

Status and Progress of Emergency Planning for Racially and Ethnically Diverse Communities in Greater Houston

*Findings from
Co-Educational Forums
with Community and
Response Organizations*

September 2012



Developed by:
Texas Health Institute

With Support From:
Office of Minority Health
U.S. Department of Health and Human Services
OMH-NHMA-5-10

Acknowledgements

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We would also like to acknowledge and express our sincerest gratitude to the members of the following organizations for their assistance, participation and valuable feedback provided during the series of community forums:

Alliance for Multicultural Services	Harris County Department of Education, School Safety Program
American Red Cross	Harris County Fire Marshall
Health and Mental Health Services	Harris County Office of Homeland Security and Emergency Management
Emergency Services	Functional and Access Needs CERT Coordination
Andress & Associates	Harris County Public Health and Environmental Services
City of Houston - Health and Human Services	Office of Public Information Public Health Preparedness Division
Harris County Area Agency on Aging	Harris County Sheriff's Office
Emergency Preparedness	HELP Foundation
City of Houston - Office of Emergency Management	Iglesia Bautista Manantial (Living Water Baptist Church)
Community Family Centers	Interfaith Ministries for Greater Houston
Daya – Serving South Asian Families	Jewish Family Services
Department of State Health Services (DSHS), Region 6	Legacy Community Health Services
Texas Department of Family and Protective Services	Mental Health and Mental Retardation Authority of Harris County
Public Health Preparedness	Reach Out America
Disability Rights Texas	Sheltering Arms Senior Services
Focus Humanitarian Assistance USA	St. Hope Foundation
Fort Bend County	Tri County Services
Gateway to Care	Trinity Baptist Church
Grace Community Services	
Greater Houston Partnership	
Harris County Community Services Department	

Introduction

In the United States, racially and ethnically diverse communities often experience higher rates of mortality, morbidity and economic loss after disasters and public health emergencies.^{1, 2, 3, 4, 5, 6} A growing body of evidence suggests that these disparities are largely the result of broad social and economic inequalities, such as poverty, low literacy, and substandard housing.^{7, 8, 9, 10, 11} Failure to weigh the importance of cultural beliefs and norms in diverse communities, limited English proficiency, and legacies of distrust in government also have been identified as significant, contributing factors.^{12, 13, 14, 15}

With its growing cultural diversity, range of experience with man-made and natural disasters, along with seasoned public health leaders, Greater Houston, Texas, offers a unique opportunity to understand state/local need, progress and gaps in addressing diversity and equity in emergency planning. Greater Houston, Texas represents one of the most racially, ethnically and linguistically diverse metropolitan areas in the United States. In fact, in Harris County alone—which houses the city of Houston—the Non-White population is no longer considered “minority”. Approximately, 41 percent of Harris County’s population is Hispanic, 19 percent African American and 6 percent Asian, whereas Whites comprise one-third (32%) of the county’s population.¹⁶ Also, among county residents, nearly one in four is foreign born, a proportion more than twice that of the U.S.,¹⁶ and the city of Houston has the third largest Mexican population in the country.¹⁷

The wide array of cultures and nationalities introduces a diversity of languages; in fact, more than 90 languages are spoken throughout the Houston area.¹⁷ Further, 43 percent of residents over the age of five speak a language other than English at home, while 21 percent report speaking English less than very well. Harris County is the third most populous in the U.S. and it is expected to become increasingly more populated as its estimated 3.94 million residents are projected to grow to 4.38 million by 2013 and 6.63 million by 2040.¹⁶

Within the past decade—propelled in large part by recent emergencies including the September 11 terrorist attacks (2001), Hurricane Katrina (2005), and the H1N1 Pandemic (2009-2010)—incorporating racially and ethnically diverse communities into disaster planning and response has emerged as a critical public health priority to protect the health and safety of all populations. Addressing this priority is particularly important for regions such as Greater Houston where the population is rapidly growing and diversifying, and where disaster threats are imminent, ranging from natural and man-made environmental catastrophes to novel influenza and disease outbreaks.

With support from the Office of Minority Health at the U.S. Department of Health and Human Services, the Texas Health Institute convened four community co-educational and engagement sessions in Greater Houston, Texas, to address the integration of diversity and equity into disaster preparedness and response. While the specific purpose of these sessions was to evaluate the content, value and practical application of a new toolkit entitled, *Guidance for Integrating Culturally Diverse Communities into Planning for and Responding to Emergencies*, a positive by-product was a very rich and informative discussion on the needs, challenges and gaps in planning for diverse communities in Greater Houston. This brief, therefore, combines findings from the community forums with latest scientific research and literature to identify preparedness and response priorities, best practices, and lessons learned for diverse communities in Greater Houston. As such, this brief explores the following questions:

- 1) What are the unique needs, preferences and beliefs of diverse communities in Greater Houston?
- 2) Are current emergency planning and response processes inclusive of diverse populations in Greater Houston, and has this priority gained attention and momentum in the aftermath of recent hurricanes and floods?
- 3) What are lessons learned to effectively engaging and serving diverse communities?
- 4) What promising programs exist in the area that can be shared to build the evidence-base and inform others across the country?
- 5) What challenges and ongoing barriers still need to be addressed to better incorporate racially and ethnically diverse communities into disaster planning and response programs?

For a more in-depth discussion on the community engagement sessions specific to the *Toolkit*, please refer to the companion report entitled, *Evaluation of Toolkit on Emergency Preparedness and Cultural Diversity: Findings from Greater Houston Community Engagement Sessions*.

In addition, this report includes a compendium of public health, emergency management and community resources in the Greater Houston region (Appendix A).

Methods

In Spring/Summer 2012, we convened four co-educational and engagement sessions with representatives from state and local public health, response and public safety agencies, as well as community stakeholders including representatives from social service, faith-based and ethnic organizations. Key public health partners in the community, including Gateway to Care, a multi-service community health services organization, as well as Harris County Public Health and Environmental Services assisted our Project Team in identifying public health, emergency management and community stakeholders to invite to the forums.

While the purpose of these forums was to evaluate the practical value and application of a federally-funded toolkit on planning for and responding to racially and ethnically diverse communities in a disaster, the discussions delved deep into the current preparedness landscape and actions for diverse communities. Thus, an unintended, but positive by-product of this work was a fairly in-depth assessment of where Greater Houston is in its planning process for diverse communities, including its strengths but also its weakness and gaps from both agency and community perspectives.

To complement these efforts, we conducted an extensive review of peer-review literature, state and local reports as well as programs featured on the Web to identify the current status of disaster planning for Greater Houston's diverse populations. PubMed database was searched using keywords and related terms, such as: "Houston," "disaster," "emergency," "diverse," "race," "ethnicity," "linguistic," "language," "communities of color," and "culture" for 2000-2010. In addition to reviewing the published literature, web searches using the same keywords were also conducted to investigate unpublished examples of new programs addressing the needs of culturally and linguistically diverse communities in disaster preparedness and management.

A total of 115 programs were identified and have been organized into a compendium (Appendix A). This compendium is intended to be a preliminary compilation of public health, emergency management and community-based resources in the Greater Houston region. We recognize that programs emerge and evolve fairly swiftly, and therefore, not all can be captured at one point. Nonetheless, this compendium will serve as a valuable starting point and reference guide on potential resources and partners that can be tapped into to advance the preparedness of diverse communities in the area.

A Review of Literature and Programs

We reviewed key research, literature and programs that have recently emerged in the Houston area to understand, plan for and better respond to the distinct needs and perceptions of racially and ethnically diverse communities in disasters. In this section, we summarize key findings from these resources, highlighting community needs, lessons learned, promising practices and programs to inform future planning and response efforts.

Understanding the Attitudes, Beliefs and Behaviors of Diverse Communities in Disasters in Greater Houston

Several studies following Hurricanes Katrina, Rita and Ike have examined the attitudes, beliefs and behaviors of racially, ethnically and linguistically diverse communities in Greater Houston.^{18, 19, 20, 21} Collectively, these studies have found that in addition to socioeconomic factors—such as income, poverty and literacy—culture, English language proficiency, and trust largely shape the attitudes, beliefs and behaviors of diverse communities before, during and after a disaster. Following is a summary of the key findings from this body of research.

Past Experience with Disasters. Qualitative research by Vishnu Nepal and colleagues at the Houston Department of Health and Human Services confirm that a community's previous experience with disaster affects both its preparedness knowledge and attitudes towards response.¹⁸ Focus groups with Chinese, Somali, Vietnamese and Spanish-speaking communities in Greater Houston revealed that recent immigrants with no experience with hurricanes or other tropical storms in their native countries generally had little knowledge of what to expect or how to prepare for these events. On the other hand, immigrants from war-torn countries, such as Somalia, defined "disaster" very differently, associating it with terms such as war, rape, killing, famine, and intentional arson. These populations did not have a context for understanding a "hurricane" and thus did not perceive a great risk from it. As for those who had experience with past natural disasters, including hurricanes (also referred to as cyclones or typhoons in many immigrant communities), they had limited knowledge of what kinds of protective action to take. For example, given differences in construction practices, many of these communities did not know how to prepare their homes for extreme wind and hurricane damage.

Finally, the experience of Houston residents fleeing Hurricane Rita in 2005—which was the nation's largest evacuation with 2.5-3.7 million evacuating by road—largely shaped future evacuation decisions. A 2007 survey conducted after Hurricanes Katrina and Rita indicated that a daunting number of Houston residents had minimal intentions to evacuate in future disasters.¹⁹

When surveyed on preparedness, a large portion (33%) of Houston respondents reported they would not evacuate or were unsure if they would under the hypothetical circumstance they were told to do so by government officials.

Perceived Trust in and Expectation of Government. As Houston-based studies indicate, immigrant communities also have different expectations and levels of trust in government that vary according to their diverse backgrounds and histories. For example, Chinese communities in Houston reported expecting proactive involvement from the government during disaster evacuation.¹⁸ Conversely, it was found that members of Central and South American communities did not trust government, often believing they were intentionally neglected or overlooked for assistance, supplies, and other information. Undocumented immigrants also did not trust the government for fear of deportation or detention.

These findings confirm research from across the country that show that Non-White populations are generally less likely to believe that the government will respond fairly to their disaster needs. A 2004 study found that while 77 percent of Whites perceived that the public health system would respond fairly in a bioterrorist event, only 63 percent of African Americans, 68 percent of Asian and Pacific Islanders, and 73 percent of Latinos shared this sentiment.²² In a similar study, four schools of public health conducted focus groups with different ethnic groups to assess confidence in government and emergency response systems. Findings indicated that ethnic minorities had lower levels of trust in government as well as their ability to respond in a disaster event. Findings also suggested that past experiences and feelings of discrimination contributed to perceptions of distrust.²³

Immigration Status. A survey-based study of 135 undocumented immigrants in Greater Houston revealed that concern about legal immigration status largely influenced evacuation decisions.²⁰ Nearly 80 percent of those who did not evacuate cited their legal status as a concern. In addition, approximately 10 percent of undocumented immigrants stated they were more afraid of deportation and their treatment by law enforcement than they were by the potentially deadly effects of a hurricane. Undocumented households with children had mixed attitudes and actions related to preparedness and evacuation. For example, some undocumented immigrants with legal children, were apprehensive of the prospect of potentially “separating” from each other should they get detained by authorities, leaving behind their children. In other cases, however, undocumented parents with legal children decided to evacuate for the safety and well-being of their children.

Language Proficiency. As expected, language was found to be an important determinant of preparedness and response knowledge and action among

diverse communities in Greater Houston. This was confirmed by the study of Houston's four large linguistically isolated populations – Chinese, Vietnamese, Somali and Spanish. For example, information provided through English-language television and radio, initially did not impart a sense of urgency, until people witnessed images of flooding and damage, or heard similar stories in their own languages.¹⁸ The study of undocumented immigrants also generally confirmed this notion; of all undocumented individuals who did not evacuate, nearly 80 percent had limited English proficiency.²⁰

While it is expected that Spanish-language information targeting monolingual Spanish speakers will significantly increase protective action and evacuation, results from the study by Tienfenbacher and Wilson (2012) found this was not always the case for undocumented immigrants whose decisions and actions generally hinge more on “trust” than “language”.²⁰ As they write, “there appears to be no substantial influence of Spanish-language television access on the decision to evacuate for [undocumented households] without an English-speaking adult.” The authors later discuss:

And among those who heard warnings in Spanish but still did not evacuate, many indicated that Spanish-language media was not addressing the situation in the same way as English language media. In fact, some reported that Spanish-language channels were themselves barriers to accurate information about the threat. One person described not only how Spanish-language television was inaccurately representing the risk, but also asserted that it provided little useful information.

Are Racially and Ethnically Diverse Populations Better Prepared in the Wake of Recent Emergencies?

Following Hurricane Ike, public health researchers investigated whether residents of the City of Houston were more prepared than before. The previously described focus groups of four linguistically isolated populations found that one year after Hurricane Ike, these communities remained generally unaware of appropriate strategies to prepare themselves and their households for another disaster. The majority of participants lacked an evacuation plan and demonstrated poor understanding of what it meant to “stock up” as they indicated that they would purchase frozen foods or foods that required water for preparation. The same concept was measured by Chen and colleagues (2012) via pre- and post Hurricane Ike telephone surveys of residents in which results indicated no significant improvement in the presence of an evacuation plan or awareness of what to do in an emergency as compared to pre-storm rates, which was consistent across races.²¹

Chen and colleagues also evaluated whether there were any improvements in access to information following Hurricane Ike, as compared to before, by race

and ethnicity. Results were mixed. Hispanics and a small number of other races reported an increase in access to information compared to pre-storm rates. This may be the result of recent targeted efforts to fill gaps in information for culturally and linguistically diverse populations, through for example, translated materials or greater outreach by ethnic and bilingual community representatives. Greater access to information may also possibly be the result of “bonding networks” of family and friends who share and pass on critical information. In contrast to Hispanics and others, however, African American communities surveyed reported having less access to information following Hurricane Ike, than before. As the authors write, “this is troubling because it may mean that strategies need to be reviewed and revised in reaching the black population.”²¹

A 2007 survey conducted after Hurricanes Katrina and Rita measured public interest in receiving preparedness information as well as where the public will look for post-disaster information.¹⁹ This research found that interest in learning more about how to prepare for future hurricanes differed by race. African Americans in Houston were more likely than Non-Hispanic Whites to be very or somewhat interested in learning about what supplies to have on hand and how to evacuate. In addition, African Americans were more likely than Non-Hispanic Whites to contact government organizations (including state and local health departments, local emergency services and the Centers for Disease Control and Prevention) about health problems due to hurricanes. These findings, coupled with Chen and colleagues’ recent research, suggest that while African Americans may not always have access to necessary information, they are generally receptive and thus targeted education and outreach efforts may help to better prepare this group.

Community Engagement Forums

Forum Design

In Spring/Summer 2012, we convened four community co-educational forums in Houston, Texas to qualitatively evaluate the accuracy and relevancy of a diversity and preparedness toolkit's content as well as its potential for use and application locally among agencies and organizations that play a role in planning for and responding to diverse communities. Key public health partners in the community, including Gateway to Care, a multi-service community health services organization, as well as Harris County Public Health and Environmental Services assisted our Project Team in identifying public health, emergency management and community stakeholders to invite to the forums. A total of four forums were convened, two with public health and response agencies, and another two with community stakeholders. Findings from the forums were supplemented by key informant interviews to fill gaps, and particularly capture perspectives from diverse, immigrant and refugee communities who did not attend the forums.

Participants

A total of 45 agency and community representatives participated in the forums and interviews. Figure 1 provides a summary of meeting attendees by three key sectors they represented:

- City or county government official or employee;
- Nonprofit, social service or community organization; and
- Racial-, ethnic- or faith-based organization.

Figure 1. Participants of Co-Educational Forums and Interviews

	City or County Government	Social Service or Community	Racial, Ethnic or Faith	Total
Agency Meeting 1	6	2	1	9
Agency Meeting 2	10	2	0	12
Community Meeting 1	3	4	3	10
Community Meeting 2	3	2	4	9
Community Phone Interviews	0	1	4	5
Total	22	11	12	45

Following is a summary of participants by the forum they attended:

Agency Meeting 1. Attendees at the first agency-based meeting consisted of representatives from lead organizations and government officials responsible for public health and emergency preparedness in and around Houston/Harris County. The members of this group all served together on various committees including the Regional Hospital Preparedness Council, Regional Pandemic Influenza Steering Committee, Houston Urban Security Initiative, or the Regional Catastrophic Preparedness Initiative.

Agency Meeting 2. Participants of the second agency-based forum included emergency management and response officials from city and county agencies, along with public safety officials (Police and Sheriffs) from across the Houston Metro Area.

Community Meeting 1. Attendees at the first community-based forum included community and faith leaders, along with members of Texas Gulf Coast Regional Voluntary Organizations Active in Disaster (TGCR VOAD). The TGCR VOAD is a consortium of recognized voluntary organizations active in disaster relief. Its mission is to foster more effective service to people affected by disasters. VOADs support and facilitate the delivery of disaster services by their members. Members do not themselves deliver response and recovery services. Member organizations support the efforts of federal, state, and local agencies and governments.

Community Meeting 2. The second community meeting included an additional set of representatives from faith- and community-based organizations who had experience in the areas of outreach, assistance and case management for Houston's communities. Many of these individuals participated in recovery efforts after recent disasters by providing housing, food, mental health and other resources to evacuees.

Finally, we conducted phone interviews with representatives from immigrant, refugee and ethnic communities who could not attend the in-person forums.

Status, Progress and Lessons Learned

In this section we describe the status, progress and lessons learned from experiences and programs explicitly focused on racial/ethnic diversity and equity in Greater Houston. These are derived from the discussions that took place during the forums and interviews, and have been modestly augmented by additional details we obtained from a review of the literature and programs featured on the Web, both in the Houston region, and Texas more broadly. Following are the major themes and findings that emerged.

Communication and Outreach. Representatives from both community groups and local agencies agreed that traditional methods of outreach and communication, such as written materials and English language broadcasts, in crisis situations were not necessarily effective when targeting racially and ethnically diverse communities. While translated materials serve as important supplements to emergency warning and information, they advised it should not be the only means for communicating with diverse populations. The group recognized the efforts of the Texas Department of State Health Services in offering translated materials, and also maintaining a Spanish-language website on preparedness (texasprepara.org), including resources and information on a range of events such as hurricanes, wildfires and thunderstorms. However, they discussed that communication and outreach efforts need to go beyond offering such materials.

For example, many offered the example of how in some low-income neighborhoods of color, residents are unlikely to be home during the day to receive warnings through television, radio or phone calls. Therefore, door-to-door visits after work hours by trusted community members were deemed a valuable method to both understand a community's barriers and disseminate important preparedness information. One community leader described the effectiveness of breaking down Houston's expansive and diverse region into smaller areas when conducting outreach:

"[We should ensure] Houston's twelve areas get hooked up because small areas know which doors to knock on and they know the culture. Then you can get these geographic areas to talk."

Forum discussions largely echoed findings from studies conducted in Houston on the importance of in-person communication. For example, the focus groups conducted with four linguistically isolated communities in Greater Houston emphasized the importance of one-on-one communication, particularly from representatives of ethnic minority communities. Furthermore, individuals with limited English proficiency in the Houston area looked to friends and acquaintances with more proficient English language skills for disaster-related information and even adapted their evacuation based on those of their more highly-English proficient friends.³

Forum respondents also identified community health workers, or *promotores*, as a potentially promising channel for relaying important public health and preparedness information to communities. For example a local community-based organization launched an initiative to certify *promotores* in the Community Emergency Response Team (CERT) program which trains instructors to assist in their neighborhood during a disaster. Twenty-seven *promotores* recently completed the program becoming CERT instructors in 8 Texas cities, including Houston. Beyond Houston, other regions in Texas are also exploring ways to better reach diverse communities with important

messages. For example, the El Paso City-County Health and Environment District provides pandemic influenza education for its diverse communities by training Spanish-speaking and culturally-sensitive community health workers, to reach out to Hispanic/Latino residents. The program aims to reach those who are linguistically isolated, as well as those who may not have access to the health care system or emergency services. Translated materials include easy-to-understand checklists on developing emergency supply kits in the event of a pandemic outbreak or other disaster. The materials also cover information for effective response and recovery, including coping strategies for children.²⁴

Training and Education. Both agency representatives and members of community-based organizations recognized the value of training at various levels to educate and reach diverse communities with critical information, resources and services in an emergency event. In particular, the groups spoke about Community Emergency Response Teams (CERT) and Citizen Corps' "train the trainer" programs and their strengths in reaching racially and ethnically diverse communities. These programs aim to train leaders from the community who are culturally and linguistically representative of their constituents and have the ability to translate or present the information in a context the community will find comprehensible and relatable. One participant described the effectiveness of trainings such as these in breaking down barriers better than traditional trainings.

Recently, the City of Houston Department of Neighborhoods Office of International Communities announced the availability of Spanish-language CERT trainings. This eight week training course is available for individuals, social service representatives as well as community leaders.²⁵

In addition to CERT and "train-the-trainer" programs, the Houston area has engaged multiple stakeholders in unique scenario-based training. The Harris County Public Health and Environmental Services (HCPHES) hosted the Harris County Pandemic Influenza Partner Workshop to identify strengths, gaps and potential solutions in the event of a pandemic influenza. The workshop, held over two days, stimulated discussion related to a hypothetical outbreak of influenza. This scenario was highlighted within the context of Harris County's socio-demographic composition and drew upon experts to present a variety of legal, ethical and operational dilemmas that may occur in the region. Participants agreed upon points that are relevant for diverse communities. For example, participants concluded that standard operating procedures for mass care should be tailored to each community and region, based upon their unique needs. Among the roles and responsibilities identified for the agencies present was to act as a trusted resource for information dissemination purposes and ensure that information is both consistent and tailored for each community and/or vulnerable population.²⁶

Community Engagement and Collaboration. Meeting participants identified community engagement and collaboration as a core tenant for addressing equity in emergency planning and response. Although they provided some examples of emerging collaborative efforts between city/county agencies and the community, they maintained that these relationships are not yet “ideal” for effective planning and response.

Participants identified the Gulf Coast VOAD as a promising, collaborative effort, particularly as many present at the forums already belonged to this group. Gulf Coast VOAD is a consortium for information sharing among various agencies, community-based organizations and faith-based organizations assisting during disaster recovery and response. Its member organizations represent an array of faiths (Christian, Islamic, Jewish), races and ethnicities (Taiwanese, Vietnamese, Chinese, African American) and other vulnerable groups (individuals with disabilities, homeless). The very existence of this consortium offers an opportunity to tap into existing partnerships and community-based assets within diverse communities, while at the same time affords the opportunity to identify groups that are not present at the table who require additional tailored outreach and targeting (such as many linguistically isolated immigrant communities of Houston).

A recent county-level initiative aimed to partner with and engage immigrant communities to elicit their beliefs, attitudes and perspectives on distribution of scarce resources in an emergency. Specifically, the HCPHES convened eight community engagement meetings to learn the public’s views on how they think scarce medical supplies should be distributed during a severe pandemic.²⁷ These meetings were held across Harris County and were conducted in four languages: English, Spanish, Mandarin Chinese and Vietnamese. The meetings intended to respond to important ethical questions, such as:

- If vaccines are in short supply, who should be vaccinated first?
- If we have a limited amount of antiviral medications, who should get them?
- If there aren’t enough ventilators (breathing machines), who should get them?

Additionally, as part of the county’s disaster response plan to provide human services after a disaster, officials host table top exercises twice yearly. The county has recently invited other social service agencies to participate, including the Asian Community Center, with the goal that each organization will provide their constituents with the relevant information in a culturally sensitive manner.

Furthermore, the state health department partnered with faith-based organizations in the area to provide education and training on disaster preparedness and response, and how best to work with their constituents. These trainings are being measured for effectiveness and outcomes with pre- and post-surveys. In addition, during forum discussions, local law enforcement officials described an emerging partnership with the Greater Houston Retail Association to collaborate with their membership, in particular vendors on Houston's exiting roads. This partnership aims to establish a sustainable evacuation route for Houston residents by providing evacuation information to patrons. Business owners from different racial/ethnic backgrounds will be key in reaching out to their network within the community for information sharing purposes. These examples highlight efforts of agencies working with trusted community resources to improve planning efforts and increase outreach.

Regional Resources and Coordination. Meeting participants highlighted a number of resources utilized in the Houston area which were especially valuable for their work. 2-1-1 was identified as a powerful (and potentially under-used) resource. This service, offered by the Texas Health and Human Services Commission, is crucial to connecting Houston residents with services they need. During times of emergency, citizens can quickly access information regarding evacuation routes, transportation assistance, emergency shelters and disaster recovery. It is an especially powerful resource for populations with limited English proficiency as information is available in more than 90 languages.

One attendee pointed to the Kinder Houston Area Survey as a useful tool in developing outreach goals. The survey describes economic and demographic patterns of the Houston metropolitan area and even includes an explicit focus on Asian communities and their patterns of migration, socioeconomic conditions, attitudes and beliefs.

In addition to these tools, participants highlighted that certain organizations within communities are assets themselves, particularly in their ability to liaise and foster lasting, trusted partnerships between agencies and the community. Interfaith Ministries and the United Way were organizations identified as leaders in establishing meaningful partnerships in the Houston area. These groups have developed many networks and partnerships to tackle various social, economic and health issues across Greater Houston communities. Thus, in many cases, there is not a need to "recreate the wheel," but rather tap into and leverage preparedness initiatives with existing, working networks.

Participants also described the value of networking and information sharing across different players in emergency preparedness and response. In fact, they highlighted that following recent disasters, some agencies have started

to convene monthly meetings to address emergency preparedness and management concepts. Meeting participants suggested that such venues offer an opportunity to integrate and discuss population-specific issues, including addressing any disparities. For example, Fort Bend Connect is a multi-agency group that meets to strengthen connections between agencies and relief organizations in the county (Southwest of Houston). Recent efforts undertaken by the health department, and shared with this group, have included ensuring that language translation (primarily done at the state-level) is conveyed accurately to each area's communities. In addition, they are working to ensure that public health cultural competency courses incorporate an emergency management portion.

Furthermore, The National Institutes of Health has funded the Center to Eliminate Health Disparities (CEHD) at the University of Texas Medical Branch to administer the Galveston Health in All Policies Project. The project aims to integrate health measures into the area's disaster recovery planning. Through technical assistance and workshops, the program seeks to increase understanding about social determinants of health in disaster planning efforts. The project utilizes data mapping to visualize the relationship between health and policy as well as the needs of the community using 17 indicators related to poverty, proximity to grocery stores, zoning requirements, among others.²⁸

Project SECURE (Science, Education and Community United to Respond to Emergencies) Gulf Coast is a group that represents academic, medical and public health institutions. This effort developed "Disaster Ambassador Preparedness Program (DAPP)," a two-year program for Houston Independent School District schools. It consisted of a curriculum of school disaster preparedness as well as a survey of parents' reactions to what their children had learned. Among this project's outcomes was the provision of disaster preparedness information to 4,744 people, including 57 teachers, 942 parents and 3,745 elementary students. Survey results demonstrated positive changes after implementation of DAPP. Results revealed that more people demonstrated understanding of Houston's susceptibility to future hurricanes, developed a written plan for family communication in the event of a disaster, created supply kits, showed better understanding of how to stay safe, and indicated awareness of how to obtain assistance with transportation. In addition, teachers who implemented DAPP indicated that they plan to continue the program into their yearly lessons.²⁹

Challenges and Barriers

During discussion of the toolkit's guiding principles, participants reflected upon and shared the varied challenges that they had experienced in serving and working with diverse populations, drawing on examples from recent emergencies including Hurricanes Katrina and Ike, as well as the 2009-2010

H1N1 Influenza Pandemic. In general, challenges were related to five identified issues: lack of funding and resources; challenges in achieving broad participation; geography and language issues; difficulty in establishing trust; and agencies' lack of comprehensive diversity goals.

Lack of Funding and Resources. A paucity of funding and resources was identified as a challenge by both agency representatives and participants from community organizations, although the perspectives surrounding this barrier were different. The inability to meet the demand for funds and resources was a barrier for the agencies reaching out to the community. One representative described competing priorities and needs within her agency, highlighting the difficulty of stretching thinly allocated dollars to address priorities for diverse populations. Community-based organizations spoke to a lack of resource availability in general as a prominent barrier. One attendee pointed out that agencies' funding announcements and opportunities are not often directed toward smaller, community-based organizations.

Community Outreach and Participation. A second salient barrier shared across forums was the difficulty in achieving significant turn out from communities during collaboration and outreach efforts. One agency representative described the effect of "meeting burn out" where individuals among community organizations receive multiple meeting invitations and experience confusion regarding which to attend:

"Everybody is asking the faith community to come to their meeting, but after a while people get "meeting-ed out" and stop going because they don't know what to go to. I like the idea of finding out what they've already done [to share that information]."

Furthermore, low turnout may be a function of inflexibility in scheduling and employee leave which is a persistent challenge for members of diverse communities who may work hourly jobs. During outreach efforts, challenges in information dissemination are seen when interacting with communities that are significantly isolated and even perceived as "closed". For example, participants cited that some Japanese and Korean communities in Greater Houston are very culturally and linguistically isolated from the mainstream community and that reaching out to them for participation or engagement in any efforts is extremely difficult. The Project Team also experienced this phenomenon when recruiting ethnic group organizations to attend the community forums. In many cases, we did not hear back from these organizations, despite multiple follow ups with various individuals in the agency.

Understanding the complex set of barriers to reaching these populations is critical for their participation. As conversations with an immigrant and refugee serving organization revealed, many of these communities cannot

conceive or comprehend mainstream American concepts and cultures. How they define a “disaster” may differ based on their day-to-day disaster as well as their experience “back home”, particularly for populations that have experienced war, violence, oppression and other such crises.

Participants also discussed evolving languages and practices as a looming challenge. Several examples were presented from ethnic groups that have had their language converted into a less formal dialect spoken by a younger generation. One of the participants spoke very limited English. Because the toolkit was not translated into Spanish, he had trouble following the forum’s mixed style of discussion and toolkit referencing. Participants further noted that even English-speaking low income communities may have different language patterns and dialects which have proved challenging during risk communication.

Geography. A third barrier identified in preparing for and responding to disasters in the Houston area, was the overall expansive nature of the region coupled with its highly ethnically and linguistically diverse population. One participant made comparisons to Galveston County, which is smaller and more homogenous, citing that disaster preparedness is less complex there:

“I think part of the challenge is that Houston is such a big, spread out, diverse area. The model in Galveston was different: everyone was represented at one table. The information came from the state directly to the people who led the group and we would get information from the horse’s mouth on what to do to serve our populations. That’s easy to do when you have Galveston County versus Harris County.”

Overcoming Barriers to Trust. Another barrier identified revolved around the continued challenge of distrust of government officials among some diverse communities. This concept seeped into related challenges, for example, compounding the effects of low turnout. One participant described the drawback of government-run shelters: people within the community she serves were afraid to access services post-disaster due to fear of the possibility of undergoing a background check. The ability to communicate with traumatized communities before and after the event was highlighted in relation to those that emigrate from countries where governmental trust is very low. The concepts of social vulnerability mitigation and resiliency were mentioned as key areas to consider when designing emergency preparedness programs for ethnic/immigrant communities.

Diversity is Not a Priority. Finally, meeting participants agreed that while some progress had been made toward incorporating diverse communities into preparedness and response plans, in general agencies had much room for improvement in order to address these priorities. For example, most agency representatives described their implementation of different methods

for language translation services. However, it was reported that these efforts have not been evaluated for effectiveness to determine how communities have received and understood translated messages. There is furthermore a persistent lack of diversity awareness in county and city agency drills and training, which tend to be subject-oriented rather than diversity-oriented. The use of race/ethnicity and language data in “after event” reports in the area’s health department is not a standard practice. One participant stated that it may be included during highly visible issues such as the recent H1N1 outbreak, but the inclusion of such information is inconsistent among other topic areas. Participants ultimately concluded that diversity is “not a priority” among many agencies.

Recommendations

The findings from our review of the literature and the community forums shed light onto current progress and barriers in the Houston area in incorporating racially and ethnically diverse populations into various stages of emergency management activities. Effective outreach strategies and training methods coupled with emerging collaborations between local agencies and community- and faith-based organizations show promise for assuring equity in disaster planning and response. However, several challenges still exist to achieving this goal. Forum participants indicated that lack of funding, difficulty in achieving adequate turnout, geography and language barriers and challenges in garnering trust continue to impede the path toward disaster management that is inclusive of racially and ethnically diverse communities. Recent surveys conducted in the Houston area after hurricanes and flooding demonstrate modest improvements in access to information but revealed the continued challenges.

These findings serve to guide important next steps that will help to advance progress for diverse communities in Greater Houston and beyond. For example, burgeoning relationships can be used as building blocks to create sustainable partnerships in the Houston area. Following are primary recommendations that emerged through discussions with public health and response professionals, public safety officers and representatives of faith-, ethnic- and community-based organizations during the forums.

Create a community collaborative to advance equity in emergency preparedness and response. A common theme that emerged across the forums was a desire to establish a local “Community Collaborative” comprised of all the major preparedness and response players, along with community- and faith-based organizations to leverage funding, expertise and resources to address this priority in a coordinated manner. Participants cited a general lack of communication and coordination across the major responders and community players as well as limited knowledge on what to do and the resources available. They generally agreed that addressing this priority would require a “paradigm shift” toward a “cooperative effort” – which has “not occurred” to date in the community. In fact, many suggested that dialogue and cooperation across the players was “strained”, particularly because of varied perceptions of resources. Two sides of this issue were discussed. In the case of diverse communities, government agencies were seen as those with resources, but a general unwillingness to provide assistance to community organizations that want to care for disadvantaged populations. Alternatively, government agencies perceived community organizations as being a set of redundant groups that do not share knowledge or work effectively with other community groups.

Through intense discussions, participants across the forums overwhelmingly agreed that there is a need for a community collaborative to network and address the unique needs of racially and ethnically diverse populations in emergency preparedness and response. In particular, this collaborative would aim to both bridge the gap highlighted by participants and create a dialogue between government agencies and community organizations, including faith- and ethnic-based groups. Participants concurred that a collaborative would address the current and persistent lack of strategic coordination in planning and response and work to reduce the duplicative and disjointed efforts.

Establish a central repository of information and resources. Forum participants also expressed an overwhelming need for centralizing information and resources to break current “silos”. One participant highlighted the necessity of such a resource by stating:

“A question that keeps coming up is: as the information is garnered and collected, there is a lot of information that some agencies, CBOs and FBOs may not have. Is there a place where this can be compiled and if so, where does it live? If each agency has its own information, it’s in isolation. In an emergency, people need a quick answer. If everyone has their own list, what good is it?”

They suggested that an information exchange and central repository would be important for reducing unnecessary redundancies, and at the same time, creating efficiencies and better use of “limited resources”. In particular, participants spoke about having an online repository for: data (or studies highlighting data) on communities in the Houston area, including measures of race, ethnicity, and language as well as beliefs and attitudes around emergency preparedness; inventory of bilingual staff, medical interpreters and other ethnic representatives willing to respond to diverse communities in an emergency; cultural competency education modules for public health and response workers; and drills and tabletop exercises. Having a central, easily accessible location for this information would not only facilitate the exchange of information and expertise, but also foster collaboration (as discussed under the first recommendation).

Work to assure that promising programs and networks in Houston reach across the broader region. Forum participants expressed the importance of assuring that any effort to coalesce information, programs or organizations reach communities across Greater Houston, including those in urban and outlying suburban settings. The expansive, and rapidly growing and changing, geographic nature of Greater Houston was identified as a salient barrier to effectively planning for and reaching diverse communities. Therefore, any initiative addressing this priority must not only reflect diverse communities, but also include geographic representation. This is important

given the issues, challenges, and resources to address disparities in preparedness and response, will vary by population and geographic setting. For example, a body of research suggests that suburbs surrounding the largest cities of the U.S. (including Houston), while growing and diversifying rapidly, have fewer doctors and health clinics that accept poor, uninsured patients; and social services, subsidized housing and federal antipoverty programs are scant as compared to city centers.³⁰ Accounting for these dynamics will be important for effective planning for all in the Greater Houston region.

Ensure education, outreach and communication are tailored to Greater Houston's diverse communities. Finally, forum participants repeatedly identified the importance of ensuring any education, outreach and communication that is developed or provided is tailored to specific racial and ethnic communities. A “one-size-fits-all” approach will not work. While many voiced that their organizations are beginning to work on this, they agreed that there is considerable room for improvement. Several recommendations were brought to the table. For example, participants discussed an outreach strategy similar to “snowball sampling” where trusted and well-connected community representatives (such as community health workers or faith and ethnic leaders) are contacted and provided with essential warning and preparedness information, and relied upon to get the information out to their networks. Forum participants also identified the importance of in-person communication and outreach provided through trusted, racially and ethnically concordant members of the community, and its potential strength in breaking down barriers related to culture, language and trust. In particular, such one-on-one interactions can help public health and emergency management professionals understand the unique beliefs, perceptions and attitudes of diverse communities to develop more tailored and targeted interventions. Ensuring messages and education are received and understood by members of diverse communities is critical to their adherence to recommendation actions, and ultimately, to their own safety and well-being as well as that of others in broader society.

Conclusion

Our case study paints a portrait of a metropolitan region that is still working to develop effective strategies to reach out and respond to its ever-changing and increasingly heterogeneous population. Peer-reviewed research and findings from community forums indicate that this topic is being addressed more often and agencies are beginning to consider goals for diverse communities in the context of emergencies. However, themes extracted from the literature and community forum also suggest that several of these goals have yet to be achieved and much work still needs to be done to effectively incorporate communities of color into emergency preparedness policy in a comprehensive way in Greater Houston. All stakeholders, including public health researchers, policymakers, government agency representatives and advocates from community-based organizations, should continue to raise awareness for these goals and harness existing relationships into structured and formal collaborations. These strengthened ties and networks will assure that best practices and innovations in the field are advanced thereby addressing underlying goals of improved resiliency for Greater Houston's diverse communities.

Endnotes

¹ Messias DK, Lacy E. Katrina-related health concerns of Latino survivors and evacuees. *J Health Care Poor Underserved*. 2007; 18(2): 443–464.

² Carter-Pokras O, Zambrana RE, Mora SE, et al. Emergency preparedness: Knowledge and perceptions of Latin American immigrants. *J Health Care Poor Underserved*. 2007; 18(2): 465–481.

³ Perilla JL, Norris FH, Lavizzo EA. Ethnicity, culture, and disaster response: Identifying and explaining ethnic differences in PTSD six months after Hurricane Andrew. *J Soc Clin Psychol*. 2002; 21(1): 20-45.

⁴ Fothergill A, Maestas EG, Darlington JD. Race, ethnicity and disasters in the United States: A review of the literature. *Disasters*. 1999; 23(2): 156-173.

⁵ Andrulis D, Siddiqui N, Gantner J. Preparing racially and ethnically diverse communities for public health emergencies. *Health Aff*. 2007; 26(5): 1269-1279.

⁶ Hutchins SS, Fiscella K, Levine RS, Ompad DC, McDonald M. Protection of racial/ethnic minority populations during an influenza pandemic. *Am Journal Public Health*. 2009; 99(S2):S261-S270.

⁷ Masozera M, Bailey M, Kerchner C. Distribution of impacts of natural disasters across income groups: A case study of New Orleans. *Ecological Econ*. 2007; 63: 299-306.

⁸ Bolin R, Stanford L. The Northridge earthquake: Community-based approaches to unmet recovery needs. *Disasters*. 1998; 22(1):21-38.

⁹ Pastor M, Bullard RD, Boyce JK, et al. In the wake of the storm: Environment, disaster and race after Katrina. New York: Russell Sage Foundation; 2006. 1-52.

¹⁰ Steege AL, Baron S, Davis S, et al. Pandemic influenza and farmworkers: The effects of employment, social, and economic factors. *Am J Public Health*. 2009; 99(S2):S308-S315.

¹¹ Ablah E, Konda K, Kelley CL. *Biosecurity Bioterrorism: Biodefense Strategy, Pract, Sci*. 2009; 7(3):317-330. doi:10.1089/bsp.2009.0022.

¹² James X, Hawkins A, Rowel R. An assessment of the cultural appropriateness of emergency preparedness communication for low income minorities. *J Homeland Secur Emerg Manage*. 2007; 4(3): Article 13.

-
- ¹³ Mathew AB, Kelly K. Disaster preparedness in urban immigrant communities: Lessons learned from recent catastrophic events and their relevance to Latino and Asian communities in southern California. Los Angeles & Los Angeles: The Thomas Rivera Policy Institute & The Asian American Legal Center of Southern California; 2008.
http://www.trpi.org/PDFs/DISASTER_REPORT_Final.pdf. Accessed March 15, 2008.
- ¹⁴ Cordasco KM, Eisenman DP, Glik DC, et al. They blew the levee: Distrust of authorities among Hurricane Katrina evacuees. *J Health Care Poor Underserved*. 2007; 18:277-282.
- ¹⁵ Eisenman DP, Glik D, Gonzalez L, et al. Improving Latino disaster preparedness using social networks. *American Journal of Preventive Medicine*. 2009; 37(6):512-517.
- ¹⁶ American Factfinder. U.S. Census Bureau website.
<http://www.factfinder2.census.gov>. Accessed July 19, 2012.
- ¹⁷ Houston facts and figures. City of Houston Planning Department website.
<http://www.houstontx.gov/about/houston/houstonfacts.html>. Published 2012. Accessed July 18, 2012.
- ¹⁸ Nepal VP, Banerjee B, Perry M et al. Disaster preparedness of linguistically isolated populations: Practical issues for planners. *Health Promot Pract*. 2012;13(2):265-271.
- ¹⁹ Blendon RJ, Benson JM, DesRoches CM et al. The public's preparedness for hurricanes in four affected regions. *Public Health Rep*. 2007;122:167-176.
- ²⁰ Tiefenbacher JP, Wilson SN. The barriers impeding precautionary behaviours by undocumented immigrants in emergencies: The Hurricane Ike experience in Houston, Texas, USA. *Environmental Hazards*. 2012;11(3):194.
- ²¹ Chen V, Banerjee B, Liu L. Do people become better prepared in the aftermath of a natural disaster? The Hurricane Ike experience in Houston, Texas. *J Public Health Management Practice*, 2012;18(3):241-249
- ²² Eisenman DP, Wold C, Setodji C et al. Will public health's response to terrorism be fair? Racial/ethnic variations in perceived fairness during a bioterrorist event. *Biosecur Bioterror*. 2004;2(3):146-156.

²³ Wray R, Rivers J, Whitworth A et al. Public perceptions about trust in emergency risk communication: Qualitative research findings. *Int J Mass Emerg Disasters*. 2006;24(1):45-75.

²⁴ Promotores for pandemic influenza (TX). Public health practices website. <http://www.publichealthpractices.org/practice/promotores-pandemic-influenza-tx>. Published 2011. Accessed June 15, 2012.

²⁵ Community emergency response team training available for Spanish speakers. The City of Houston website. <http://www.houstonoem.net/go/doc/4027/1500359/>. Published 2012. Accessed June 15, 2012.

²⁶ Harris County Public Health and Environmental Services. *Harris County pandemic influenza partnership workshop summary report*. <http://www.hcphe.org/HCPHESpanFluPartnerWorkshopSummary.pdf>. Accessed June 29, 2012.

²⁷ 2011 HCPHES pandemic influenza planning projects. Harris County Public Health and Environmental Services website. <http://www.hcphe.org/PandemicMassCare.htm>. Published 2011. Accessed July 20, 2012.

²⁸ Adapting the healthy development measurement tool to post-disaster planning initiatives (TX). Public health practices website. <http://www.publichealthpractices.org/practice/adapting-healthy-development-measurement-tool-post-disaster-planning-initiatives-tx>. Published 2011. Accessed June 15, 2012.

²⁹ Curriculum trains children to act as disaster preparedness ambassadors to their families. Public health practices website. http://www.publichealthpractices.org/practice/curriculum-trains-children-act-disaster-preparedness-ambassadors-their-families?utm_source=Public+Health+Practices+-+May+2012+Newsletter%3A+Healthcare+partnerships&utm_campaign=May+2012+PHP+Newsletter&utm_medium. Published 2011. Accessed July 19, 2012.

³⁰ Andrulis DP and Siddiqui NJ. "Suburban Poverty, Diversity and Health in Megacities: The Case of Los Angeles." Chapter 12 in *Megacities and Global Health*. Omar Khan and Greg Pappas, eds. American Public Health Association Press, June 2011.