Cantonese characters in traditional and simplified texts. The message could be simple-- “Hurricane Coming”.

- Partner with home owners' associations to use the patrols to disseminate information.

Loudspeakers

- Institute an alarm system that starts ringing when the storm gets dangerous, letting the people know what kind of action should be taken. Different sounds should represent different levels of risk. People should be educated on what each emergency sound means.
- Develop a public announcement system by using a car loudspeaker, driving slowly through neighborhoods warning people of situations that are currently happening or that are about to happen. The loudspeaker should also announce where there are food, water, ice, and other basic necessities available. This would be particularly important during power outages when information is harder to find.
- Reactivate the old civil defense system to warn people about pending storms.

Market, Churches, and Meeting Places

- Distribute information in markets. Markets were the number one location named by Chinese, Vietnamese, and Spanish focus group participants as a location where people would seek out information and as a destination that people frequent on a regular basis, both in non-disaster and in disaster situations; Viable markets are those geographically close to the communities as well as those “destination shopping malls” targeting the respective linguistically isolated groups.
- Create an information center in the midst of a market location people frequent.
- Activate the information center as temporary distribution sites of food and medicine—established solely by the immigrant community or in coordination with the American government to support the immigrant community.
- Post information in the supermarkets, early in the storm process, and have the supermarket employees/cashiers pass out the leaflets to each customer as they go through the check-out lines.
- Post announcements at workplaces and at temples/churches where people congregate.

Printed Material in the Languages of the Community

- Brochures available at supermarkets that have targeted ethnic communities.
- Refrigerator magnets/sticky notes with important contact information.
- Hurricanes guides through large grocery store chains in targeted languages).
- Notices included with electric bills about how to prepare for disasters in advance and how to manage water and electricity issues.
- Notices distributed through the trash pick-up services could reach many households if they coordinated with the state agencies to disseminate important information.
- Informational brochures for area agencies and civic associations to distribute to their constituents.
- Promotional items, e.g. keychain with important contact numbers.
- Signage in buses.
- Signage at Laundromats on the posting boards.
- Flyers sent home by schools are a good way to send out advance, preparation checklists. Parents go over the information that is given out to their children, and then important information is shared with others through informal networks.

Telephones

- Text messages through telephone and cell phone companies e.g., “[Watch for heavy rains, high water](#)”.
- Hotline staffed with someone who speaks language of linguistically isolated groups.
- Automated hotline for each community that is providing updated disaster- foreign languages related information.
- Automated phone alert.

Volunteers

- Representatives of the community should be assigned tasks to help other members of the community; employing Vietnamese people to help each other obtain necessary resources like food and ice and water, understand instructions on where to get other types of assistance like filling out applications for assistance, know where to go to get help with property damage or power outages.

CONCLUSIONS

For those who are linguistically isolated (non-English Speaking population groups), disaster preparedness is linked to the country of origin, the types of disasters experienced there, and contextual correlations. Immigrants from inland countries and desert lands do not have a context for understanding the types of disasters that typically befall the Houston area, e.g. tropical storms, hurricanes, gale winds, and flooding. Although the purpose of this study was to understand the disaster preparedness among linguistically isolated population groups, most of the participants referenced to Hurricane Ike because it gave everyone a crash course in disaster preparedness. Even with several days notice, many people were unaware and unprepared. For linguistically isolated groups, the outcomes for disasters without such forewarning will be dire unless they have increased knowledge and understanding.

Disaster preparedness is also related to the immigration portal and to socioeconomic factors. Those coming to the US through preferential status have attained higher levels of education, typically have greater English proficiency, and have access to more resources (friends, sources of information, transportation, places to evacuate to, and funds to evacuate). Immigrants entering the US as refugees or through family reunification programs have lower levels of education, have far less English proficiency, and have fewer resources including fewer English-speaking friends, no sources of information, no transportation or public transportation, nowhere to go in case of evacuation, and no funds to support an evacuation or extended recovery period. Additionally, many are not familiar or comfortable with “canned goods” and how to prepare food during power outages or when clean water supplies are limited. Their custom is to use powdered or dried food items and these draw down clean water supplies. For many from Asia, canned goods are not considered healthy.

Many new residents depend upon public transportation during their initial years in Houston and lack of personal transportation poses an additional challenge during times of disaster. Families are often large (10 people in some households) and moving an entire household via public transit is an arduous task in the best of times. Without reliable public transportation and well-publicized evacuation routes, they cannot evacuate, nor can they access supplies or travel to disaster recovery center. Additional hardships include job threat or job loss because they cannot get to work.

Another factor of disaster preparedness is the history, or length of time, a community has been present in Houston. Immigrants entering the US from China, Mexico, or Vietnam will find radio stations, newspapers, and television stations delivering information in languages they may understand (exceptions include Cantonese and indigenous Mexican dialects). Newer immigrant groups, particularly from regions of eastern and central Africa, may be some of the first people from their homeland to settle in Houston. Their language barriers are more difficult. This group, because of the small population and language isolation, are closely knit and community-oriented. If families have been in the US long enough to have children in the school system, they have access to information. Adults may have little English proficiency, but they watch mainstream news television and interpret images. Children, who have learned English in school, are called upon to translate the commentary and initiate further information gathering on the part of the adult. Usually this is a call to a trusted friend or relative with a greater understanding of English to confirm what the child reported.

Prior experiences of linguistically isolated populations with “government” set expectation levels for government response to disaster here in Houston. Across the groups in this study, experiences were very different. In Houston, for example, Cantonese Chinese speaking participants, who had lived in a very government-controlled country, reported having great expectations that the city government would pro-actively inform them and be responsible for their care. Others from Hong Kong, or other places in Asia, felt a strong sense of self-reliance and personal responsibility to take care of themselves and their families without outside help. Participants from regions with frequent political upheaval, such as Central and South America, had distrust of the government and were more apt to suspect that they had been singled out for less assistance or supplies were intentionally withheld. Participants from Somalia and Vietnam, with prior experiences of violence and war, brought memories of social conflict and were less dependent upon the government for help. Instead they wanted aid in developing a community-specific disaster response plan to prepare for future events.

RECOMMENDATIONS

Following recommendations were formulated by synthesizing the project findings and suggestions of project advisory group.

- Identify information sites in area neighborhoods, preferably within walking distance and hire community liaisons from within the community to build relationships and a social network with other population-based groups, e.g. civic and social organizations, community based organizations, professional and business groups, consulates, and educators. These sites could be utilized as relief centers (cooling stations, rest areas) during times of disaster and as permanent information center for preparedness. Policies and procedures should be developed to ensure services and supplies are proportionately distributed and accounting for the more desperate needs of resource-poor communities.
- Provide technical assistance to leaders of linguistically isolated communities to help them develop their own disaster coalitions and community disaster preparedness plans.
- Develop an image-driven media campaign that incorporates personal stories and testimonies from the different communities. Use their stories in print, for public service announcements, posters, on television and internet outlets to make the information broadly accessible. Channels of communication should be far-reaching and be reflective of suggestions offered by the communities during the discussion.
- Work with non-English media so as to be able to better prepare the linguistically isolated populations. Assess the areas whereby the non-English media enterprises can help better prepare the select target populations. Develop, implement and evaluate interventions.
- Develop a marketing strategy based upon the media campaign that engages a variety of community stakeholders, such as local television stations, local municipal channel,

national weather stations, radio stations, newspapers, power, utility, and waste disposal companies, stores and churches.

- Expand this research model into additional linguistically isolated populations to determine the unique and/or constant needs within these groups to determine consistencies and differences across linguistically isolated populations.
- Since school children were found as one of the sources of information about emergency conditions, it is recommended that the preparedness planners should work with the school districts to develop the school children as the reliable sources of preparedness messages (e.g. disseminate printed materials through the schools) to their linguistically isolated families and communities.
- Further explore the data collected within the Chinese, Spanish-speaking, Vietnamese and Somali communities and disseminate findings through additional reports, presentations, and peer-reviewed articles.

REFERENCES

Klineberg, S. A Historical Overview of Immigration in Houston, Based on the Houston Area Survey, Center for Houston's Future, Rice University, 2009.

History of the Red Cross, www.houstonredcross.org, accessed 11/24/09.

Texas City Disaster, www.texascity-library.org/TCDisasterExhibit/tc1947p15.htm, accessed 11/24/09

APPENDIX

APPENDIX 1: COMPARISON OF DEMOGRAPHIC RESPONSES TO PARTICIPANTS

- Equitable distribution of participants across groups
- With the exception of the Somali, 80% or more of participants had been in the us greater than 5 years
- About a third of all participants entered the country between 2001 and 2006
- Majority of Chinese participants were over 40 years—limiting knowledge about younger Chinese
- Self-described English speaking proficiency (“not very well” to “not at all well”) ranged from 51.3% for Vietnamese, 78% for Spanish, 91.4% for Somali, and 93.8% for Chinese.
- Overall, most people had 4 household members, but a large percent of Somali’s had a household of 7
- Majority of Somali’s (80.6%) and Spanish (71.9%) were not US citizens
- With the exception of the Vietnamese (who had the most US citizens) the majority of participant families had at least one person with a Green Card
- 80.6% of Somali families did not have a full-time worker in the household
- Overall, 54% had a single full-time worker and another 34% had a second person helping the household financially
- 58% of Somali and 59% of Spanish had up to an 8th grade education; 34% of Chinese had a college education
- 67% of Somali households, 40.6% of Spanish households, 28% of Chinese households, and 8% of Vietnamese households had incomes of \$10,000 or less
- 47% of Somali’s and 49% of Vietnamese get healthcare through private physicians; 41% of Spanish and Vietnamese get healthcare through a community clinic
- In normal circumstances, the typical sources of information for Chinese is friends (59%), television (50%), and newspaper (44%); for Somali it is television (72%), for Spanish it is television (94%), radio (59%), newspaper (47%), friends (37%), and relatives (31%), for Vietnamese it was 77% for radio and television, relatives (56%), friends (46%), and newspaper (41%)

ACKNOWLEDGEMENT

This project wouldn't have been possible without the contribution of Chinese, Vietnamese, Somali and Spanish communities who participated in the focus group discussions and key informant interviews. Similarly, the individuals and agencies listed below have contributed significantly to make this project a success. Our sincere thanks to all of them.

Houston Department of Health and Human Services

Raouf R Arafat, M.D., MPH, Director, Office of Surveillance and Public Health Preparedness

Frank Levy, MA, MFA, Bureau Chief, Public Health Preparedness

Asian American Health Coalition HOPE clinic

Andrea Caracostis, M.D.

Shane Chen

Amy Chang (Chinese facilitator)

Bophany Troeung (Vietnamese facilitator)

Claudia Lozano (Spanish facilitator)

Somali Center

Osman M Osman

Project Advisory Group

Beverly Gor, Ph.D.

Salma Khuwaja, Ph.D.

Funding for this project was provided by Texas Department of State Health Services through Houston Department of Health and Human Services, Bureau of Public Health Preparedness

**Community Health Statistics
Office of Surveillance and Public Health Preparedness
Houston Department of Health and Human Services Houston, Texas 2009**

Photo:
www.howtosurviveit.c