



Field Report:
Zika Community Assessment for Public Health Emergency Response (CASPER)
June 17-18, 2016



Austin/Travis County Health and Human Services Department
Disease Prevention and Health Promotion Division
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Background:

In May 2015, the Pan American Health Organization issued an alert regarding the first confirmed Zika case in Brazil. On February 1, 2016, the World Health Organization declared Zika virus a Public Health Emergency of International Concern. Zika virus is transmitted to persons primarily through the bite of an infected mosquito (*Aedes* species). Symptoms of Zika virus include fever, rash, joint pain, and conjunctivitis. Zika virus infection during pregnancy can lead to microcephaly. Local transmission of Zika virus continues to spread to new countries and territories. As of August 16, 2016, 108 Zika cases have been confirmed in Texas with four of these cases in Travis County, all travel related.

The mosquito that carries Zika is endemic to Central Texas. Beginning May 1st, the Austin/Travis County Health and Human Services Department (A/TCHHSD) mosquito management program began collecting, testing, and treating mosquito breeding areas throughout Austin and Travis County. A/TCHHSD works to inform the community on the Zika virus and the protective measures they can take to avoid mosquito bites.

In addition, preparing for public health emergencies in Austin and Travis County is critical to protect everyone's health and wellbeing. A/TCHHSD encourages residents to have knowledge of emergency preparedness planning principles (e.g. emergency plans, evacuation plans) and to have preparedness equipment and supplies.

A/TCHHSD was interested in learning about the community's understanding of the Zika virus, mosquito prevention, and emergency preparedness. Therefore, a community assessment was conducted approximately one month after the start of mosquito season. The objectives of the assessment were:

- 1) To quantify knowledge and understanding of Zika virus health messages;
- 2) To evaluate mosquito prevention behaviors (e.g. drain standing water, wear repellent, wear long sleeve shirts and pants);
- 3) To quantify known emergency preparedness planning principles (e.g. emergency plans, evacuation plans);
- 4) To describe the types of preparedness equipment and supplies households have access (e.g. emergency supply kits, first aid kits); and
- 5) To describe sources of trusted Zika virus and emergency preparedness messages.

Methods:

To accomplish the assessment objectives a Community Assessment for Public Health Emergency Response (CASPER) methodology was utilized. CASPER is an epidemiologic investigation tool designed to provide household-based information about a community's knowledge, attitudes, and practices in

both disaster and non-disaster settings. The CASPER is designed to sample a representative cross-section of the community with teams attempting to conduct 7 surveys throughout 30 clusters within Austin/Travis County.

The A/TCHHSD Epidemiology staff developed a two-page survey instrument for this CASPER. The survey instrument, developed in English and Spanish, included 38 questions regarding Zika virus disease and known risk factors, mosquito prevention behaviors, personal and household emergency preparedness and evacuation plans and prevention activities. CASPER interviews were conducted Friday, June 17 and Saturday June 18, 2016 by 18 two-person teams on day one and 14 two-person teams on day two. Survey teams consisted of volunteers from A/TCHHSD, Texas Department of State Health Services, Texas A&M Health Science Center, and The University of Texas Health Science Center. A/TCHHSD staff provided 1.5 hours of just-in-time training to volunteers the morning of Friday June 17, 2016.

The CASPER was conducted in 30 clusters throughout Austin and Travis County (see appendix A). These thirty census blocks were selected with a probability proportionate to size approach from all households in Travis County. The selected clusters contained 2,781 housing units. During “ground truthing”¹ activities prior to the assessment, several clusters were deemed unsafe and/or inaccessible and were replaced with additional clusters.

Detailed maps of each selected cluster were generated and provided to interview teams along with a starting address. Teams were instructed to begin their first interview at the house directly to the left of the provided starting address. After the first interview, teams moved sequentially to the left and attempted to complete a total of seven interviews per cluster. The overall goal was 210 interviews. All teams were provided with surveys in both English and Spanish. Teams were also provided the option of conducting electronic surveys using Survey 123 on iPads or mobile devices.

Interviewers also distributed educational materials on Zika virus disease, mosquito prevention behaviors, household emergency preparedness and evacuation plans, mosquito repellent wipes, condoms, and hand sanitizer.

Completed survey data was entered and analyzed using EpiInfo 7 and Stata 13. Microsoft Excel was also used for some statistical analysis.

The A/TCHHSD Zika CASPER was conducted in collaboration with Williamson County and Cities Health District (WCCHD) who also conducted a CASPER on the same dates using the similar questionnaires.

¹ Staff members drove to each cluster and conducted direct observations and reported information on road conditions, hazards and barriers

Results:

A. General Survey Overview

Survey teams approached 1,017 households representing 37% of the 2,781 housing units in the targeted 30 clusters (Table 1.). Survey teams completed a total of 177 surveys for a completion rate² of 84% and a contact rate³ of 17%. A total of 187 households declined the interview, 50 homes were inaccessible, and no answer was reported at 510 homes. The cooperation rate⁴ was 48%. Of the households interviewed, 89% were single family homes, 10% were multi-family units, and 1% of households were mobile homes.

Table 1. Household Survey Metrics

Household Survey Metric (Number of Houses/Households)				
# Housing Units	2781		# Houses Inaccessible	50
# Houses Approached	1017		# Houses No Answer	510
# Households Interviewed	177		# Households Refusing Interview	187

B. Zika Virus Health Communications

Survey participants were asked to choose the top three sources they used to receive Zika information. The top three leading sources of information were radio television (81%), internet/social media (54%), followed by newspapers (27%) (Table 2.). As shown in Table 3, respondents also indicated that the top three sources they most trusted for accurate Zika information were radio/television (51%), healthcare workers/private doctors/pharmacy (44%), and internet/social media (32%).

Table 2. Sourced used to receive Zika information

Source	Percent
Radio/Television	81%
Internet/Social Media	54%
Newspapers	27%
Family/Friends /Neighbors/Community meeting/Church	17%
Health care workers/Private doctor/Pharmacy	11%
Government	8%

² Completion rate is equal to the number of completed interviews divided by the number of interviews goal (210).

³ Contact rate is equal to the number of completed interviews divided by the number of household units where contact was attempted.

⁴ Cooperation rate is equal to the number of completed interviews divided by the number of household units where contact was attempted.

Table 3. Sources most trusted for accurate Zika information

Source	Percent
Radio/Television	51%
Health care workers/Private doctor/Pharmacy	44%
Internet/Social Media	32%
Newspapers	19%
Family/Friends /Neighbors/Community meeting/Church	15%
Government	14%

C. Zika Virus Knowledge

Respondents were asked a series of questions regarding Zika virus knowledge. Seventy-five percent reported that Zika is an important issue in their communities. When asked if Zika virus can be sexually transmitted, 54% said yes. Sixty-five percent reported that there is no vaccine for Zika virus. When asked what the symptoms of Zika were, 41% reported there were no symptoms or did not know the symptoms of Zika (Table 4).

Residents were asked, “What actions can you take to protect you or your household from getting Zika?” Sixty-one percent of respondents reported personal measures (i.e., wear long sleeved shirts and long pants). Mosquito (i.e., use mosquito control products) and household related measures (i.e., install/repair/use window and door screens) were reported by 48% and 38% respectively. Safe Sexual or travel related measures (i.e., condom use, abstain from sex, avoid/cancel travel) accounted for 19%.

Table 4. Knowledge regarding Zika prevention behaviors

Question	Percent
Do you think Zika is an important issue in your community?	
Yes	75%
Can Zika virus be sexually transmitted?	
Yes	54%
No	25%
Don't Know	21%
Is there a vaccine for Zika virus?	
No	65%
Don't Know	27%
Yes	8%
What are the symptoms of Zika?	
No symptoms/DK	41%
Fever	40%
Joint Pain/Body Pain/Headache	31%
Flu Like	16%
Rash	13%

Gastrointestinal (nausea, vomiting, diarrhea)	6%
Conjunctivitis	5%
If a pregnant woman has Zika, what are the risks for her baby/fetus?	
Microcephaly/Brain associated damage	71%
Overall affection, including death	26%
None	2%
What actions can you take to protect you or your household from getting Zika?	
Personal actions	61%
Mosquito related actions	48%
Household actions	38%
Sexual or travel related measures	19%

D. Mosquito Prevention Knowledge

Fifty-four percent of respondents reported they were aware of other diseases spread by mosquitos that could impact their community. Of those who were aware of other diseases, 42% were aware of West Nile virus, and 50% were aware of dengue, chikungunya, malaria and other mosquito diseases. When asked about mosquito repellent usage in the 30 days prior to the CASPER, 74% of households indicated that at least one household member used repellent.

Residents were asked about their activities to reduce or remove mosquitos from their houses or yards. Water related actions (i.e., keep water containers clean, scrubbed, and covered) were taken by 65% of respondents. Mosquito-related actions taken by households (i.e., spraying and fumigating, use larvicide, burn mosquito coils) were reported by 39% of respondents. House- related actions taken by households (i.e., cleaning clogged roof gutters, keeping yards and shrubs clean, use full screens on open doors, keep the environment clean and remove garbage) were reported by 24% of respondents. Sixty- two percent of households reported having flower pots and/or yard ornaments in their yards and 51% reported having bird baths, tires, pet water dishes, fountains, buckets, rain barrels and pools.

Table 5. Knowledge regarding mosquito prevention behaviors

Question	Percent
Are you aware of other disease spread by mosquitos that may impact Austin/Travis County residents?	
Yes	54%
Which other mosquito diseases are you aware of?	
Dengue/Chikungunya/Malaria/Others	50%
West Nile Virus	42%
In the last 30 days, have you or members of your household used mosquito repellent?	
Yes	74%

What are you currently doing to reduce or remove mosquitos from your house or yard?	
Water- related actions	65%
Mosquito- related actions	39%
House- related actions	24%
Do you have any of the following in your yard?	
Flower pots/yard ornaments	62%
Bird bath/tires/pet water dish/fountain/buckets/rain barrel/pool	51%
I don't have a yard	24%

Only 7% of respondents stated that they had accessed resources regarding Zika virus or mosquito prevention from their local health department (Table 6.). Actions that respondents would like the health department to take to prevent mosquito disease in Austin/Travis County included spraying/fogging (36%), information and education about mosquito diseases (31%), control measures including mosquito nets, repellent, etc. (9%), and community assessments/survey (5%).

Table 6. Health Department resources/actions

Question	Percent
Have you accessed resources from your local health department regarding Zika virus or mosquito prevention?	
Yes	7%
What actions would you like the health department to take to prevent mosquito diseases?	
Spraying/fogging	36%
Information and education about mosquito diseases	31%
No action, stay the same, don't know	13%
Control measures regarding water, treatment, incentives, protective items (nets, repellent, etc.)	9%
Community assessments/surveys like CASPER	5%

E. Household Emergency Preparedness and Evacuation

The top three emergencies that respondents feel are most likely to affect their households are high winds/tornado (53%), rain/thunderstorms/hurricane (48%), and flooding (43%). Seventy-nine percent of households reported having important documentation in a safe location, while only 53% of households reported have an emergency communication plan. The majority of households indicated having working smoke detectors (97%), working fire extinguishers (78%), and working carbon monoxide detectors (58%). Survey teams, asked a number of household emergency preparedness and evacuation related questions. Tables 7 and 8 summarize the current preparedness situation among households completing the survey.

Table 7. Top Three Emergencies

Question	Percent
What are the top 3 emergencies you feel are most likely to affect your household?	
High winds/tornado	53%
Rain/thunderstorms/hurricane	48%
Flood	43%

Table 8. Existing Household Emergency Preparedness

Preparedness Resources	Percent
Important documents in a safe location	79%
Emergency communication plan	53%
7-day supply of medication for each person who takes prescribed meds	88%
Adequate non-perishable food (e.g., canned foods, protein bars)	85%
Adequate food and water for your pet(s) for the next 3 days ¹	81%
Way to cook food without utilities (e.g., gas or charcoal grill)	76%
Adequate drinking water for 3 days (1 gallon/person/day)	57%
First aid kit that is kept in a designated place in the home	71%
Emergency supply kit that is kept in a designated place in the home	38%
Working smoke detector	97%
Working fire extinguisher	78%
Working carbon monoxide detector	58%
Working generator with adequate ventilation	12%

When asked where would you go if you had to evacuate during a larger scale disaster, 71% responded they would go to friends/family/second home outside your area (71%), American Red Cross, church or community shelter (15%), and hotel or motel (13%). Residents were also asked, in an emergency if your household was asked to evacuate, what would you do with your pet(s)? Eighty-seven percent of households that reported having pets stated that they would take their pets with them. The sources reported to be used most to receive up-to-date information about disaster or emergency events were phone (71%), TV (68%), internet and social media (56%).

Table 9. Disaster/Emergency Evacuation and Notifications

Question	Percent
If your household had to evacuate due to a large-scale disaster or emergency, where would you go?	
Friends/family/2 nd home outside your area	71%
American Red Cross, Church or Community Shelter	15%
Hotel or motel	13%
In an emergency if your household was asked to evacuate, what would you do with your pet(s)?¹	
Take it/them with you	87%
Which sources does your household use to receive up-to-date information about disaster or emergency events?	
Phone (text message, automated call, regional notification system, mobile emergency alerts)	71%
TV	68%
Internet and social media (twitter, fb, etc.)	56%
Radio	41%
Community (church, neighbor/friend/family/word of mouth)	23%
Local newspaper, poster/flyer	17%

¹Results based on respondents reporting having a pet

F. Influenza

Sixty-seven percent of households reported that at least one member of the household received a flu shot or flu vaccine during the last 12 months (Table 10.). These flu shots were provided at a doctor’s offices or hospital (55%), pharmacy (26%), school or workplace (10%), and City or County sponsored flu clinics (9%).

Table 10. Influenza related information

Questions	Percent
During the last 12 months, have you or a member of your household had either a flu shot or a flu vaccine that was sprayed in the nose?	
Yes	67%
Where did you get your last flu shot?	
Doctor’s office/Hospital	55%
Pharmacy	26%
School or workplace	10%
City or county sponsored flu clinic	9%

Conclusion and Recommendations:

This community health assessment was unique in that it broadly focused on the understanding and knowledge of the Zika virus, mosquito prevention behaviors, and emergency preparedness. A large number of homes approached during the survey had no answer. For safety reasons, the survey was conducted during daylight hours; in addition, the assessment was conducted during extreme heat conditions which may have affected the number of surveys completed. Even with those limitations, the CASPER teams were still able to reach a cross section of the community and provide sufficient information to develop a snapshot of the community's understanding and knowledge of the Zika virus, mosquito prevention behaviors, and emergency preparedness.

- Consistent messaging about Zika is vital. Residents receive their information from an array of resources. Messages must also be provided in multiple languages.
- Social media usage needs to be increased to provide accurate and consistent messaging about Zika to residents. Majority of households utilize and trust social media as a source for accurate information.
- Additional education on symptoms of Zika virus needs to be provided to Austin/Travis County residents.
 - Additional education and communication on Zika virus transmission needs to be provided to Austin/Travis County residents.
- Additional education on personal, mosquito-related, and household actions that individuals can take to protect themselves and their households from getting Zika.
- There is a need to continue to educate residents on other mosquito related diseases such as West Nile, Dengue, Chikungunya, and Malaria.
- Additional education is needed on the limitations of aerial spraying as a means for Zika virus prevention.
- Given the prevalence of flower pots/yard ornaments and bird bath/tires/per water dish etc. in house yards, additional education and communication on personal and household mosquito prevention methods needs to be provided to residents.
- Explore strategies to boost the visibility of Zika virus and mosquito prevention available on our agency's website.
- The development of household emergency communication plans remains a challenge.
- Continue to encourage residents to be immunized for influenza and promote various locations where this vaccination can be obtained.
- Overall the community was very complimentary of the volunteer response.

Appendix B.
Austin CASPER TEAM 2016

CASPER Team



Zika virus Disease, Austin/Travis County –June 17 –18, 2016