

**Brazoria, Chambers, Galveston and Harris Hurricane Evacuation Zip-Zones Coastal A, B, C**

Zip Zone	Area	Evacuation Route	Evacuation Time (Hrs)
A	Galveston Island	Galveston Bay Bridge	1.0
B	Galveston Island	Galveston Bay Bridge	1.5
C	Galveston Island	Galveston Bay Bridge	2.0

**Route Designation**

- Evacuation Corridors
- Evacuation Connections
- Other Roads
- County Boundary

Logos for participating agencies: Harris County, Galveston County, Brazoria County, Chambers County, and others.



# Disaster Ambassador Preparedness Program (DAPP)

## Houston Department of Health and Human Services



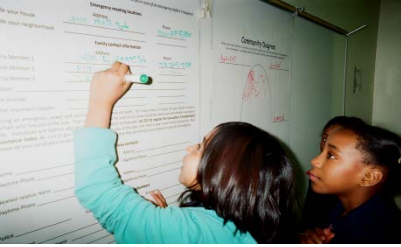
# Project SECURE Gulf Coast

(**S**cience, **E**ducation, and **C**ommunity **U**nited to **R**espond to **E**mergencies)

Houston Department of Health and Human Services is a member of Project SECURE Gulf Coast. The Secure consortium includes 7 institutions united to focus on building sustainable emergency and disaster preparedness, response, and recovery capacity in Gulf-Coast communities. Project SECURE is funded by the NIH/NCMHD. Each institution created projects with a focus on natural disasters. Hurricane IKE reminded Houstonians of the devastation natural disasters can cause. HDHHS developed DAPP to impact disaster preparedness on a family level.

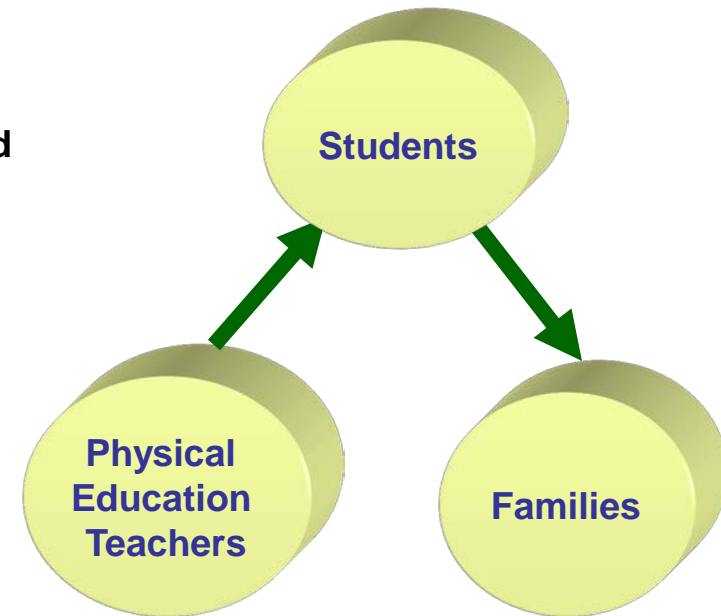
Collaborating institutions include:

- University of Texas M. D. Anderson Cancer Center
- Baylor College of Medicine
- University of Texas Medical Branch at Galveston
- Tulane University
- Miller School of Medicine/University of Miami
- Meharry Medical College



# D A P P

- This innovative program is designed for students to learn to lead their families in Disaster Preparedness – they become Disaster Ambassadors!
- Houston Independent School District Elementary Health and Physical Education Teachers were trained to implement a 4 session, interactive disaster preparedness curriculum that is based on TEKS Objectives and the 40 Developmental Assets
- *Students learned how to:*
  - 1.) *Make A Family Emergency Plan*
  - 2.) *Build a Family Emergency Supply Kit*
  - 3.) *Stay Informed during a disaster*
  - 4.) *How to Sign Up for Transportation Assistance*
- A pilot study was infused as a part of the program to determine the preparedness actions of parents and teachers before and after the program.
- Study instruments were based on self-report and included: (pre/post parent and teacher surveys and a teacher assessment)
- Houston Independent School District Department of Research and Accountability and the University of Texas School of Public Health Science Center approved the research protocol.





Houston Department of  
Health and Human Services



Houston Department of Health and Human Services developed a partnership with Houston Independent School District and Texas AgriLIFE Extension Service to combine resources and personnel to maximize the potential of the program. This partnership was an essential component to ensure effective program delivery. Some of the contributions are listed below.

### Texas AgriLIFE Extension Service

- provided curriculum
- technical assistance
- assigned a staff member to directly work with program implementation

### Houston Independent School District

- incorporated program into the Elementary Health and Physical Education Curriculum
- provided arrangements to conduct the teacher training
- established communication systems with campus teachers

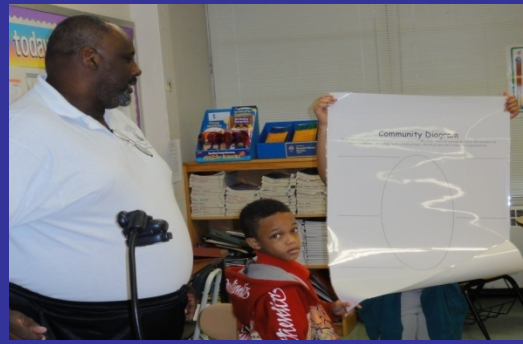
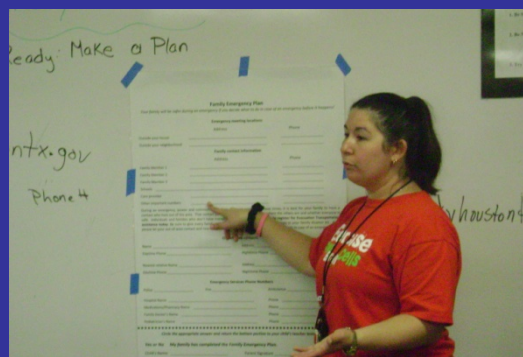
# Disaster Ambassador Preparedness Program (DAPP)

57 Health and Physical Education Teachers  
Participated in the DAPP Training



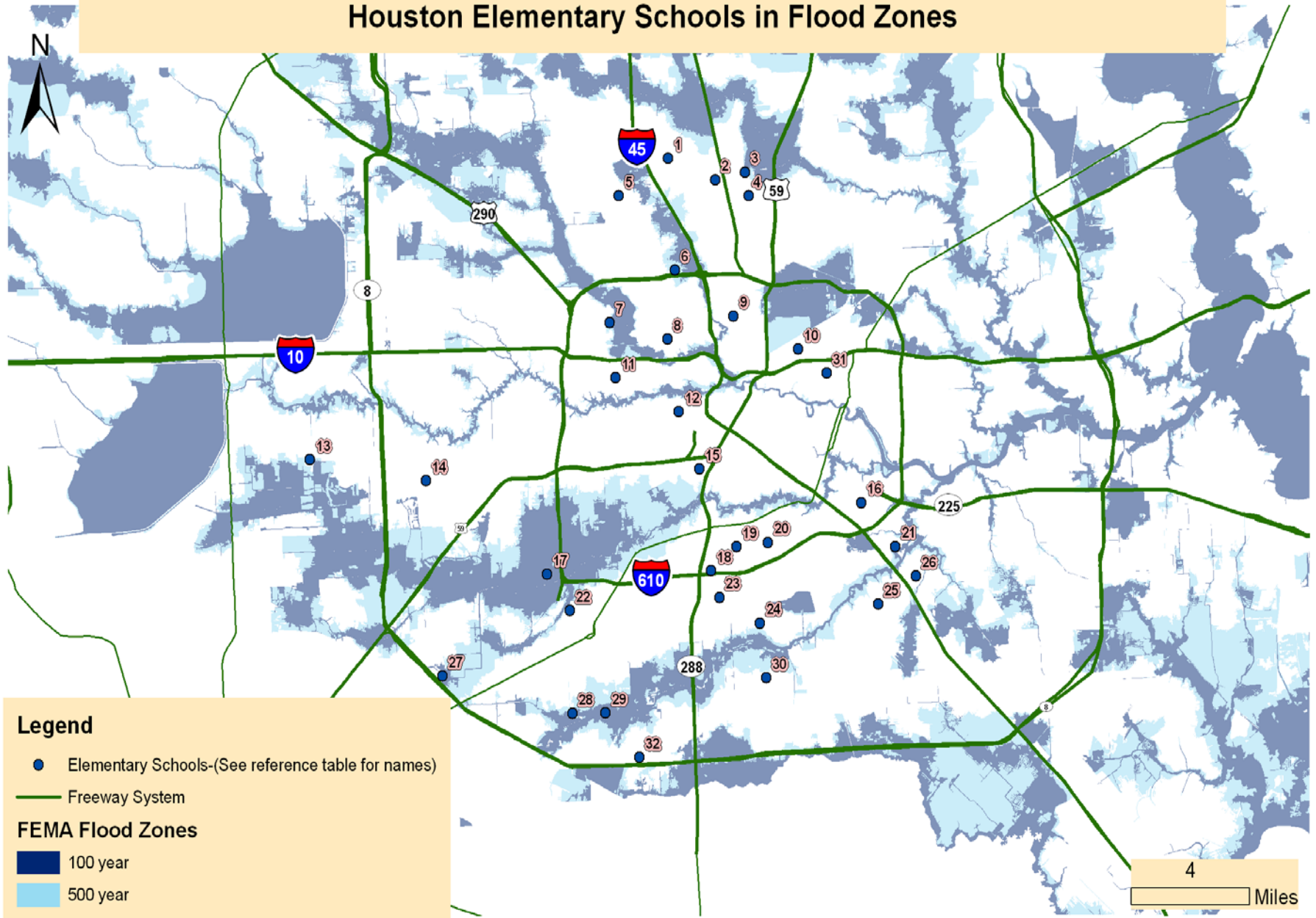


# 32 Teachers Delivered DAPP Classes Along With Take Home Activities

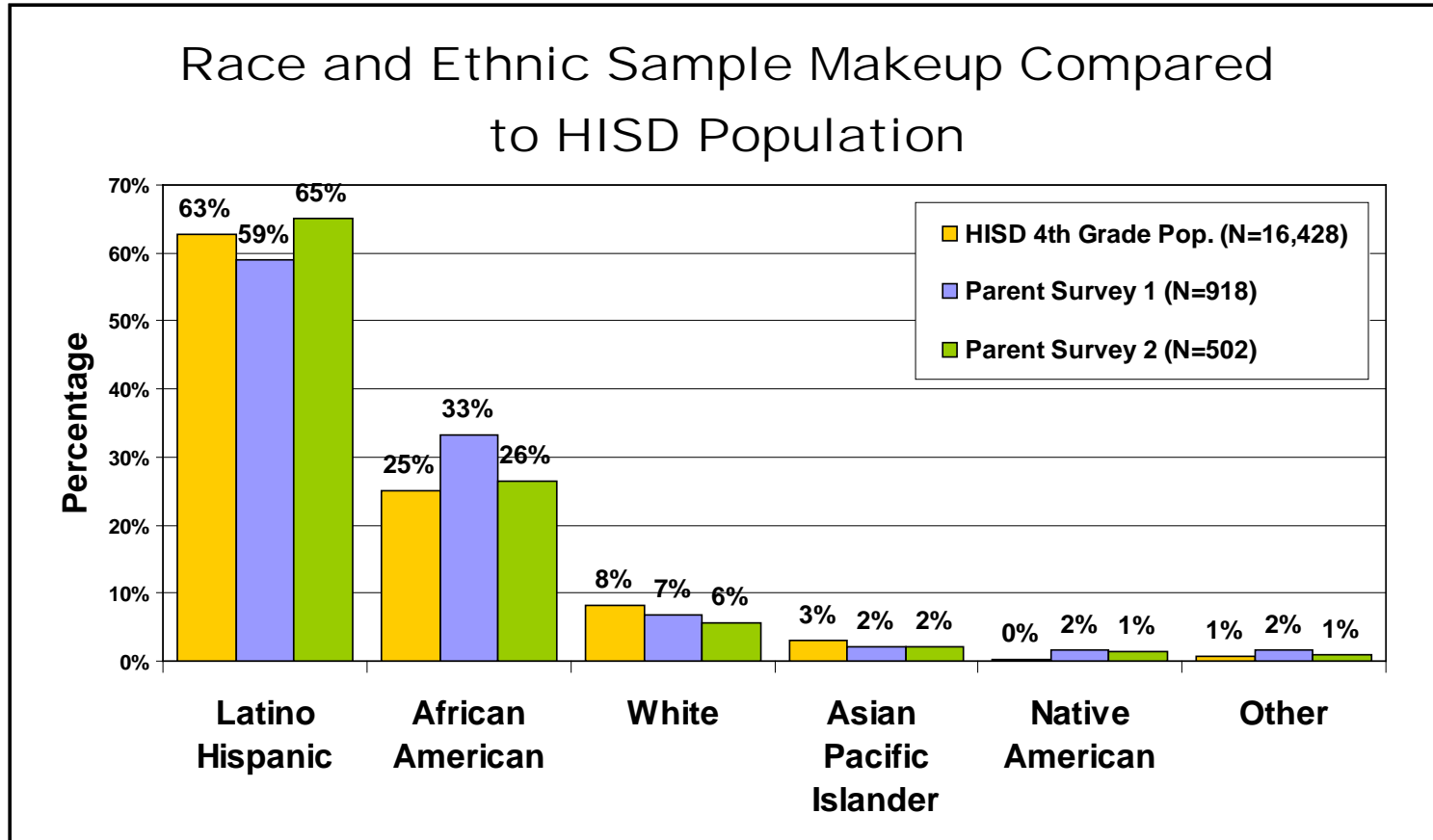


# Participating HISD Schools

## Houston Elementary Schools in Flood Zones



# Population



The graphs represents the overall target population of the DAPP pilot project which is the households and parents of 4<sup>th</sup> grade Houston Independent School District (HISD) students. The DAPP sample population closely reflects the overall population with sample size of the first parent survey (pre-test) being 918 and the second parent survey (post-test) sample size being 502. While the data collected is representative of the two major ethnic groups (Latino/Hispanic and African American), an overrepresentation of White and Asian Pacific Islander sample would have been ideal. Nevertheless, the data collected fits the overall population with only at most a 2% difference in representation in either samples.

Source: 4<sup>th</sup> grade population, HISD Department of Research and Accountability





# DAPP METHODS

- Health and Physical Education Teachers were asked to deliver the curriculum to their 4<sup>th</sup> Grade Classes.
- Twenty-eight HISD schools conducted the program with 4<sup>th</sup> grade students and four schools delivered the program with 3<sup>rd</sup>-5<sup>th</sup> grade students.
- DAPP reached a total of 4,744 people. This includes 57 teachers, 942 parents (from parent surveys 1 and 2), and 3,745 students.
- The program included the 4 sessions along with take home activities that provide families the opportunity to make a family emergency plan and a disaster supply kit.
- The teachers were asked to distribute the parent surveys before (pre-test/ parent survey 1) and after (post-test parent survey 2) the program to at least two 4<sup>th</sup> Grade classes for students to take home to their parents. Both surveys have identical questions.



# **DAPP**

## **RESEARCH QUESTIONS**

- 1. To what extent does the Disaster Ambassador Preparedness Program (DAPP) affect parents' knowledge, beliefs and practices regarding their disaster preparedness?**
- 2. In which stage of the Stage of Change (Transtheoretical Model: Pre-contemplation, Contemplation, Preparation, or Action) are parents and teachers relative to their disaster preparedness.**
- 3. What barriers do individuals perceive in preparing for disasters?**
- 4. To what extent does DAPP affect teachers' knowledge, beliefs and practices regarding their disaster preparedness?**
- 5. Which factors are important in differentiating persons who are in the different stages of behavioral change?**
- 6. Will teachers agree to adopt the Disaster Ambassador Preparedness Program into their annual curriculum for continuous instruction?**

# **DAPP PARENT SURVEYS METHODS AND RESULTS**

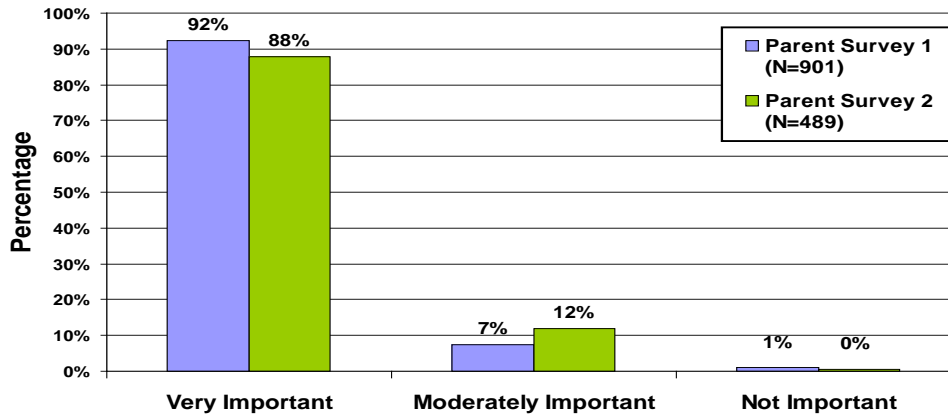
## **Parent Surveys Collected**

- Each teacher was given one hundred parent surveys (1 and 2) to distribute to the students based on potential class size.
- The surveys were in English/Spanish. There was an additional 24 parents answering survey 2 that didn't answer survey 1. This brought the total number of parents to 942.

<b>LANGUAGE</b>	<b>SURVEY 1</b>	<b>SURVEY 2</b>
<b>English</b>	553	258
<b>Spanish</b>	365	244
<b>Total</b>	918	502

# Preparedness Importance and Hurricane Likelihood (Perceived Seriousness and Susceptibility)

Q2. Importance of Disaster Preparedness for Families



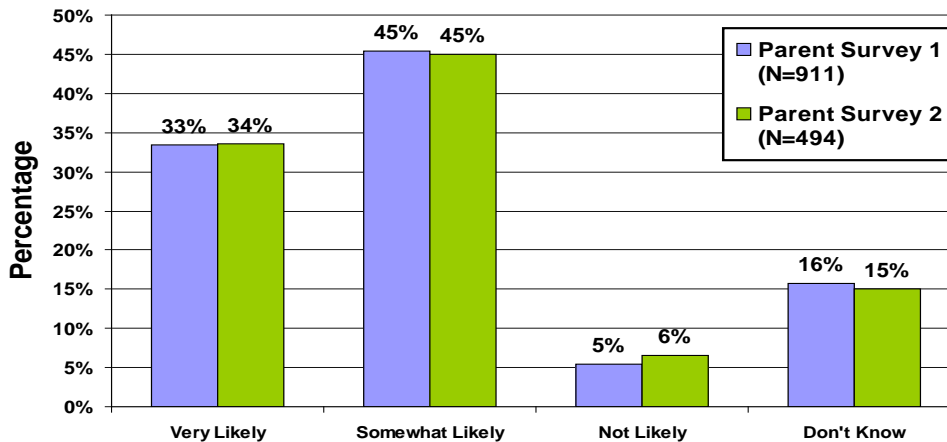
\*

Q2. A high percentage (92% Parent Survey 1 and 88% Parent Survey 2) answered that it was "Very Important." However, more parents at Parent Survey 2 seemed to place a lower amount of importance of being prepared at time 2, a difference of four percent between the two surveys.

Parent Survey 1	Parent Survey 2	t value
1.082	1.127	-2.432*
(.290)	(.345)	p<.05

The t value tells us that there is a significant difference, or change in responses, in mean comparisons for the two samples.

Q3. How Likely Do You Think Houston Will Experience a Hurricane in the Next 2 Years



Q3. There is not much change between the two surveys in the perception that Houston will experience a hurricane in the next two years. Much of the replies remained constant between Parent Survey 1 and Parent Survey 2 with at most a one percent difference between the two points.

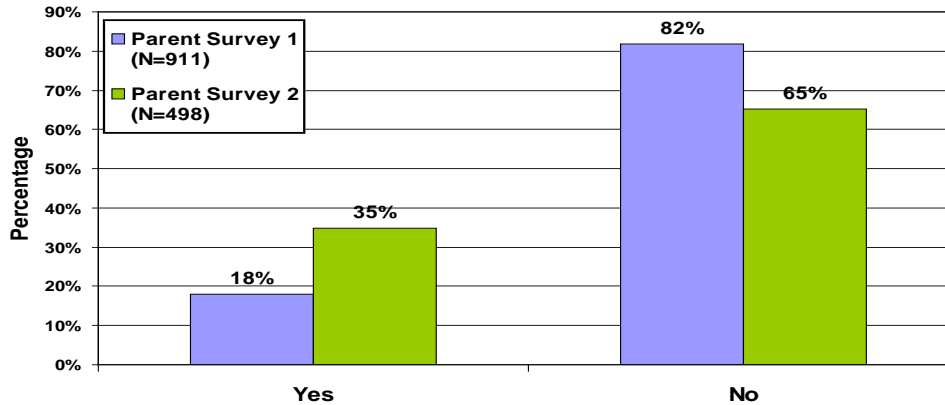
Parent Survey 1	Parent Survey 2	t value
2.036	2.028	0.141
(1.00)	(1.01)	p=.888

The results of the t-test confirm that there is no significant change between the two samples.



# Written Plan for Communication (Transtheoretical Model)

Q6.a. Respondent Has Made a Written Plan for Communication in the Past 6 Months

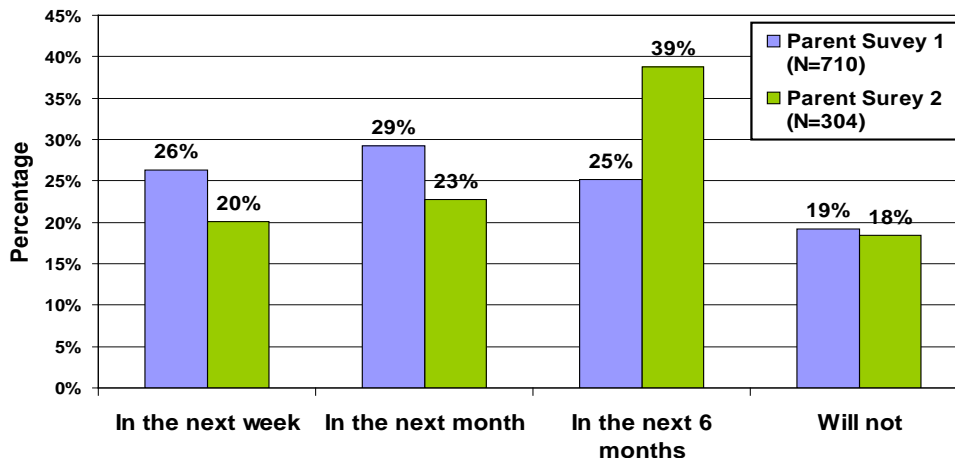


\* Q6.a. Many parents (82%) reported that they did not have a written communication plan in Parent Survey 1. However by Parent Survey 2, this number dropped to 65%.

Parent Survey 1	Parent Survey 2	t value
1.819	1.653	6.682*
(.385)	(.477)	p<.001

The results of the t-test confirm that the significant change in parents taking action to having a written emergency communication plan between the two surveys.

Q6.b. Respondents With No Communication Plan Will Make a Written Communication Plan:



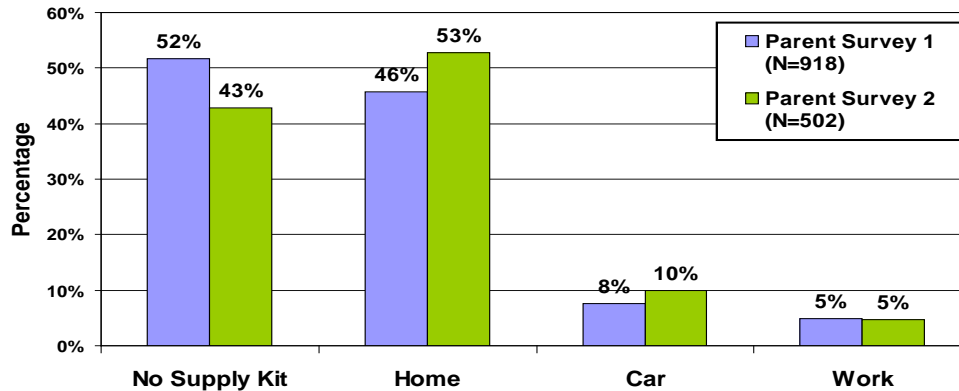
\* Q6.b. However, of the parents who had not made a plan Many responded that they are willing to wait up to six months (39% Parent Survey 2) to have a written plan of communication. The pattern demonstrated here in this graphs shows a shift in pattern for families to postpone the preparation of a communication plan.

Parent Survey 1	Parent Survey 2	t value
2.372	2.556	-2.6118*
(1.070)	(1.011)	p<.01

The results of the t-test confirm that there is a significant change or shift between the two samples.

# Supply Kits and Getting Information (Transtheoretical Model)

Q7.a. Supply Kits Prepared by Respondents:  
Breakout of How Samples Responded



\*

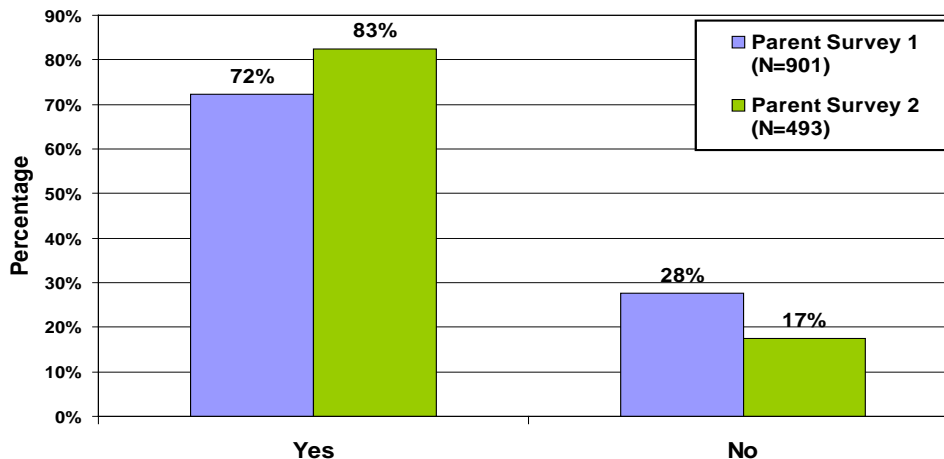
Q7.a. More parents reported having taken action to prepare supply kits in the “home” and for their “cars” (from 46% to 53% and 8% to 10% respectively on Parent Survey 1 and Parent Survey 2). Parents not having a supply kit decrease from 52% to 43%. Of these three changes mentioned above, t-test results show that there was a significant difference or change in action between the two surveys for parents having no supply kit and those parents having a supply kit at home from. The t values are shown below.

No Supply Kit  
t= 3.231\*  
p<.001

Home  
t= -2.539 \*  
p<.01

Car  
t= -1.460  
p= 0.145

Q8. Respondents Who Know How to Get  
Information to Keep Safe During a Disaster



\*

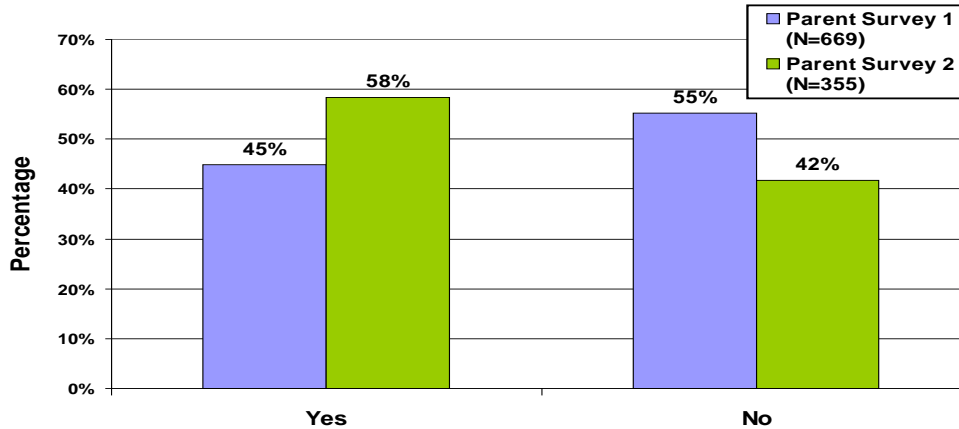
Q8. Many responded (72% Parent Survey 1) knowing how to get information to keep safe during a disaster. The percentage increase to 83% in Parent Survey 2.

Parent Survey 1	Parent Survey 2	t value
1.276 (.447)	1.174 (.380)	4.491* p<.001

The results of the t-test confirm that there has been a change in knowledge of getting information to keep safe during a disaster between the two samples.

# Transportation Assistance and Evacuation Decision (Transtheoretical Model)

Q9.a. Respondents Who Know How to Sign Up  
for Transportation Assistance



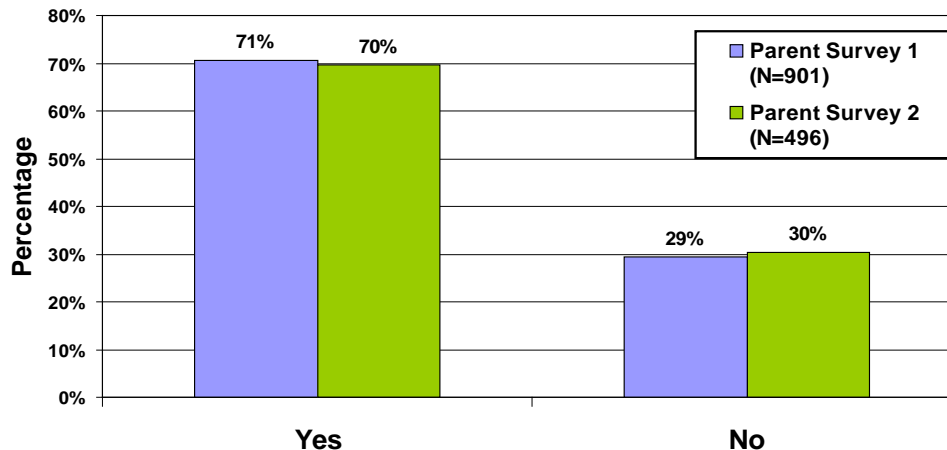
\*

Q9.a. This graph shows an increase in knowledge as a result of the DAPP pilot project. There was an increase of 13% of parents learning how to sign up for transportation assistance ("Yes" from 45% Parent Survey 1 up to 58% Parent Survey 2).

Parent Survey 1	Parent Survey 2	t value
1.552	1.417	4.142*
(.498)	(.494)	p<.001

The t-test shows that the increase in knowledge was large enough to be significant.

Q10.a. Family Has Decided to Evacuate or Shelter  
In Place in Case of a Hurricane



Q10.a. There was almost no change in attitude (1% difference) between Parent Survey 1 and Parent Survey 2 for families when asked if they had made a decision to evacuate or shelter in place in case of a hurricane.

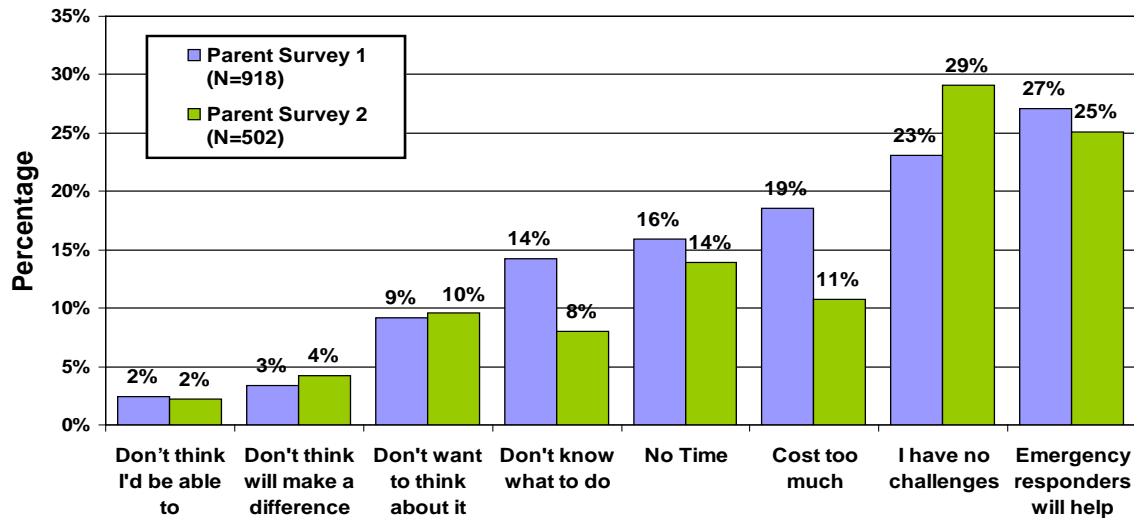
Parent Survey 1	Parent Survey 2	t value
1.293	1.304	-0.446
(.455)	(.461)	p=.656

The results of the t-test confirms that there was no significant difference between the two samples.

# Challenges

## Q11. Challenges Families Face in Being Prepared for Disasters

(Some Respondents May Have Multiple Challenges)



Q11. Most parents reported that “emergency responders will help” for Parent Survey 1. But for Parent Survey 2, more parents reported as “having no challenges.”



# Demographics Summary

A summary of the demographic make up of parents and households tell us that:

1. A large percentage (70%) of the parents ranged between 26 – 40 years in age.
2. More female parents compared to male parents completed the surveys (86% Survey 1 and 83% Survey 2).
3. More households (30% - 34%) had two or three children under the age of 18 living at home.
4. More families reported to live in houses (64%) compared to apartments (30%). A smaller percentage live in mobile homes (3%) or townhomes (3%).
5. More families (58%) reported to make under \$25,000 in household income and only 6% of families reported \$75,000 or more in household income.
6. Highest percentage of respondents (31%) had attained a high school education. The lowest education attainment level, with 2% of parents reporting, was masters or doctorate degree.
7. 15% of families reported as having a household member with a disability.
8. More parents answered the survey in English (60%, Survey 1). However, the percentage decreased by Survey 2 to 51% responding in English.

# ARE WE PREPARED??





# ANSWERS TO RESEARCH QUESTIONS

1. To what extent does DAPP affect parents' knowledge, beliefs, and practices regarding their disaster preparedness?





CONSTRUCT	CONCEPT
✓ Knowledge	How to: get information to keep safe and sign up for transportation assistance.
✓ Attitude	Being prepared for disasters
✓ Susceptibility	Houston is susceptible to a Hurricane in the next 2 years
✓ Exposure	TV and Radio Messages





# we gotta do what? when?

2. In which stage of the Stage of Change Model (Pre-contemplation, Contemplation, Preparation, or Action) are parents relative to their disaster preparedness. (Questions 6 - 10)



Parents ***moved into action*** to have a written plan and supply kit!



Those who have not taken preparedness measures ***won't*** until six months.





# ANSWERS TO RESEARCH QUESTIONS

## 3. What barriers do individuals perceive in preparing for disasters?

- Some parents reported they did not have any challenges to face in being prepared for disasters (29%). This number increased after the program.
- However, many reported emergency responders will provide help during a disaster. It is stressed that disaster preparedness should start on the family level!
- Some parents believed that preparedness cost too much. The number of responses in this category dropped after the program.

# ANSWERS TO RESEARCH QUESTIONS

4. Which factors are important in differentiating persons who are in the different stages of behavioral change? If "A" then "B"!

## ATTITUDE

- Those who reported a positive attitude towards preparedness (prepared or extremely prepared) were more likely to have a plan, disaster supply kit, and knew how to get information. They were in the action phase of the stages of change.

## KNOWLEDGE

- Those who reported being very or somewhat knowledgeable about preparedness were more likely to have a plan, disaster supply kit, and knew how to get information. Thus, these parents were in the action phase of the stages of change.

## PERCEIVED SERIOUSNESS

- Parents who reported that it was very or moderately important to be prepared for disasters were more likely to have a plan, disaster supply kit, and knew how to get information. Thus they were in the action phase of the stages of change.

## PERCEIVED SUSCEPTIBILITY

- Parents who reported that it was very or somewhat likely that Houston will experience a hurricane, in the next 2 years were more likely to have a plan, disaster supply kit, and knew how to get information. They were in the action phase of the stages of change.



# Lessons Learned

- Rate of family preparedness for disasters increased
- Increase in families creating a written emergency plan
- Increase in families preparing supply kits at home
- More families learned how to: get information to keep safe during a disaster and sign up for transportation assistance if needed
- Greatest change in perceived barriers/challenges
  - parents know what to do to prepare for disasters
  - parents realize that the cost of being prepared for a disaster is not too much
  - parents now report that challenges in preparing for a disaster are nonexistent



# Lessons Learned

## ● *Unexpected Results*

- Parents moved towards pre-contemplation stage and away from action or contemplation stage in some areas
- Possible that giving second survey at end of hurricane season influenced responses

## ● *Recommendations*

- Offer program before or during hurricane season
- Expand on existing survey
- More work and research needed in the area of disaster preparedness

## ● *TEACHERS WERE AWESOME!*



# Teachers Celebrate Completion of DAPP





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