COMMUNITY ASSESSMENT FOR PUBLIC HEALTH EMERGENCY RESPONSE
HUMACAO, PUERTO RICO

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DEPARTAMENTO DE **SALUD**
GOBIERNO DE PUERTO RICO

Oficina de Preparación y Coordinación de Respuesta en Salud Pública
Departamento de Salud

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Background

On September 6, 2017, Hurricane Irma had significant impact on Puerto Rico and an Emergency Declaration was issued for the island. Two weeks later, on September 20, Hurricane María lashed Puerto Rico (PR). María made landfall in the municipality Yabucoa as a strong category 4 hurricane with maximum sustained winds of 155 mph. The center of the storm moved west-northwestward into the interior and northwestern PR producing catastrophic and flash flooding. The storm severely damaged or destroyed the already fragile critical infrastructure. María left Puerto Rico's residents with no electricity, no water, no telecommunications and no transportation systems. President Trump approved a major disaster declaration for Puerto Rico under the Stafford Act, which allowed the activation for federal assistance for the island.

This report presents findings of a community health needs assessment, in the municipality of Humacao, Puerto Rico, carried out by the Office of Public Health Preparedness and Response (OPHPR) of the Puerto Rico Department of Health.

Humacao is located in the eastern coast of Puerto Rico an area that historically receives a large impact from hurricanes, right north of Yabucoa, where hurricane Maria hit land. Humacao's district experienced the longest duration of power failure in the island, with an average days without of electricity of 123 days compared to 106 days average for Puerto Rico (Román, M.O., Stokes, E.C., Shrestha, R. et al., 2019).

The goals of the assessment were to (1) identify health, environmental, household characteristics, and individual behaviors that can increase the community's risk in an emergency, and (2) assess the storm's impact on households and long-term recovery of the community. This information will be used to inform the PRDoH response process. The assessment also builds on the agency's capacity to implement the CASPER methodology rapidly after emergencies.

Methods

Sampling

This study followed the Community Assessment for Public Health Emergency Response (CASPER) Methodology. The sampling methodology involves two stages that provide data representative of the sampling frame.

In the first sampling stage 30 clusters, corresponding to 30 U.S. Census blocks, are selected with a probability proportional to the estimated number of households within the clusters. The area selected was the closest to coast because of the interest in analyzing the impact in coastal communities.

The study area was selected using ArcGIS. The number of households was obtained from the U.S. Census website (http://factfinder2.census.gov) and total households was used to calculate the weight of each cluster. This variable was selected because the information from the U.S. Census it's 9 years old and occupation status has probably changed in these period. The sampling frame was comprised of a total of 92 census blocks and 2,528 housing units.

A list of all clusters (i.e., census blocks) in the sampling frame with the corresponding number of households was created. Then, each cluster was assigned with a cumulative sum of the number of households. Finally, 30 clusters were selected by using a random number generator to randomly choose 30 numbers between 1 and 2,528 (the total number of households in the sampling frame). Then the entire cluster in which that random number (i.e., household) was located was selected. This process was conducted using GIS toolbox developed by CDC GIS experts that can automatically select clusters.

For the second stage, the number of households in the cluster was divided by 7, 14 or 21, depending on the number of times the cluster was selected in the first sampling stage. The result is the "nth" number. When arriving at the clusters, the interviewers chose a starting point arbitrarily and approached every nth household for interview. This two-stage sampling methodology should produce a sample of 210 households/interviews (30 clusters x 7 interviews in each cluster).

Questionnaire

The CASPER methodology uses household-level questions. Some of the questions used were selected, adapted and translated from the bank of questions included in the CASPER Toolkit, other questions were developed by researchers from the PRDoH. The resulting 25-minute survey was 79 questions long. The questions were mostly closed-ended, though some were open-ended. Open-ended questions were included as follow-up prompts which would, for example, ask how many people in the household met a certain characteristic, or an explanation for the selection of

the answer "other". The final question regarding the current concern regarding the recovery of their community, was also an open-ended question.

Questions covered environmental health and exposures, health conditions and treatments, community's critical infrastructure, impacts of hurricane María on the household and the community, behavior and knowledge about emergency preparedness, and emotional wellbeing. An additional form was used to collect participation information for each household that was approached, in order to provide data for the contact rates.

Training and Interviews

Interviewers included personnel from the OPHPR and volunteers from two local nursing schools. As per local IRB regulations, all interviewers completed certificates in Human Research Subjects and HIPAA. Prior to the field work, they were also trained in the CASPER sampling methodology, interview techniques, the meaning of each question, as well as how to fill out the questionnaire and other related forms. Orientations regarding field safety, assessment-day logistics and communications were also an essential part of the training process.

The assessment was carried out on Friday, April 26 and Saturday, April 27, 2019, from 9:30am to 4:30pm. In order to participate in the survey, the respondent must: live in the sampled household, be 21 years of age or older, and speak and understand Spanish. CASPER does not collect any personal identifiers from respondents. For this reason, the interviewer must assess compliance to the inclusion criteria, as well as gather oral consent. Respondents were given an Informative Letter which they had the option of reading along with the interviewer, as well as the opportunity to clarify or answer any related questions. Once the interviewer made sure that the letter was understood, and oral consent was given, the interview proceeded. Finally, interviewers provided respondents with an educational flyer on the subject of hand washing, a travel-sized hand sanitizer and a brief orientation.

Data Analysis

Data entry was carried out by epidemiologists from the OPHPR. Once data cleaning was conducted, data quality was assessed by reviewing 10% of the questionnaires (n=18). Epi Info version 7.2 was used for data entry, cleaning and analysis.

Weighted analysis was performed based on the following equation:

$$\text{Weight} = \frac{\text{Total number of housing units in sampling frame}}{\text{number of housing units interviewed within cluster} * \text{number of clusters selected}}$$

Unweighted and weighted frequencies, and 95% CIs for the weighted frequencies were calculated. The results of the weighted frequencies represent the estimated number of households with those characteristics within the sampling frame.

Results

The selected sampling frame was comprised 92 clusters, 2,528 housing units and 5,936 residents. The first sampling stage resulted in the selection of 24 clusters: four clusters were selected twice, and one cluster was selected three times. The remaining clusters were selected once. The resulting clustered totaled 1,041 housing units and 2,478 residents.

The CASPER team completed 178 interviews, from a goal of 210 for a resulting completion rate of 83.3%, a cooperation rate of 85.6%, and contact rate of 51.1%. A total of 348 housing units were approached but contact was achieve in 208 of these households; two of them didn't meet the study's requirement, in one case because the person didn't speak Spanish and in the other , the person didn't live in the house, 27 people refused to participate and in one case the interview was not completed.

The majority of housing units were owned by the respondents (82.0%). The mean number of people living in the households was 2.3 (± 1.2). Household had at least one minor (0-17 years old) in 29.6% of cases, 7.3% had at least one infant and in 48.9% of cases at least one person 65 years or older lived at the house, and at least one female lived in most the houses (89.5%). In 6.7% of the households lived someone that participates in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and in 4% lived at least one person with no health coverage.

Most households reported owning animals (65.2%); 86.1% had dogs and 21.1% cats. Other animal mentioned were birds, hens/roosters and horses among others. Animal rabies vaccine should be administered to dogs, cats, cattle, goats, sheep and horses. When asked about rabies vaccination, only dogs (76.7%) and cats (59.3%) had been vaccinated.

The most prevalent chronic conditions reported by households were cardiovascular disease (42%), diabetes (31%), asthma (29%), other respiratory chronic conditions (16%), and mental health conditions (10%). Under the category "other", health conditions mentioned were thyroid, arthritis, cancer and fibromyalgia, among others (Figure 1).

When looking at the conditions reported by age group, asthma and other chronic respiratory conditions are the most prevalent conditions in the individuals 17 years or younger, while cardiovascular disease and diabetes are the most prevalent in the individuals 65 years and older (Figure 2).

Figure 1. Prevalence of Chronic Conditions, Humacao, April 2019
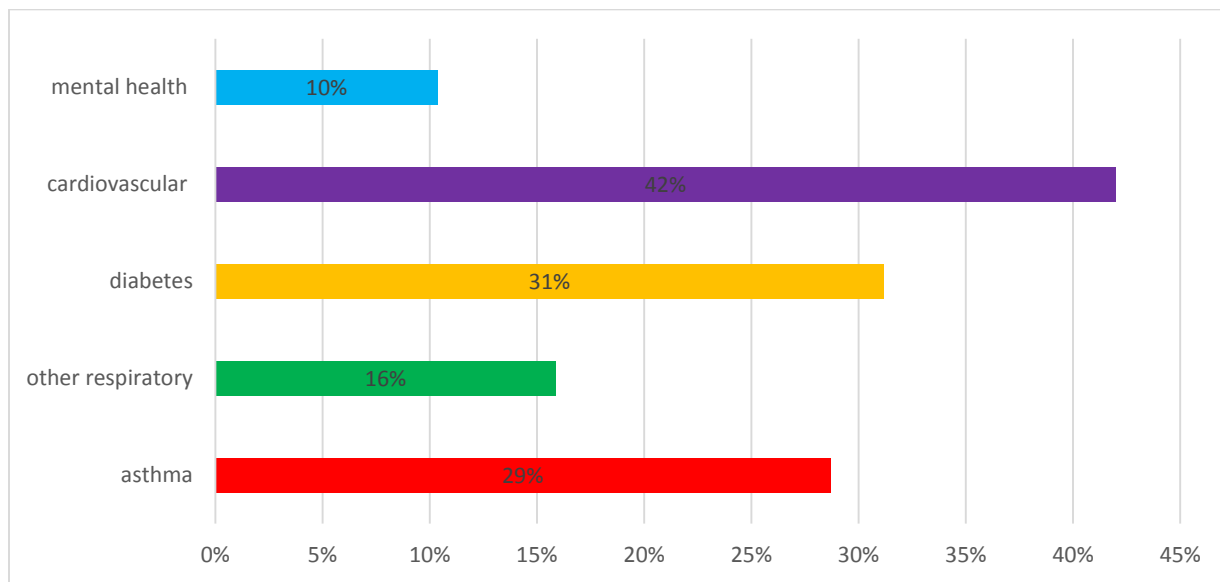
Figure 2. Prevalence of Chronic Conditions by age group, Humacao, April 2019

Other Respiratory conditions

- 0-17 years: 24%
- 18-64 years: 46%
- 65+ years: 36%

Cardiovascular disease

- 0-17 years: 0%
- 18-64 years: 48%
- 65+ years: 56%

Mental Health Conditions

- 0-17 years: 0%
- 18-64 years: 59%
- 65+ years: 35%
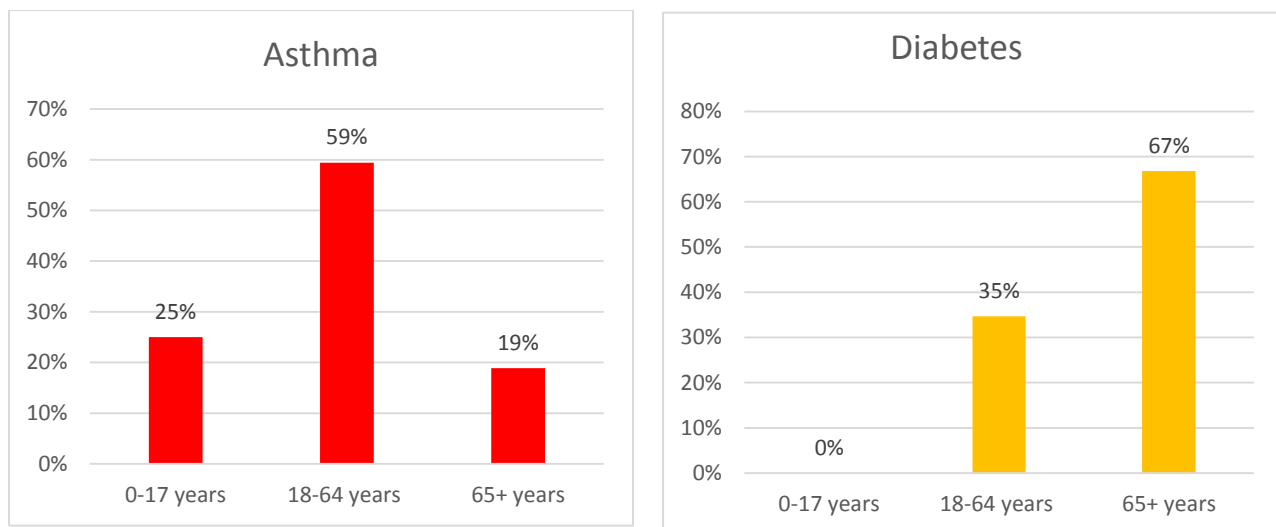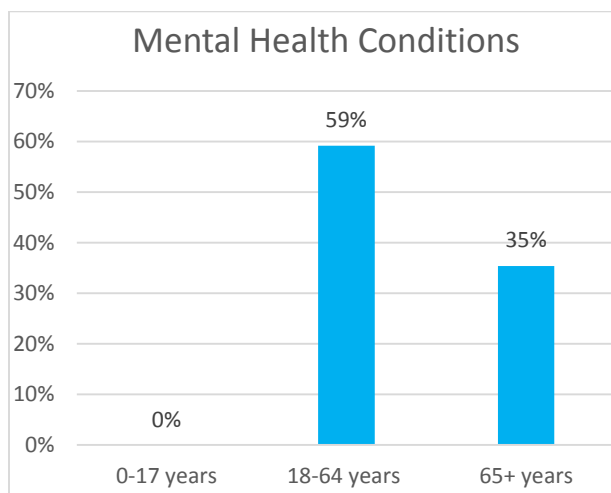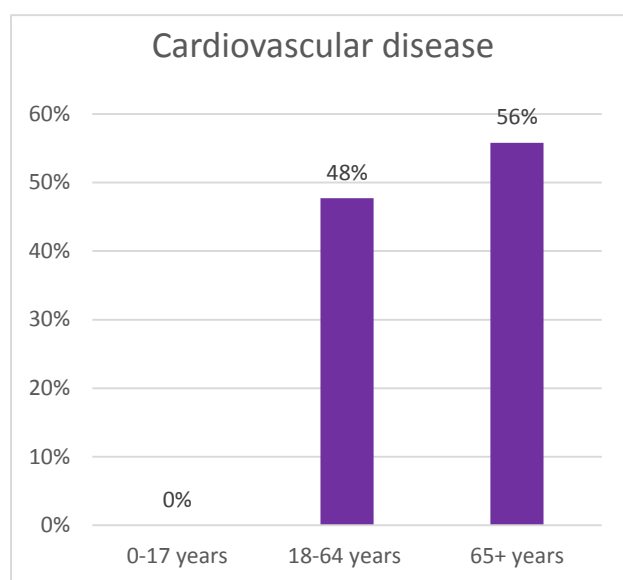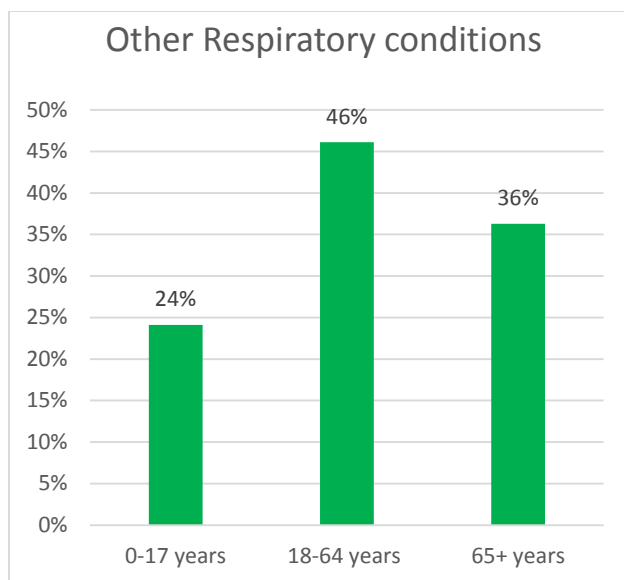
Access and functional needs populations require additional needs regarding medical care or communications, among others, before during and after an emergency. The community was assessed for households with members who are blind, deaf, bedridden, and certain medical treatments and equipment; these categories are not mutually exclusive. Respiratory therapy was the post prevalent medical need (11%), followed by insulin dependency (9%), and home health services (5%).

Figure 3. Access and Functional Needs, Humacao, April 2019

Respiratory therapy (requieres electricity)	11%
Chemo/Radiotherapy	3%
Home Health services	5%
Electric mattress to prevent ulcers	3%
Insulin	9%
Bedridden	3%
Deaf	3%
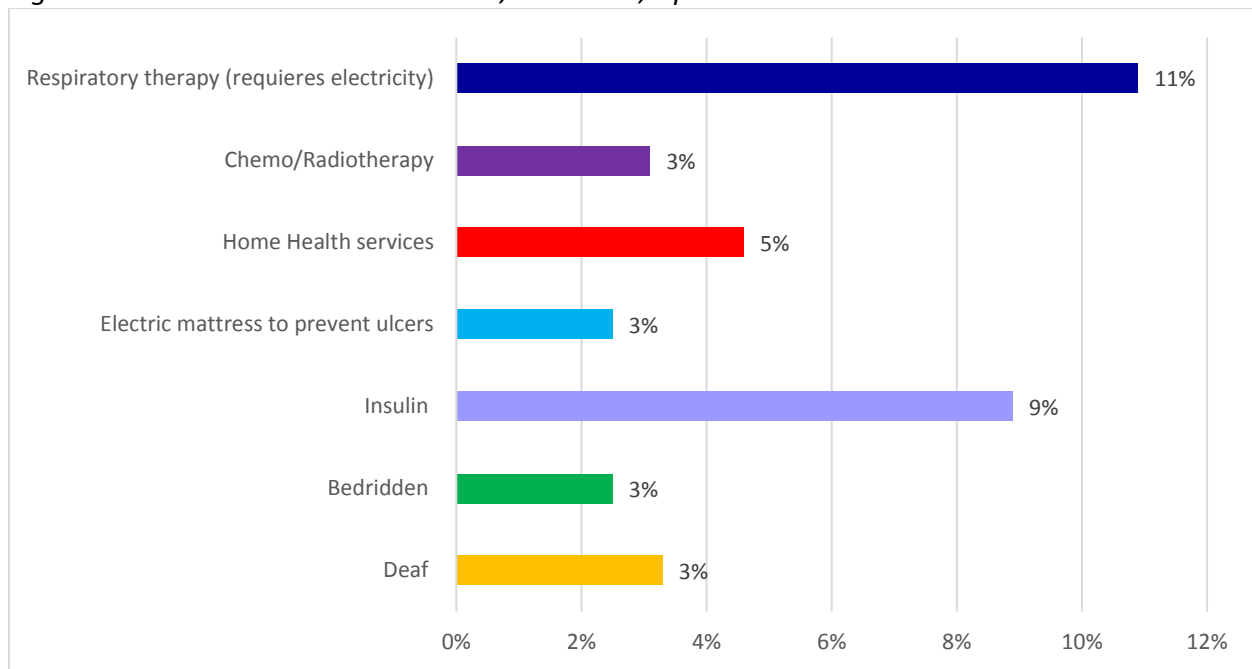
*None of the respondents reported blind residents or using oxygen nor dialysis therapy.

When asked about the types of healthcare facilities close to the community, the facility most mentioned was clinical laboratory (45%), followed by Federally Qualified Health Center (FQHC/330) (31%) and the hospital (27%); 13.2% perceived they didn't have any healthcare facility close to their home (Table 7).

Most of the respondents informed their source of drinking water was The Puerto Rico Aqueducts and Sewers Authority (PRASA) (97%), 46% reported treating drinking water with chlorine, filtering or other treatment method, 45% used bottled up water as their drinking source, and 12% stored rain water. Almost ¾ of the households (72%) had a generator and the majority run with gasoline (96%)

Television is the most common source of information reported by households for emergency preparedness information (70%), followed by radio (56%), internet/social media (29%), family/friends/neighbors (17%), other source (7%) and newspapers (3%) (Figure 4).

Figure 4. Source of Emergency Preparedness Information, Humacao, April 2019*
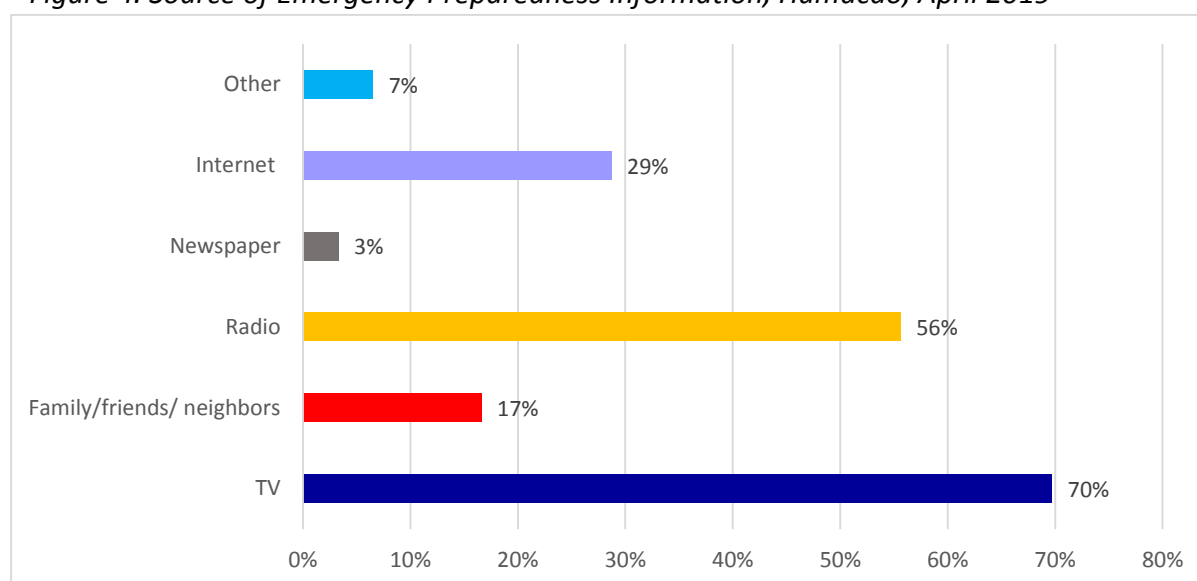
*Under the category "other" 58% reported using their cell phone/phone as a source.

Participants were asked about their emergency plans, and 54% reported having an emergency family plan before hurricane Maria, and 82% informed knowing that FEMA recommends storing food and water for up to 10 days in preparation for emergencies.

When asked about their experiences with hurricane Maria, 13.1% indicated they lived in another house when hurricane Maria hit land; of the 87% that did live at the same house, 69% indicated that there was an evacuation order for their house and 56% evacuated to their home to stay with family or friends (88.7%), or at another house (6.4%); only 3 people indicated they stayed at a public shelter; the majority (95%) evacuated before the hurricane but 5% evacuated it during the hurricane.

When inquired for the reason for not leaving their house, 37% thought there was no need, 17% didn't want to leave they pets, 16% didn't want to go to a shelter and 27% mentioned other reasons, such as their perception that the hurricane wasn't going to be as strong as it turned out to be (Figure 5).

A higher percentage of participants described the damage to their homes as moderate/habitable (44%), followed by severe (25%), destroyed (23%), and no damage (8%) (Figure 6). One fourth of the respondents (25%) perceived there is still debris in their community due to the hurricane.

Figure 5. Reasons for not evacuating the house after a formal evacuation order, Humacao, April 2019
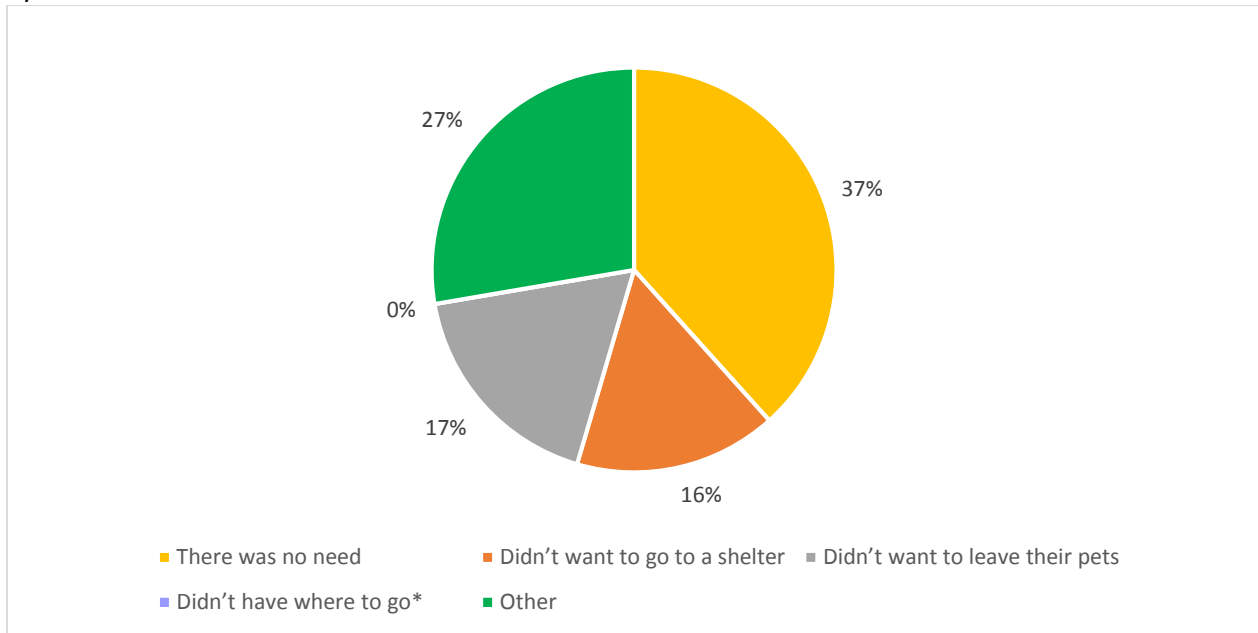
*Only 3 people answered that they didn't have where to go. Estimates for n<5 are not valid.

Figure 6. Perceived damage to homes, Humacao, April 2019
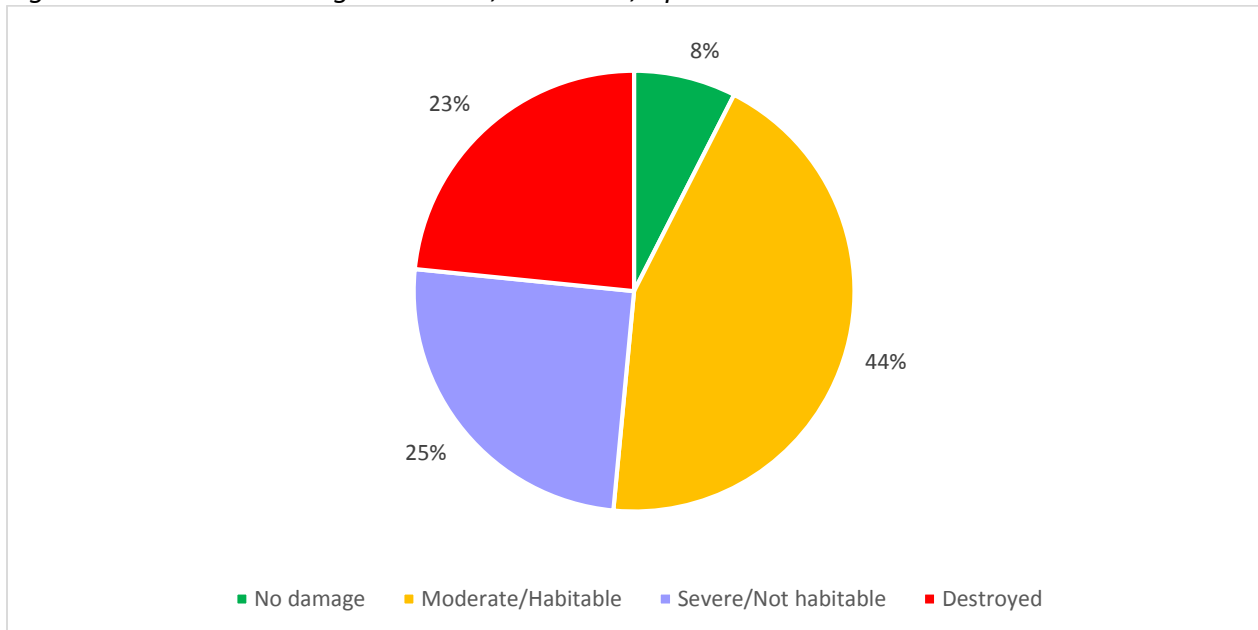
Figure 7. Percentage of increase in mosquitoes and animal after Hurricane Maria, Humacao, April 2019
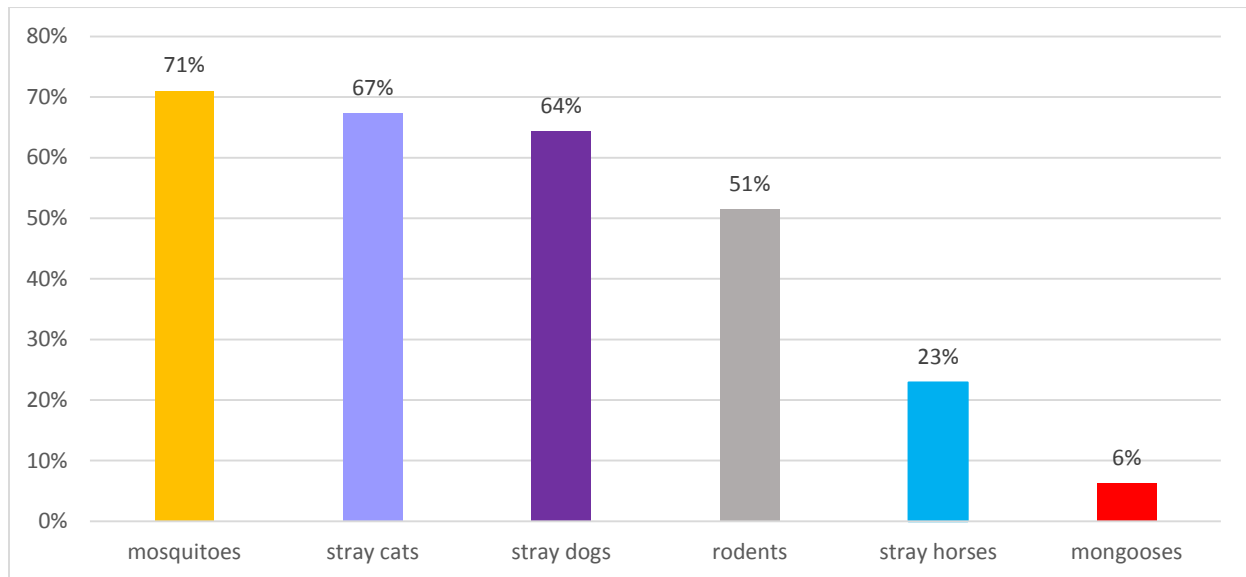
More than half of participants' noticed and increase in mosquitoes (71%), strays cats (67%), stray dogs (64%) and rodents (51%); while 23% observed an increase in stray dogs and 6% reported an increased in mongooses.

Questions regarding anxiety and the need for emotional support reveal that 69% of respondents felt anxiety at the beginning of the past hurricane season (the hurricane season following Hurricane María), in 28% of the households a resident felt the need for emotional support and in 22% of the cases they sought emotional support.

Figure 8. Prevalence of Anxiety and need for emotional support, Humacao, April 2019
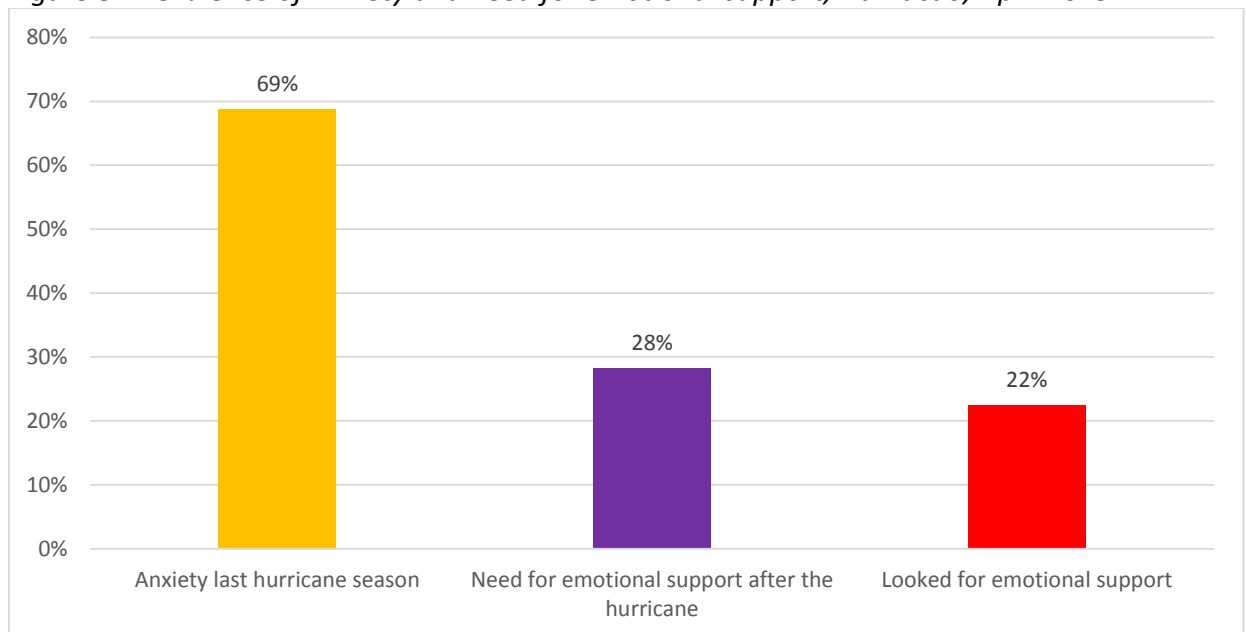
Discussion and Conclusions

The data from this assessment is similar to island-wide data from Puerto Rico where cardiovascular disease, cancer, diabetes, asthma, arthritis and Alzheimer's disease are the main causes of disability. In the context of emergency preparedness and response, knowing this type of information regarding a community is important in informing response efforts in order to prevent exacerbation of the conditions, following a public health emergency.

Island wide the prevalence of hypertension in the 18 years and older population is 36.8% (95%CI: 35.4-3802%), while 13.5% (95%CI: 12.6-14.4) have diabetes, 17.2% (95%CI: 16.1-18.3) have been diagnosed with asthma in their lifetime, and 10.1% (95%CI: 9.2-11.0%) still have asthma. These conditions are also the most prevalent ones seen in the community in Humacao which validates study's results (Figure 1). While, the most prevalent treatments were some typo of respiratory therapy that requires electricity and insulin therapy (Figure 3). Understanding the prevalence of chronic conditions can help plan better for the resources that will be requested after disasters or public health emergencies, such as pharmaceuticals, medical equipment and consumable medical supplies.

Information about the most frequent sources households use to stay informed about emergencies' preparedness (Figure 3) reveals that there is still a great amount of people whose main information media is television. Social media is frequently used to disseminate emergency preparedness information to the public, but 71% of respondents indicated not using it for this purpose. It is important to involve community and faith-based organizations in these efforts so that the message outreaches hard-to-reach population.

The majority of the houses had pets and 17% indicted that they didn't evacuate because they didn't want to leave them. These data shows that pets needs have to be taken into consideration when planning for emergencies response.

In these communities 56% of the people evacuated their homes but only 3 indicated they went to a public shelter. Also, 4.8% of the households evacuated during the hurricane. Communication and education strategies need to focus on promoting evacuation before the event, to prevent exposing residents and first responders to unnecessary risks.

These study evidences the importance of knowing community health and demographic characteristics to assist in emergency planning, and to improve allocation of resources. The OPHPR will use this information to guide emergency planning and for future communication and outreach activities.

Limitations

The main limitation for this assessment is that sampling and the weighted analysis used to estimate results was based on the 2010 U.S. Census data which does not account for changes in housing units after that. This is reflected by the low contact rate (51%) due to the amount if empty houses in the communities visited.

Also, information about health conditions and treatments are self-reported and the respondent did not necessarily know the conditions of everyone in the household. These issues however, are intrinsic to CASPER methodology because it's a household based survey.

Tables

Table 1. Amount of People Living in the house

	Mean (sd)	Range
Amount of people living in the household	2.3 (± 1.2)	1-6

Table 2. Sociodemographic Characteristics

	Unweighted frequency	Weighted	%	95% CI
Household owned or rented				
Owned	146	2074	82.0%	72.9-89.1
Rented	27	351	13.9%	6.5-21.3
Other	5	103	4.1%	0.3-7.9
Households with ≥1 member in the following age groups				
<3	14	186	7.3%	3.6-11.1
3-17	42	571	22.3%	15.0-30.2
18-34	57	828	32.8%	22.7-42.8
35-64	104	1502	59.4%	50.6-68.2
≥ 65	89	1237	48.9%	40.7-57.1
Households with ≥1 women				
No	19	265	10.5%	4.9-16.2
Yes	158	2251	89.5%	83.8-95.1
Number of people in the household with Government Health Plan				
No one	67	943	37.3%	30.0-44.6
At least one	110	1573	62.2%	54.9-69.5
Don't know	1	-	-	-
Number of people in the household with Private Health Plan				
No one	67	940	37.2%	30.4-43.9
At least one	111	1588	62.8%	56.1-69.6
Don't know	0	-	-	-
People with no Health Coverage				
At least one	7	100	4.0%	0.4-7.5
No one	171	2428	96.0%	92.5-99.6
WIC participants in households				
No	160	2303	93.3%	90.0-96.7
Yes	13	164	6.7%	3.3-10.0
Don't Know	0	-	-	-

Table 3. Animals in the Household

	Unweighted frequency	Weighted	%	95% CI
Animals in the Household				
No	62	879	34.8%	24.3-45.2
Yes	116	1649	65.2%	54.8-75.7
Don't know	0	-	-	-
What animal? (Open ended question)				
Bird	6	81	5.0%	0.0-10.0
Horse	1	-	-	-
Hens/roosters	2	-	-	-
Goat	1	-	-	-
Cat	8	101	6.2%	1.9-10.4
Guinea pig	1	-	-	-
Dog	96	1383	84.5%	75.9-93.2
Have they been vaccinated?				
No	30	416	26.7%	18.3-35.0
Yes	77	1121	71.8%	0.0-3.6
Don't know	2	-	-	-
Second type of animal in the house. Have they been vaccinated?				
No	8	114	37.1%	13.1-61.1
Yes	15	194	62.9%	38.9-86.9
Don't know	0	-	-	-
What animal? (Open ended question)				
Bird	1	-	-	-
Dog	3	-	-	-
Turtle	1	-	-	-
Hen	4	-	-	-
Cat	18	246	64.6%	37.8-91.4
Rabbit	1	-	-	-
Third type of animal in the house. Have they been vaccinated?				
No	1	-	-	-
Yes	0	-	-	-
Don't know	0	-	-	-
What animal? (Open ended question)				
Bird	3	-	-	-
Pig	1	-	-	-
Crab	1	-	-	-
Fish	2	-	-	-
Chicks	1	-	-	-
Turtle	1	-	-	-

Dogs in the house				
No	17	229	13.9%	4.6-23.2
Yes	99	1419	86.1%	76.8-95.4
Have they been vaccinated (dogs)				
No	22	304	21.6%	12.1-31.1
Yes	74	1080	76.7%	67.5-85.9
Don't know	2	-	-	-
Cats in the house				
No	90	1301	78.9%	69.7-88.1
Yes	26	347	21.1%	11.9-30.3
Have they been vaccinated (cats)				
No	10	141	40.7%	18.6-62.8
Yes	16	206	59.3%	37.2-81.4

Table 4. Prevalent of Health Conditions

	Unweighted frequency	Weighted	%	95% CI
Has a doctor ever told you or anyone in the house that you/they have: Asthma				
No	127	1790	70.8%	61.7-79.9
Yes	50	724	28.7%	19.5-37.8
Don't know	1	-	-	-
Age				
0-17 years				
No	38	543	75.0%	63.8-86.3
Yes	12	181	25.0%	13.7-36.2
18-64 years				
No	21	294	40.6%	26.3-54.9
Yes	29	430	59.4%	45.1-73.7
65+ years				
No	39	587	81.1%	67.2-94.9
Yes	11	137	18.9%	5.1-32.8
Has a doctor ever told you or anyone in the house that you/they have: Other Respiratory Condition				
No	152	2125	84.1%	74.8-93.4
Yes	26	403	15.9%	6.6-25.2
Don't know	0	-	-	-
Age				
0-17 years				
No	17	281	75.9%	55.3-96.6
Yes	7	89	24.1%	3.4-44.7
18-64 years				
No	16	199	53.9%	18.8-89.0
Yes	8	171	46.1%	11.0-81.2

65+ years

No	13	236	63.7%	38.7-88.7
Yes	11	134	36.3%	11.3-61.3

Has a doctor ever told you or anyone in the house that you/they have: Diabetes

No	117	1725	68.3%	60.1-76.4
Yes	60	789	31.2%	23.3-39.1
Don't know				
Age				
0-17 years				
No	**59**	777	98.5%	95.3-100.0
Yes	1	-	-	-
18-64 years				
No	38	515	65.3%	52.9-77.7
Yes	22	274	34.7%	22.3-47.1
65+ years				
No	21	262	33.2%	21.5-44.9
Yes	39	527	66.8%	55.1-78.5

Has a doctor ever told you or anyone in the house that you/they have: Cardiovascular disease

No	102	1453	57.5%	47.1-67.8
Yes	75	1061	42.0%	31.7-52.2
Don't know	1	-	-	-
Age				
0-17 years				
No	74	1028	100.0%	100.0-100.0
Yes	0	-	-	-
18-64 years				
No	40	538	52.3%	40.8-63.8
Yes	34	490	47.7%	36.2-59.2
65+ years				
No	31	454	44.2%	32.2-56.1
Yes	43	574	55.8%	43.9-67.8

Has a doctor ever told you or anyone in the house that you/they have: Mental Health Condition

No	155	2175	86.0%	79.0-93.0
Yes	19	263	10.4%	4.9-16.0
Don't know	4	-	-	-
Age				
0-17 years				
No	18	249	94.7%	82.1-100.0
Yes	1	-	-	-
18-64 years				
No	8	107	40.8%	13.0-68.6
Yes	11	156	59.2%	31.4-87.0

65+ years				
No	12	170	64.6%	38.3-90.8
Yes	7	93	35.4%	9.2-61.7

Has a doctor ever told you or anyone in the house that you/they have: Other

No	130	1894	74.9%	65.2-84.6
Yes	48	634	25.1%	15.4-34.8
Age				
0-17 years				
No	45	598	98.0%	93.6-100.0
Yes	1	-	-	-
18-64 years				
No	27	345	56.5%	39.1-73.9
Yes	19	266	43.5%	26.1-60.9
65+ years				
No	18	254	7.9%	24.7-58.4
Yes	28	357	58.4%	41.6-75.3

Has a doctor ever told you or anyone in the house that you/they have: Other (Open ended question)

Cancer	3	-	-	-
Spine	1	-	-	-
Unbalance	1	-	-	-
Alzheimer	1	-	-	-
Arthritis	3	-	-	-
Chronic kidney disease	1	-	-	-
Arthritis, osteoporosis	1	-	-	-
Arthritis, discs	1	-	-	-
Down Syndrome	1	-	-	-
Glaucoma	1	-	-	-
Glaucoma, fibromyalgia	1	-	-	-
Hypoglycemia, osteoporosis	1	-	-	-
Epilepsy, high cholesterol	1	-	-	-
Fibromyalgia	3	-	-	-
Crystal bones	1	-	-	-
Aneurysm	1	-	-	-
Neuropathy, arthritis, discs	1	-	-	-
Neuropathy, colitis	1	-	-	-
Osteoporosis	2	-	-	-
Osteoporosis, hernia	1	-	-	-
Kidney stones	1	-	-	-
Dementia	1	-	-	-

	Unweighted frequency			
Prostate	1	-	-	-
Cervical radiculopathy, Lumbar monoplegia	1	-	-	-
Reflux, arthritis	1	-	-	-
Kidney	1	-	-	-
Sinusitis	1	-	-	-
Tendonitis, carpal tunnel	1	-	-	-
Testicular	1	-	-	-
Thyroid	6	90	15.1%	3.5-26.7
Thyroid, dermatitis	1	-	-	-
Thyroid, discs	1	-	-	-
Brain tumor, arthritis	1	-	-	-

Table 5. Disability

	Unweighted frequency	Weighted	%	95% CI
Blind person living in the household				
No	174	2464	97.5%	94.8-100.0
Yes	4	-	-	-
Don't know	0	-	-	-
Deaf person living in the household				
No	171	2444	96.7%	93.9-99.5
Yes	7	84	3.3%	0.5-6.1
Don't know	0	-	-	-
Bedridden person living in the household				
No	173	2466	97.5%	95.5-99.6
Yes	5	62	2.5%	0.4-4.5
Don't know	0	-	-	-

Table 6. Medical Treatments

	Unweighted frequency	Weighted	%	95% CI
Dialysis				
No	176	2503	99.5%	98.4-100.0
Yes	1	-	-	-
Don't Know	0	-	-	-
Oxygen				
No	176	2504	99.5%	98.6-100.0

	Unweighted frequency	%	Weighted	%	95% CI
Yes	1		-	-	-
Don't Know	0		-	-	-
Insulin					
No	160		2303	91.1%	86.2-95.9
Yes	18		225	8.9%	4.1-13.8
Don't Know					
Electric mattress to prevent ulcers					
No	173		2466	97.5%	95.3-99.8
Yes	5		62	2.5%	
Don't Know	0		-	-	-
Home Health Services					
No	169		2412	95.4%	92.8-98.1
Yes	9		116	4.6%	1.9-7.2
Don't Know	0		-	-	-
Chemotherapy/Radiotherapy					
No	172		2450	96.9%	94.8-99.1
Yes	6		78	3.1%	0.9-5.2
Don't Know	0		-	-	-
Other therapy that requires electricity					
No	151		2167	85.7%	78.2-93.1
Yes	27		361	14.3%	6.9-21.7
Don't Know	0		-	-	-
Other therapy that requires electricity (Open ended)					
Respiratory therapy	21		266	100.0%	100.0-100.0

Table 7. Critical Infrastructure and Utilities

	Unweighted frequency	%	Weighted	%	95% CI
Type of Healthcare facility close to Community:					
Hospital					
No	125		1842	72.9%	60.7-85.0
Yes	53		686	27.1%	15.0-39.3
CDT					
No	133		1943	76.9%	67.8-85.9
Yes	45		585	23.1%	14.1-32.2
FQHC (330)					
No	129		1747	69.1%	58.4-79.8
Yes	49		781	30.9%	20.2-41.6
Private Clinics					

No	147	2093	82.8%	74.0-91.5
Yes	31	435	17.2%	8.5-26.0
Clinical laboratory				
No	94	1395	55.2%	44.4-65.9
Yes	84	1133	44.8%	34.1-55.6
None				
No	154	2196	86.8%	79.0-94.7
Yes	24	332	13.2%	5.3-21.0
Source of potable water				
AAA				
No	5	65	2.6%	0.0-5.2
Yes	173	2463	97.4%	94.8-100.0
Non-PRASA				
No	178	2528	100.0%	100.0-100.0
Yes	0	-	-	-
Bottled up water				
No	97	1389	54.9%	43.6-66.3
Yes	81	1139	45.1%	33.7-56.4
Spring/river				
No	178	2528	100.0%	100.0-100.0
Yes	0	-	-	-
Private Well				
No	177	2516	99.5%	98.5-100.0
Yes	1	-	-	-
Rain Water				
No	178	2528	100.0%	100.0-100.0
Yes	0	-	-	-
Water from the mountain				
No	178	2528	100.0%	100.0-100.0
Yes	0	-	-	-
Don't Know				
No	0	-	-	-
Yes	0	-	-	-
Water service currently				
No	1	-	-	-
Yes	177	2511	99.3%	97.9-100.0
Don't know	0	-	-	-
Water service is:				
Continuous	172	2449	98.5%	96.7-100.0
Interrupted	3	-	-	-
Potable water treatment (Filter, chlorine etc.)				
No	98	1440	58.4%	47.5-69.2

Yes	77	1028	41.6%	30.8-52.5
Don't know	0	-	-	-
Store Rain Water				
No	152	2178	87.8%	82.7-92.9
Yes	23	302	12.2%	7.1-17.3
Don't know	0	-	-	-
Do you currently have electricity?				
No	4	-	-	-
Yes	174	2455	97.1%	94.0-100.0
Don't know	0	-	-	-
Do you have a generator?				
No	54	719	28.5%	20.9-36.1
Yes	124	1809	71.5%	63.9-79.2
Don't know	0	-	-	-
Does it run with?				
Diesel	4	53	2.9%	0.0-5.8
Solar	1	-	-	-
Gasoline	118	1732	95.7%	92.6-98.8
Gas	1	-	-	-
Is the generator an inverter?				
No	83	1213	67.1%	59.0-75.1
Yes	37	548	30.3%	21.8-38.8
Don't know	4	-	-	-
While running, is the generator close to an open door or window?				
Inside	5	69	3.9%	0.0-8.5
Open Marquesina	38	569	31.9%	16.8-47.0
Closed Marquesina	1	-	-	-
Outside	73	1053	59.0%	45.7-72.3
On the roof	5	79	4.4%	0.5-8.4
Generator located close to an open door or window while running				
No	83	1189	67.4%	56.1-78.7
Yes	38	575	32.6%	21.3-43.9
Don't know	0	-	-	-
Current residential phone service				
No	135	1951	77.9%	71.5-84.4
Yes	41	552	22.1%	15.6-28.5
Don't know	0	-	-	-
Current Mobile phone service				
No	6	82	3.3%	0.6-5.9
Yes	172	2446	96.7%	94.1-99.4
Don't know	0	-	-	-

Table 8. Carbon Monoxide

	Unweighted frequency	Weighted	%	95% CI
Carbon Monoxide detector installed and running in the house				
No	99	1415	56.0%	46.9-65.0
Yes	77	1089	43.1%	33.8-52.4
Don't know	2	-	-	-
CO Detector located in the bedroom or in the hall close to the bedroom				
Yes	65	865	81.2%	67.2-95.3
In another place	10	200	18.8%	4.7-32.8
Does you CO detector use batteries for emergencies or as their main source of energy?				
No	2	-	-	-
Yes	63	872	83.0%	70.1-95.9
Is uses rechargeable batteries	5	84	8.0%	1.0-15.0
Don't know	4	-	-	-
The last time the CO detector batteries were replaced:				
In the last 6 months	30	392	37.3%	21.5-53.1%
More than six months ago but less than a year	12	165	15.7%	4.8-26.7
A year ago or more	12	183	17.4%	9.1-25.7
Never	18	286	27.2%	13.9-40.6
Don't know				
Has a doctor ever told you that you were intoxicated with CO?				
No	175	2491	99.5%	98.5-100.0
Yes	0	-	-	-
Don't know	1	-	-	-

Table 9. Emergency Preparedness

	Unweighted frequency	Weighted	%	95% CI
Main information media for disaster preparedness				
TV				
No	49	765	30.3%	19.5-41.0
Yes	129	1763	69.7%	59.0-80.5
Family/friends/ neighbors				
No	149	2109	83.4%	76.9-89.9
Yes	29	419	16.6%	10.1-23.1

	Unweighted frequency	Weighted	%	95% CI
Radio				
No	82	1122	44.4%	34.0-54.8
Yes	96	1406	55.6%	45.2-66.0
Newspaper				
No	171	2444	96.7%	93.4-99.9
Yes	7	84	3.3%	0.1-6.6
KP4/Civil radio				
No	175	2449	96.9%	91.5-100.0
Yes	3	-	-	-
Internet				
No	126	1801	71.3%	62.4-80.1
Yes	52	727	28.7%	19.9-37.6
Other				
No	167	2363	93.5%	88.5-98.5
Yes	11	165	6.5%	1.5-11.5
Don't know	0	-	-	-
Other: Which (Open ended question)				
Cell phone/phone	6	96	58.2%	27.7-88.7
Church/community organization	3	-	-	-
Emergency Management staff	2	-	-	-
Emergency family plan before the hurricane				
No	78	1148	45.7%	37.2-54.2
Yes	98	1354	53.8%	45.6-62.1
Don't know	1	-	-	-
Knowledge 10 days storage of food and water				
No	35	458	18.2%	10.2-26.2
Yes	142	2056	81.8%	73.8-89.8
Don't know	0	-	-	-

Table 10. Impacts of Hurricane María

	Unweighted frequency	Weighted	%	95% CI
Was this your home when Hurricane María passed?				
No	25	330	13.1%	5.4-20.7
Yes	153	2198	86.9%	79.3-94.6
Don't know	0	-	-	-

Where did you live? (If no)

Other house same community	3	-	-	-
Other community in same municipality	8	98	28.9%	9.0-48.9
Other municipality	11	135	39.5%	12.5-66.5
Other state	4	-	-	-

Other: Which (Open ended question)

Florida	1	-	-	-
New York	1	-	-	-
New Jersey	1	-	-	-

Increment in fungi in household after María

No	83	1208	50.3%	42.0-58.5
Yes	82	1158	48.2%	39.7-56.6
Don't know	3	-	-	-

Was there an evacuation order for your home?

No	56	763	31.3%	17.1-45.4
Yes	115	1679	68.7%	54.6-82.9
Don't know	0	-	-	-

Did you evacuate your home because of the Hurricane?

No	75	1078	44.1%	30.6-57.7
Yes	96	1365	55.9%	42.3-69.4

When did you evacuate? (if they evacuated)

Before the hurricane	90	1288	95.2%	90.5-99.9
During the hurricane	5	65	4.8%	0.1-9.5
After the hurricane	0	-	-	-

Where did you stay?

With family/friends	84	1190	88.7%	83.6-93.9
Another house	7	86	6.4%	1.9-11.0
Shelter	3	-	-	-
Hotel/Motel/Hostel	0	-	-	-
Church	0	-	-	-
Other	0	-	-	-

Why didn't you evacuate?

There was no need	26	387	36.7%	15.0-58.5
Didn't want to go to a shelter	12	163	15.5%	4.5-26.5
Didn't want to leave their pets	12	179	17.0%	4.7-29.3
Didn't have where to go	3	-	-	-
Other	20	279	26.5%	15.4-37.6

Why didn't you evacuate? (other)

They've stayed before	1	-	-	-

Wasn't in residence and wasn't informed	1	-	-	-
Didn't want to leave house/belongings	3	-	-	-
Didn't want to leave	1	-	-	-
Hardheaded they though it was more reasonable	1	-	-	-
It was tall	1	-	-	-
Her husband didn't wat to leave	1	-	-	-
He/she was with uncle and grandmother	1	-	-	-
Scared of getting robbed	1	-	-	-
No advise	3	-	-	-
Didn't think it was going to so strong	5	81	29.0%	0.0-58.3
Didn't want to leave daughter	1	-	-	-
How would you describe damage to your home?				
No damage	9	184	7.5%	0.0-15.5
Moderate/Habitable	80	1075	44.0%	30.4-57.6
Severe/Not habitable	46	614	25.1%	14.9-35.4
Destroyed	36	570	23.4%	10.0-36.7
Don't know	0	-	-	-
Did you request assistance from FEMA?				
No	29	443	18.1%	8.4-27.8
Yes	142	2000	81.9%	72.2-91.6
There was no need	0	-	-	-
Don't know	0	-	-	-
Did you receive an answer? (If they requested assistance)				
No	24	309	15.5%	8.6-22.5
Yes	117	1679	84.5%	77.5-91.4
Don't Know	0	-	-	-
Is there still debris in this community?				
No	120	1774	73.7%	60.7-86.7
Yes	46	609	25.3%	12.5-38.1
Don't Know	2	-	-	-
Injuries caused by the hurricane				
No	153	2181	89.7%	83.6-95.8
Yes	17	250	10.3%	4.2-16.4
Don't Know	0	-	-	-
How many people were injured?				
One	16	233	93.3%	78.2-100.0
Two	1	-	-	-

Injuries caused by:

Falls				
No	9	149	59.5%	32.9-86.1
Yes	8	101	40.5%	13.9-67.1
Fractures				
No	17	250	100.0%	100.0-100.0
Yes	0	-	-	-
Cuts				
No	12	163	65.3%	35.2-95.4
Yes	5	87	34.7%	4.6-64.8
Burns				
No	17	250	100.0%	100.0-100.0
Yes	0	-	-	-
Puncture				
No	14	214	85.5%	68.1-100.0
Yes	3	36	14.5%	0.0-31.9
Other injure				
No	13	183	73.3%	41.8-100.0
Yes	4	67	26.7%	0.0-58.2
What other: (open question)				
Twist leg	1	-	-	-
Nail fungus	1	-	-	-
Infection	1	-	-	-
Laceration	1	-	-	-

Table 11. Increase in Environmental Exposures after Hurricane María

	Unweighted frequency	Weighted	%	95% CI
Noticed an increase in mosquitoes in the community				
No	47	648	28.2%	18.6-37.8
Yes	111	1631	71.0%	61.2-80.9
Don't know	1	-	-	-
Measures used to prevent mosquitoes at home:				
Mosquito repellent				
No	38	523	23.3%	6.7-29.9
Yes	117	1724	76.7%	70.1-83.3
Eliminate water stagnant water				
No	119	1733	77.1%	69.0-85.3
Yes	36	514	22.9%	14.7-31.0

Use insecticide				
No	78	1311	50.3%	39.3-61.3
Yes	77	1116	49.7%	38.7-60.7
Long sleeves and long pants				
No	129	2138	95.2%	90.5-99.8
Yes	6	108	95.2%	90.5-99.8
Screens				
No	72	1153	51.3%	37.5-65.2
Yes	83	1093	48.7%	34.8-62.5
Mosquito net				
No	144	2067	92.0%	85.2-98.811
Yes	11	179	8.0%	1.2-14.8
We don't use preventive measures				
No	152	2210	98.4%	96.6-100.0
Yes	3	-	-	-
Other				
No	146	2115	94.2%	90.5-97.8
Yes	9	131	5.8%	2.2-9.5
Measures used. Other: Which? (Open ended question)				
Citronella	1	-	-	-
Electric repellent	1	-	-	-
Exterminator	1	-	-	-
Electric Racket	3	-	-	-
Candles	2	-	-	-
Larvicide, homemade	1	-	-	-
Noticed an increase in rodents in the community				
No	78	1065	46.4%	35.9-56.8
Yes	78	1181	51.4%	41.0-61.9
Don't know	3	-	-	-
Measures used to control rodents:				
Traps				
No	100	1422	71.6%	61.3-81.9
Yes	37	563	28.4%	18.0-38.7
Glue				
No	77	1162	58.5%	48.2-68.9
Yes	60	823	41.5%	31.1-51.8
Cats				
No	113	1649	83.1%	74.4-91.8
Yes	24	335	16.9%	8.2-25.6

Exterminator services

No	129	1878	94.7%	91.2-98.1
Yes	8	106	5.3%	1.9-8.8

We don't use control measures

No	119	1717	86.0%	77.7-94.3
Yes	19	280	14.0%	5.7-22.3

Other

No	113	1591	80.2%	69.9-90.4
Yes	24	394	19.8%	9.6-30.1

Measures used to control rodents. Other: Which?

Close doors	2	-	-	-
Dogs	3	-	-	-
Poison	19	332	84.2%	66.2-100.0

Noticed an increase in the amount of Mongooses in the community

No	148	2140	93.7%	88.7-98.7
Yes	10	144	6.3%	1.3-11.3
Don't know	0	-	-	-

Noticed an increase in the amount of stray dogs in the community

No	65	819	35.7%	21.5-49.8
Yes	94	1477	64.3%	50.2-78.5
Don't know	0	-	-	-

Noticed an increase in the amount of stray cats in the community

No	57	752	32.7%	19.6-45.9
Yes	102	1544	67.3%	54.1-80.4
Don't know	0	-	-	-

Noticed an increase in the amount of stray horses in the community

No	128	1771	77.1%	60.1-94.2
Yes	31	525	22.9%	5.8-39.9
Don't know	0	-	-	-

Noticed an increase in the amount of stray pigs in the community

No	157	2228	97.1%	91.1-100.0
Yes	2	-	-	-
Don't know	0	-	-	-

Noticed an increase in the amount of other stray animals in the community

No	141	2015	87.8%	80.7-94.9
Yes	18	280	12.2%	5.1-19.3
Don't know	0	-	-	-

Other animals (open ended question)

Scorpion	1	-	-	-
Goat, sheep	1	-	-	-
Goat	1	-	-	-
Snakes	1	-	-	-
Iguanas	7	89	31.8%	3.5-60.0

	Unweighted frequency			
Monkeys	1	-	-	-
Sheep	1	-	-	-
Frogs	1	-	-	-
Bulls	1	-	-	-
Cows, monkeys	1	-	-	-
Cows	2	-	-	-

Table 12. Anxiety and Emotional Support

	Unweighted frequency	Weighted	%	95% CI
Anxiety at the beginning of hurricane season				
No	59	776	30.9%	23.6-38.2
Yes	117	1726	68.7%	61.2-76.1
Don't know	1	-	-	-
Need for emotional support after the hurricane				
No	126	1792	71.3%	63.6-79.1
Yes	50	708	28.2%	20.4-36.0
Don't know	1	-	-	-
Looked for emotional support				
No	137	1938	76.7%	70.2-83.1
Yes	39	566	22.4%	16.0-28.7
Don't know	1	-	-	-
Refused to answer	1	-	-	-

Table 13. Anxiety and Emotional Support

"Alcantarilla que se inundan."
"Alumbrado."
"Alumbrado.
"Alumbrado en la calle."
"Alumbrado público. Esto aquí de noche es boca de lobo."
"Alumbrado y propiedades en desuso."
"Alumbrado, persona mayor con encamada."
"Alumbrado. Las alarmas de Tsunami."
"Aquí ahora mismo el alumbrado, solo esta ese poste que tiene luz.
"Árboles, "rips." (inundación)

"Ayuda para sacar escombros, la luz y plagas por casas abandonadas."

"Buscar alguna manera que la agua corra, porque no hay desagüe y se inunda."

"Casi todo sigue siendo igual."

"Con analizar la zanja de agua que este al lado de la casa."

"Dicen que van que hacer las casas, por ejemplo, el muelle y no hacen nada. P.E.C.E.S eran los que iban a hacer y no se anunció por que aparecen muchos dueños. El puente de la reserva. La estufa asendereada de la antigua adrara."

"El agua que llegó bastante."

"El alumbrado."

"El alumbrado de las calles."

"El alumbrado."

"En estos momentos lo más que me preocupa son los tsunamis y la forma de desalojo."

"En muchas casas se metió el agua. Aislado no hay camino."

"Energía eléctrica, falta de agua."

"Era el alumbrado, pero ya vivieron hace como dos semanas."

"Escombros."

"Falta de compasión con sus animales."

"Frente a la urbanización se inunda las Croacas y sale mucho olor."

"Inundaciones."

"La contaminación de mercurio."

"La dejadez, pasó eso y ahora estamos mejores económicamente. No se puede bajar la guardia."

"La oscuridad en esta comunidad. Somos buenos, pero no hay unión. Por la falta de unión no se progresa y en mi casa, el baño."

"La playa que vuelva salir y llegar a hogares."

"La playa y los lagos."

"La poca ayuda."

"La transportación, los envejecientes y las personas solas."

"La ubicación de donde viven, están rodeados de agua, que es una zona inundable."

"La zona que es inundable."

"Las aguas estancadas, ya que muchos han tapados las zanjas."

"Las alcantarillas, yo no sé si las limpian, se tapan."

"Las inundaciones."

"Las inundaciones y lluvias."

"Las inundaciones."

"Las luces de los postes, esto es como boca de lobo. El pastizal alto. La criminalidad, aunque este aguante."

"Le preocupa la situación de las alcantarillas, ya que la zona es inundable y así el área estaría más preparada."

"Le preocupa que vuelva a ocurrir otro huracán."

"Limpieza área diques."

"Limpieza en las calles."

"Llegar al correo. Yo soy mi mayor preocupación en esta comunidad. Si yo estoy bien ellos estarán bien. Si no tendré que llamarlos."

"Lo que me preocupa es que se mude gente que esté en las drogas."

"Los canales están tapados y no hay desagües."

"Los escombros."

"Los escombros de la comunidad."

"Los tsunamis y terremotos. Oigo el oleaje del mar y pienso que viene por ahí."

"Los vecinos tienen buena comunicación y son buena gente y se ayudan entre ellos."

"Más respeto y ayuda mutuamente."

"Me preocupa que nos quedamos, sabiendo que es un área de peligro. Aunque nos unimos como comunidad."

"Me preocupa que nosotros no sabemos si hay un tsunami, no nos dicen para dónde ir, solo se escucha la alarma, no hay comunicación."

"Me siento segura en esta casa."

"Me sigue preocupando que el mar se vuelva a alzar."

"Miedo, porque dice maremoto y como estamos en la playa no sabemos dónde vamos a correr."

"Muchos animales realengos."

"Nada."

"Nada."

"Nada. La comunidad se está levantando rápido."

"Ninguna"

"Ninguna."

"No."

"No existe alumbrado en las calles."

"No hay luces en las calles."

"No hay luz." (postes y en su casa)

"No hay postes de alumbrado."

"No hay preocupación ninguna."

"No hay salida segura. Salidas. Tsunami no accesible. En la dirección de la salida hay escombros, hay un camión lleno de basura y fango."

"No me preocupa."

"No me preocupa nada."

"No sé."

"No tengo preocupación, porque me he preparado para cuando venga arrancar."

"No tiene preocupación, solo ayudas llegaran temprano."

"No vuelva otro huracán."

"No, todo bien."

"Nosotros los residentes de Punta Santiago no tiene salida para desalojar si ocurre tsunami. Solo se resguardan arriba de la casa."

"Nueva temporada."

"Orientación sobre terremotos."

"Pasan los carros en exceso de velocidad."

"Plan de desalojo."

"Plan de desalojo. Orientación mejor y el de tsunami."

"Plan de desalojo, porque es muy lejos y no es muy rápido y no funciona."

"Preocupan las plagas mosquitos, insectos, ratones. La oscuridad, no hay foco, esto es boca de lobos. La criminalidad ha aumentado, se estaban metiendo a las casas."

"Que después que me haya mudado aquí vuelva a ocurrir algo." Nota: Vivía antes en la casa, se fue por el huracán y volvió.

"Que estemos preparados y un plan de contingencia."

"Que esto aquí se inunda."

"Que haya luz y agua, calles no alumbradas."

"Que les suceda nuevamente lo que sucedió al paso de Huracán María."

"Que mi esposo no esté aquí si pasa otro huracán."

"Que no hay luz en esta carretera. Si vienes por la noche no se ve nada al menos que un vecino deje una luz prendida o dejen la cancha prendida."

"Que no llegue otro huracán, por la desesperación uno no sabe qué hacer."

"Que no tenga mi casa "ready" para otra investida como esa. Ni tengo jaula para los gatitos. Tuve poner todos en el a casa."

"Que no tiene un buen hospital."

"Que no vuelva a ver otro huracán."

"Que nos ataque otro fenómeno igual o peor."

"Que nos deben reubicar a otro lado y sacar a otro lugar más seguro."

"Que nos preparemos para otro evento, y no lo dejemos para lo último."

"Que pase algo igual o peor, porque la gente dice que estamos preparados, pero no estamos preparados. Por más charlas que nos den."

"Que pase en un terremoto o tsunami."

"Que se meta el agua otra vez."

"Que se vuela a salir la playa y los ríos."

"Que sea un mejor lugar y que no vuelva a pasar lo que ocurrió, el drenaje está tapado."

"Que si viene otro huracán no voy a estar en esta casa."

"Que su casa queda al lado del monte, realizaron un drenaje detrás de su casa y no realizan mantenimiento."

"Que suceda lo mismo."

"Que suceda otro huracán y que no estén preparados."

"Que todavía están sacando escombro y por ahí puede haber una epidemia de mosquito."

"Que todavía hay trabajo que hacer. Limpiar las alcantarillas. Dentro de la comunidad no hay parque pasivo para los niños o centro comunal."

"Que uno salga y no pueda regresar y la luz."

"Que venga lo mismo de nuevo."

"Que venga otro."

"Que venga otro huracán."

"Que venga otro huracán igual de intenso y con respecto de la luz se tardaron mucho, aquí llegó la luz en marzo."

"Que venga otro huracán y un temblor."

"Que venga otro huracán."

"Que vuela a pasar lo mismo."

"Que vuelva a ocurrir otro huracán como María."

"Que vuelva a ocurrir y no puedan salir."

"Que vuelva a pasar otro huracán."

"Que vuelva a perder todo, esto estaba lleno de escombros. Que pongan los brazos de los postes."

"Que vuelva a suceder lo que paso, que entre el mar de nuevo."

"Que vuelva a suceder, que el agua se meta adentro."

"Que vuelva otra vez y se salga la playa. Estamos indecisos si nos quedamos aquí."

"Que vuelva otro huracán tan grande como María."

"Quiere retirarse de su hogar, por las condiciones donde vive."

"Recibieron poca ayuda, todavía su marquesina esta sin techo."

"Recuperarme en mi hogar, porque tengo que empezar de nuevo, porque las cosas no están fáciles."

"Hemos hablado para las luces de los postes y no las ponen."

"Le preocupo una señora ciega que no ha recibido casi ayuda y el mono que se escapó".

"Quiere que su familia se mude porque entiende que su residencia no es segura".

"El peligro son los dos lagos que existen en el área."

"Le preocupa ocurra un huracán igual o peor y no estar preparados."

"Me preocupa la plaga de mosquitos que vienen de los lagos."

"No hay una buena planificación ante un desastre."

"No tengo preocupaciones, solo que todo vuelva a la normalidad."

"Se preocupa porque el mar vuelva a entrar a su comunidad."

"Rumores de robo. Tsunami."

"Se preocupa por sus condiciones de salud, ya que él está solo."

"Se preocupan por si ocurre otra catástrofe y ocurra otro huracán de este tipo."

"Siempre pienso en la salida. El puente se puede caer. En caso de tsunami, donde ir, porque la montaña no tiene esquina."

"Su hermana."

"Su mayor preocupación son los pillos que le roben en su hogar, porque le han robado 4 veces."

"No se ve nada al caer la noche y es peligroso."

"Su propiedad."

"Telefonía residencial por cable."

"Temor que venga otro huracán y que se inunden las casas."

"Tener un hogar seguro."

"Terminar de construir su techo."

"Terminar la casa y habitar su casa, ya que fue destruida por el huracán María."

"Terminar reconstruir su residencia."

"Tratar de arreglar mi casa. No hay transportación (trolly) y que cobran $2.00."

"Tsunami e inundaciones."

"Vender la casa."

"Yo cuando digan que viene algo me voy, porque lo material es material que cada uno haga su plan."

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Appendices

Appendix A: CASPER Questionnaire

CASPER
Evaluación Comunitaria para la Respuesta a Emergencias de Salud Pública

Cumple con pre-requisitos ☐   Consentimiento verbal ☐

ID del Equipo:	Fecha: MM/DD/AAAA
Número del Cuestionario:	Hora:

AGRADECEMOS SU PARTICIPACIÓN. ESTE CUESTIONARIO TOMARÁ UNOS 25 MINUTOS. RECUERDE QUE ESTAMOS INTERESADOS EN CONOCER SOBRE LAS PERSONAS QUE VIVEN EN ESTE HOGAR. NO HAY CONTESTACIONES CORRECTAS NI INCORRECTAS.
EN CUALQUIER MOMENTO PUEDE HACER PREGUNTAS O DEJARNOS SABER SUS DUDAS

CLAVE: S= Sí   N= No   N/S= No sabe   Rh= Rehúsa   N/A= No Aplica

INFORMACIÓN SOCIO-DEMOGRÁFICA	
Anote el tipo de vivienda. Si tiene dudas, pregúntele al entrevistado antes de comenzar el cuestionario.	☐ Unidad individual ☐ Unidad múltiple ☐ Otro (Especifique):_____
P1.	¿Su residencia es propia o rentada? ☐ Propia ☐ Rentada ☐ Otra situación de vivienda ☐ N/S ☐ Rh
P2.	¿Cuántas personas viven aquí en este momento, incluido usted? _____
P3.	De éstas ¿cuántas tienen estas edades? 0-2 años_____ 3-17 años_____ 18-34 años_____ 35-64 años_____ Más de 65 años_____ ☐ N/S ☐ Rh
P4.	¿Cuántas mujeres?_____
P5.	¿Cuántas están embarazadas?_____ ☐ N/S ☐ Rh ☐ N/A

ANIMALES	
P6.	¿Tienen animales? ☐ S ☐ N ☐ N/S ☐ Rh
¿Qué animales?	¿Está(n) vacunado(s) contra la rabia?
P7. _____	☐ S ☐ N ☐ N/S ☐ Rh ☐ N/A
P8. _____	☐ S ☐ N ☐ N/S ☐ Rh ☐ N/A
P9. _____	☐ S ☐ N ☐ N/S ☐ Rh ☐ N/A

INFORMACIÓN MÉDICA				
¿A usted o alguno de los que viven aquí, un doctor le ha dicho que tiene...?		{Si contesta Sí, pregunte sobre la edad. Puede marcar más de una opción}		
		0-17	18-64	65+
P10. Asma	☐ S ☐ N ☐ N/S ☐ Rh	☐	☐	☐
P11. Otra condición Respiratoria	☐ S ☐ N ☐ N/S ☐ Rh	☐	☐	☐
P12. Diabetes	☐ S ☐ N ☐ N/S ☐ Rh	☐	☐	☐
P13. Condición Cardiovascular	☐ S ☐ N ☐ N/S ☐ Rh	☐	☐	☐
P14. Condición relacionada a la Salud Mental	☐ S ☐ N ☐ N/S ☐ Rh	☐	☐	☐
P15. Otro (Especifique):_____ ☐ N/A		☐	☐	☐

Cuestionario CASPER versión 18.12.05   Página 1 de 4

CASPER

Evaluación Comunitaria para la Respuesta a Emergencias de Salud Pública

P16.	¿En el hogar vive alguna persona ciega?	□ S	□ N	□ N/S	□ Rh
P17.	¿En el hogar vive alguna persona sorda?	□ S	□ N	□ N/S	□ Rh
P18.	¿En el hogar vive alguna persona encamada?	□ S	□ N	□ N/S	□ Rh

¿Usted o alguna de los que viven aquí requiere…?					
P19.	Diálisis	□ S	□ N	□ N/S	□ Rh
P20.	Suministro de oxígeno	□ S	□ N	□ N/S	□ Rh
P21.	Suministro de insulina	□ S	□ N	□ N/S	□ Rh
P22.	Mátress de aire eléctrico para prevenir úlceras	□ S	□ N	□ N/S	□ Rh
P23.	Atención médica a domicilio	□ S	□ N	□ N/S	□ Rh
P24.	Quimioterapia o radioterapia	□ S	□ N	□ N/S	□ Rh
P25.	Otro tipo de terapia que requiera electricidad	□ S	□ N	□ N/S	□ Rh ¿Cuál? _____

P26.	¿Cuántas de las personas que viven aquí tienen plan médico **Público***?_____ □ N/S □ Rh *(Incluye Medicaid, Medicare, Veteranos, y Plan del Gobierno de Puerto Rico/Reforma)
P27.	¿Cuántas de las personas que viven aquí tienen plan médico **Privado**?_____ □ N/S □ Rh
P28.	¿Alguna de las personas que viven aquí participan del WIC? □ S □ N □ N/S □ Rh
P29.	¿Qué tipo de facilidad de servicios de salud está en, o cercana a su comunidad? {Puede marcar más de una opción} □ Hospital □ CDT □330 □Clínicas privadas □ Laboratorios clínicos □ No hay facilidades cercanas

SERVICIOS BÁSICOS
P30. ¿Cuál es su fuente de agua potable? {Puede marcar más de una opción} □ AAA   □ Non-PRASA   □ Agua embotellada   □ Manantial/Río   □ Pozo de agua privado   □ Agua de lluvia   □ Ojo de agua de la montaña/Caño de agua   □ N/S   □ Rh
P31. ¿Actualmente cuentan con el servicio de agua? □ S   □ N   □ N/S   □ Rh   □ N/A
P32. {Si contesta Sí}, El servicio generalmente es: □ Continuo   □ Interrumpido   □ N/A
P33. ¿Filtran, cloran o tratan de alguna otra manera el agua potable? □ S   □ N   □ N/S   □ Rh
P34. ¿Almacenan agua de lluvia? □ S   □ N   □ N/S   □ Rh
P35. ¿Actualmente cuentan con el servicio de electricidad? □ S   □ N   □ N/S   □ Rh
P36. ¿Tienen generador? □ S   □ N   □ N/S   □ Rh
P37. {Si tiene generador}, ¿El generador corre con?: □ Diésel □ Gasolina □ Gas □ N/S □ Rh □N/A
P38. {Si tiene generador}, ¿El generador es un "inverter"? □ S   □ N   □ N/S   □ Rh   □ N/A
P39. {Si tiene generador}, ¿Dónde lo colocan mientras está encendido? □ Adentro   □ Afuera □ Marquesina abierta   □ Marquesina cerrada   □ En el techo   □ N/S   □ Rh   □ N/A
P40. {Si tiene generador}, Mientras esté encendido, ¿quedaría cerca de alguna puerta o ventana que generalmente está abierta? □ S   □ N   □ N/S   □ Rh   □ N/A

CASPER
Evaluación Comunitaria para la Respuesta a Emergencias de Salud Pública

MONÓXIDO DE CARBONO

P41. ¿Tiene algún detector de Monóxido de Carbono instalado y en funcionamiento en la casa?
☐ S ☐ N ☐ N/S ☐ Rh

P42. {Si tiene detector}. ¿En su casa, el detector de Monóxido de Carbono se encuentra el cuarto donde duerme o en el pasillo, afuera del cuarto?
☐ S ☐ N ☐ En otro lugar ☐ N/S ☐ Rh ☐ N/A

P43. {Si tiene detector}. ¿Su detector de Monóxido de Carbono utiliza baterías como fuente de energía principal o de emergencia?
☐ S ☐ N ☐ El detector es eléctrico o usa baterías recargables ☐ N/S ☐ Rh ☐ N/A

P44. {Si tiene detector}. ¿Cuándo fue la última vez que cambió las baterías de su detector de Monóxido de Carbono? ☐ En los últimos 6 meses ☐ Hace más de 6 meses, pero menos de 1 año ☐ Hace un año o más ☐ Nunca ☐ N/S ☐ Rh ☐ N/A

P45. ¿Alguna vez un doctor le ha dicho que tuvo envenenamiento por Monóxido de Carbono?
☐ S ☐ N ☐ N/S ☐ Rh

COMUNICACIONES

P46. ¿Alguien en la residencia tiene servicio de teléfono residencial? ☐ S ☐ N ☐ N/S ☐ Rh

P47. ¿Alguien en la residencia tiene servicio de teléfono celular? ☐ S ☐ N ☐ N/S ☐ Rh

P48. A la hora de hacer su preparación ante desastres, ¿cuáles son sus medios de información principales? ☐ Televisión ☐ Familiar/Amigo/Vecino ☐ Radio ☐ Periódico ☐ KP4/Radio Civil ☐ Internet (Medios sociales, etc.) ☐ Otro (Especifique): _____

EXPERIENCIA CON EL HURACÁN MARÍA

P49. ¿Esta era su residencia cuando pasó el huracán María? ☐ S ☐ N ☐ N/S ☐ Rh

P50. {Si responde no}. ¿Dónde residía? ☐ En otra casa de esta comunidad ☐ En otra comunidad de este municipio ☐ Otro municipio ☐ Fuera de PR ¿Dónde? _____ ☐ Rh
{Si se marca la opción "Fuera de PR", pase a la P74}

P51. ¿Ha notado aumento de Hongos/Moho en el interior del hogar? ☐ S ☐ N ☐ N/S ☐ Rh

P52. ¿Hubo una orden de desalojo para su hogar (donde oficiales de manejo de emergencias le dijeron que debía desalojar su hogar)? ☐ S ☐ N ☐ N/S ☐ Rh

P53. ¿Desalojaron la residencia como resultado del huracán? ☐ S ☐ N ☐ N/S ☐ Rh

P54. {Si desalojaron}. ¿Cuándo? ☐ Antes del paso del huracán ☐ Durante el huracán ☐ Después del huracán ☐ N/S ☐ Rh ☐ N/A

P55. {Si desalojaron}. ¿Dónde se quedaron? ☐ Hogar de familiar/Amistad ☐ Otra residencia ☐ Refugio ☐ Hotel/Motel/Parador ☐ Iglesia ☐ Otro_____

P56. {Si no desalojaron} ¿Por qué no desalojaron? ☐ No hubo necesidad ☐ No querían ir a un refugio ☐ No querían abandonar su mascota ☐ No tenían a donde ir ☐ N/S ☐ Rh ☐ N/A ☐ Otro motivo: _____

P57. ¿Cómo describiría el daño a su residencia luego del huracán? ☐ No hubo daño ☐ Moderado/Habitable ☐ Severo/No habitable ☐ Destruida ☐ N/S ☐ Rh

P58. ¿Solicitaron asistencia federal (FEMA)? ☐ S ☐ N ☐ No hubo necesidad ☐ N/S ☐ Rh

P59. {Si lo solicitaron} ¿Ya recibieron contestación? ☐ S ☐ N ☐ N/S ☐ Rh ☐ N/A

P60. ¿Hay todavía escombros en esta comunidad a raíz del huracán? ☐ S ☐ N ☐ N/S ☐ Rh

P61. ¿Alguna de las personas del hogar se lesionó a causa del huracán? ☐ S ☐ N ☐ N/S ☐ Rh

P62. {Si hubo lesiones}. ¿Cuántas? _____ ☐ N/A

P63. {Si hubo lesiones}. ¿Qué tipo de lesiones? {Puede seleccionar más de una.} ☐ Caída ☐ Fractura ☐ Cortadura ☐ Quemadura ☐ Punción ☐ Otra: _____ ☐ N/A

CASPER

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Si en la P50 (Pág 3) respondió "Fuera de Puerto Rico" o "En otro municipio", favor de pasar a la P74. Luego del paso del huracán, ¿ha notado un aumento en la presencia de alguno de los siguientes en esta comunidad...?	

P64.	Mosquitos ☐S ☐N ☐N/S ☐Rh
P65.	¿Qué medidas usan para prevenir los mosquitos? *(Puede seleccionar más de una)* ☐ Repelentes ☐ Eliminar agua estancada ☐ Insecticida ☐ "Escrínes" ☐ Mosquiteros ☐ Usar ropa de mangas/Pantalones largos ☐ No usamos medidas de prevención ☐ N/A ☐ N/S ☐ Rh ☐ Otro (Especifique): _____
P66.	Roedores ☐S ☐N ☐N/S ☐Rh
P67.	¿Usa algún método de control de roedores? *(Puede seleccionar más de una)* ☐ Trampas ☐ Pega ☐ Gatos ☐ Servicio de exterminador ☐ No usamos métodos de control ☐ N/A ☐ N/S ☐ Rh ☐ Otro (Especifique): _____
P68.	Mangostas (También conocidas como ardillas) ☐S ☐N ☐N/S ☐Rh
P69.	Perros realengos ☐S ☐N ☐N/S ☐Rh
P70.	Gatos realengos ☐S ☐N ☐N/S ☐Rh
P71.	Caballos realengos ☐S ☐N ☐N/S ☐Rh
P72.	Cerdos realengos ☐S ☐N ☐N/S ☐Rh
P73.	Otro animal realengo ☐S ☐N ☐N/S ☐Rh ☐ ¿Cuál?: _____

PREPARACIÓN PARA DESASTRES/EMERGENCIAS	
P74.	Antes del huracán, ¿su familia tenía un plan familiar de emergencias? Estos típicamente incluyen una lista de números de emergencia y de contactos que viven fuera de la isla; un lugar de encuentro designado; copias de documentos de importancia en un lugar seguro; múltiples rutas de desalojo. ☐S ☐N ☐N/S ☐Rh
P75.	¿Sabía que FEMA ahora recomienda que se almacene comida no perecedera y agua suficiente para 10 días? ☐S ☐N ☐N/S ☐Rh

APOYO EMOCIONAL	
P76.	Cuando comenzó la pasada temporada de huracanes, ¿Sintió ansiedad? ☐S ☐N ☐N/S ☐Rh
P77.	Luego del huracán, ¿Usted o alguna de las personas que viven aquí ha sentido la necesidad de ayuda emocional? ☐S ☐N ☐N/S ☐Rh
P78.	¿Usted o alguna de las personas que viven aquí ha buscado ayuda emocional ya sea de un profesional de la salud, consejero espiritual u otra persona de confianza? ☐S ☐N ☐N/S ☐Rh
P79.	Finalmente, pensando en la recuperación de su comunidad ¿Cuál es su mayor preocupación en estos momentos?

ESTAS SON TODAS LAS PREGUNTAS DEL CUESTIONARIO. ¡GRACIAS POR SU PARTICIPACIÓN! ¿TIENE ALGUNA DUDA O PREGUNTA? SI NOS PERMITE, MI COMPAÑERO LE DARÁ UNA BREVE ORIENTACIÓN SOBRE EL LAVADO DE MANOS PARA PREVENIR ENFERMEDADES.

Appendix B: Consent Form

GOBIERNO DE PUERTO RICO
Departamento de Salud

Hoja Informativa

Título del proyecto: Evaluación y seguimiento de las necesidades de salud pública de tres comunidades de zonas costera, de montaña y cercana a una represa, tras el paso del huracán María por Puerto Rico.

Hola, ¡Buenos días! Somos (_____) y (_____).
Nombre del entrevistador #1   Nombre del entrevistador #2

Somos del Departamento de Salud de Puerto Rico y estamos realizando unas preguntas, basadas en la aplicación de la herramienta "Evaluación Comunitaria por la Respuesta a Emergencias en Salud Pública" (CASPER, por sus siglas en inglés). Esta evaluación consiste en un cuestionario diseñado para recopilar datos por medio de entrevistas a miembros de la comunidad sobre las necesidades del hogar. **El objetivo es determinar las necesidades de salud pública y servicios médicos, en la fase de recuperación, tras el paso del huracán María.**

El propósito de esta evaluación es utilizar la información que recojamos para poder dar recomendaciones de salud pública en temas de preparación para emergencias. Para esto, estamos haciendo a las personas unas **preguntas** que toman **aproximadamente 25 minutos**.

El proyecto dura año y medio, y consta de 2 fases. En la primera fase vamos a visitar 3 comunidades, incluida ésta y durante este periodo vamos a entrevistar un total de 630 personas. En la segunda fase, volveremos seis meses después a las mismas comunidades, entrevistando otras 630 personas. Una vez finalizado el estudio, habremos entrevistado un total de 1,260 personas. En ambas fases, **las personas que participen deben tener 21 años o más, hablar español y deben vivir en la residencia.**

El cuestionario tiene preguntas sobre las personas que viven en la residencia, sus condiciones de salud y disponibilidad de servicios básicos y teléfono en la casa. También, incluye algunas preguntas sobre sus experiencias tras el paso del huracán María y preguntas sobre la preparación para emergencias de los miembros de la vivienda y la necesidad de ayuda emocional después del huracán.

La información que nos facilite será confidencial. No vamos a recoger ninguna información que le pueda identificar directamente y ninguno de los servicios que usted recibe se verá afectado de ninguna manera por contestar a estas preguntas. **Estamos recogiendo sus experiencias, no su conocimiento.** Contestar que "no sabe" es una respuesta completamente válida.

Además, **su participación es completamente voluntaria. Si en algún momento no desea continuar podemos terminar la entrevista.**

Página 1 de 2

Se considera que participar en esta evaluación conlleva un riesgo mínimo. Usted podría sentirse incómodo/a por algunas preguntas como las que hablan de necesitar ayuda emocional. Como beneficio de esta evaluación le vamos a estar dando información sobre la prevención de enfermedades a través del lavado de manos.

La información de esta evaluación de investigación podría conducir a mejorar la preparación de los individuos, las comunidades y las agencias de gobierno en una emergencia futura.

No se recogerá información que lo pueda identificar de manera individual. Los cuestionarios en papel se guardarán en un archivo cerrado en la oficina del investigador principal a la que solo éste tiene acceso. Serán archivados por 5 años, después de los cuales serán triturados. Adicionalmente los datos se archivarán de manera electrónica en los servidores de la Oficina de Preparación y Coordinación de Respuesta en Salud Pública del Departamento de Salud. Los mismos cuentan con la seguridad requerida por el Departamento de Salud en cumplimiento de HIPAA.

Si tiene alguna pregunta o duda la puede hacer en cualquier momento. Si tiene preguntas una vez nos hayamos ido, puede llamar al investigador **Igor Uriz al 787-765-2929, ext. 4308.**

Si usted tiene alguna pregunta sobre sus derechos como participante de esta investigación, puede contactar a la Oficina para la Protección de Participantes Humanos en Investigación (IRB) al (787) 758-2525 extensiones 2510-2515 o al correo electrónico opphi.rcm@upr.edu referente al protocolo de investigación **A-58101117.**

¡Gracias por su participación!

_____
Igor Uriz, MAC
Investigador Principal

_____
Fecha

OFICINA DE PREPARACIÓN Y COORDINACIÓN DE RESPUESTA EN SALUD PÚBLICA
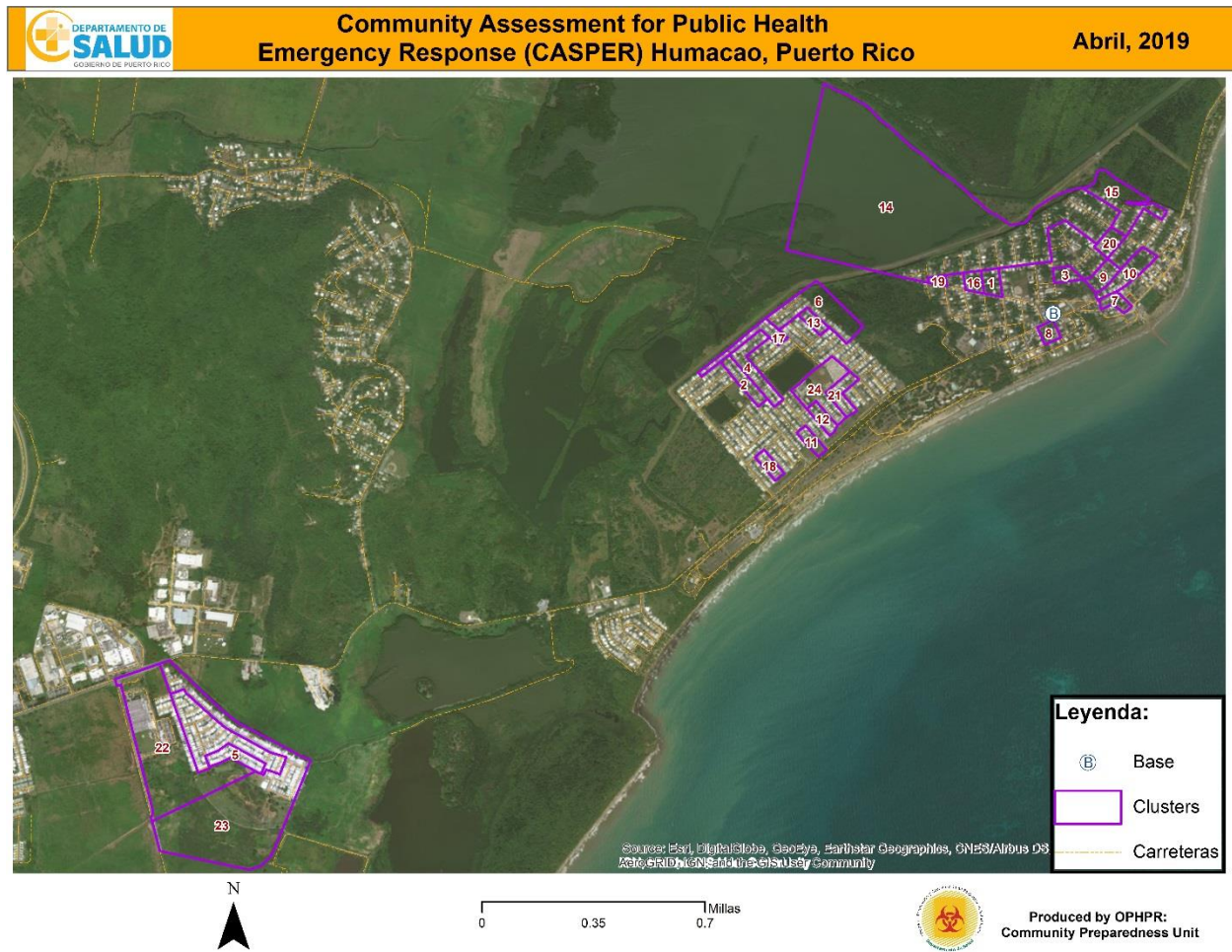Bo. Monacillos, Calle Casia #2
San Juan, PR 00921-3200
Tel.: (787) 773-0600 - Fax: (787) 773-0619

Página 2 de 2

Appendix C: Sampling Frame and Selected Clusters

24 clusters

1,041 housing units

2,478 total population

Appendix D: Public Health Educational Material

Appendix E: Community Outreach Activity

On May 15, 2019 the Puerto Rico Health Department collaborated in the activity "Prepare your Emergency Backpack" with an educational booth at Punta Santiago in Humacao. The educational booth theme was Arbovirus Diseases. The team explained to the community the protective measures they should take on their home to prevent mosquito bites and the active ingredients that their repellent should have. After the people were educated they were giving educational booklets and mosquito repellent. In this activity we reach a total of 75 people.

The activity "Prepare your emergency backpack" was organized by with community organization Programa de Educación Comunal de Entrega y Servicios (P.E.C.E.S., Inc.) and had the collaboration of the Puerto Rico Department of Health.