Fit for Purpose Surveys in the Wake of a Natural Disaster: Examining the use of Redirected Inbound Call Sampling (RICS) after Hurricane Harvey

May 18, 2018

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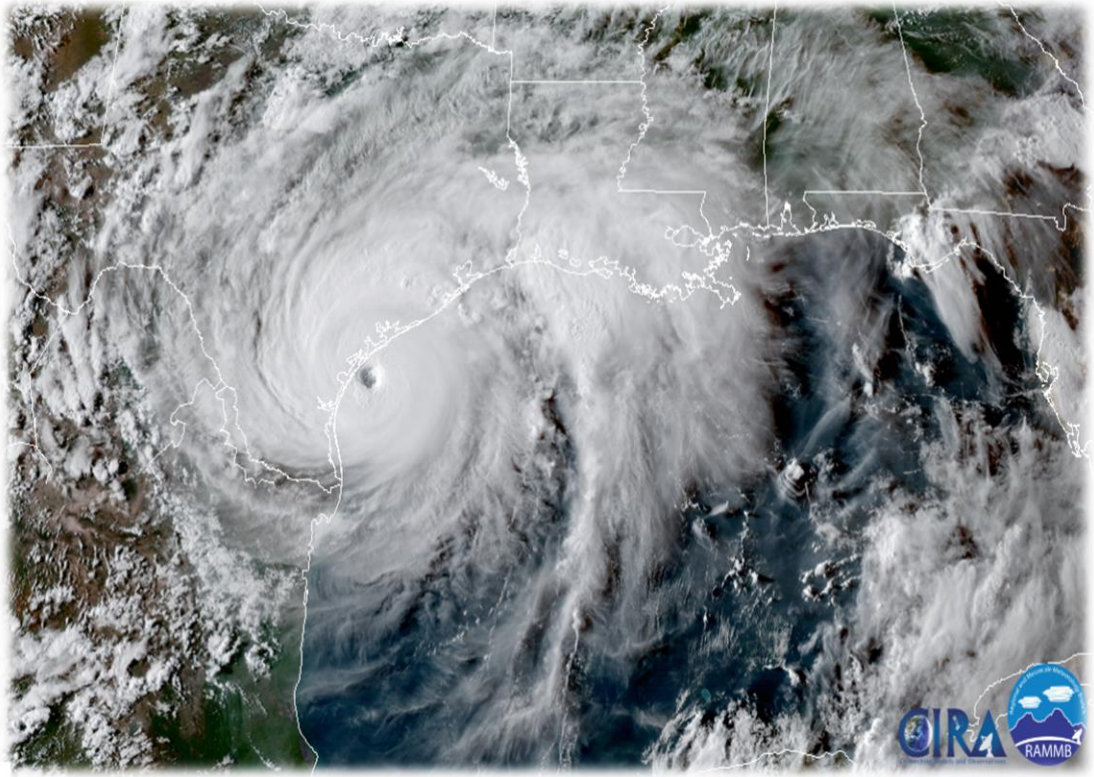


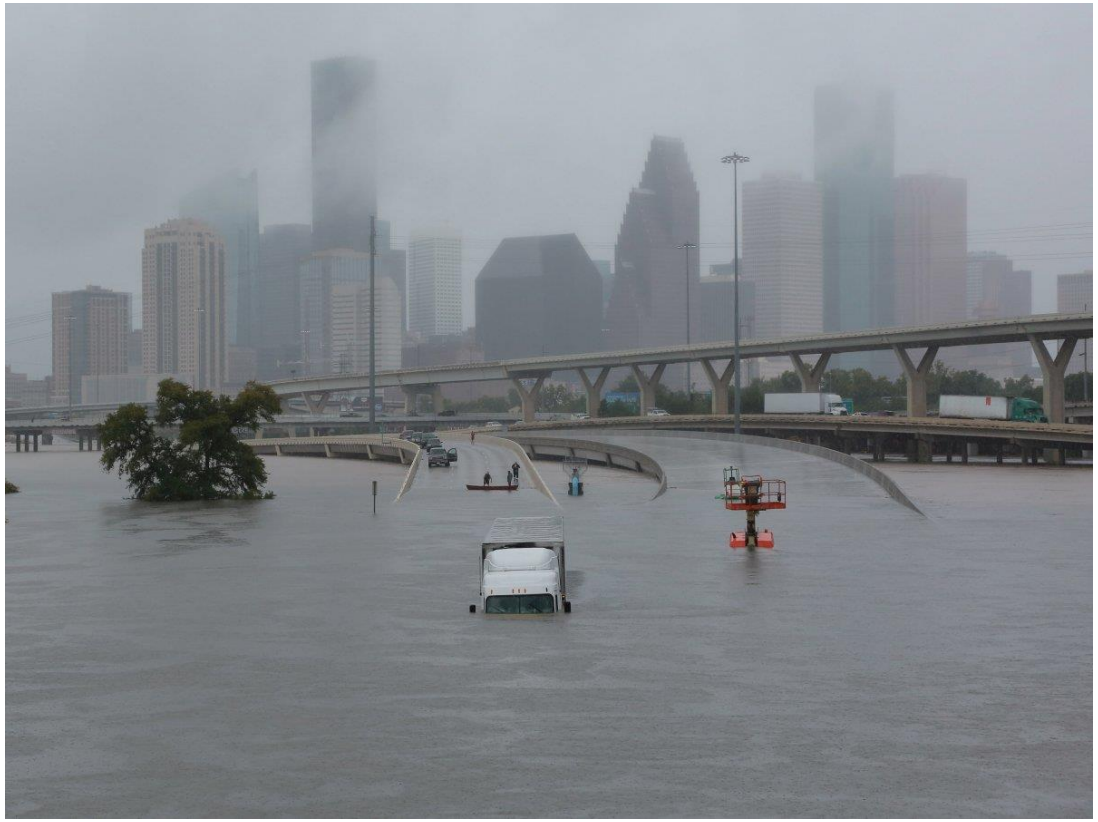
Background

- In the immediate wake of a disaster, speed is critical:
  - Determine the need for aid.
  - Plan the allocation of resources, rescue and recovery operations.
- Events in Texas, Florida and Puerto Rico have reinforced the importance of a quick response, while unfortunately highlighting the negative impact of delays in the timely allocation of resources.
- Evolution of data capture in the fit for purpose paradigm:
  - How can new methods for rapid data capture complement disaster relief efforts?
  - Can we generate data that can be quickly disseminated to any local, state, federal or aid agencies who feel that they will benefit from the results?

Purpose

- Feasibility experiment
  - Redirected Inbound Call Sampling (RICS) for rapid telephone data collection across the areas of Texas impacted Hurricane Harvey.
- Can we help?
  - Can organizations, agencies and government use these data to assess current need for aid, suggest approaches to allocating resources and help guide future disaster planning?
- Share experiences:
  - Preparing for and implementing data collection,
  - Study results,
  - Lessons learned throughout the process,
  - Limitations, and
  - Suggestions for future research.

Harvey

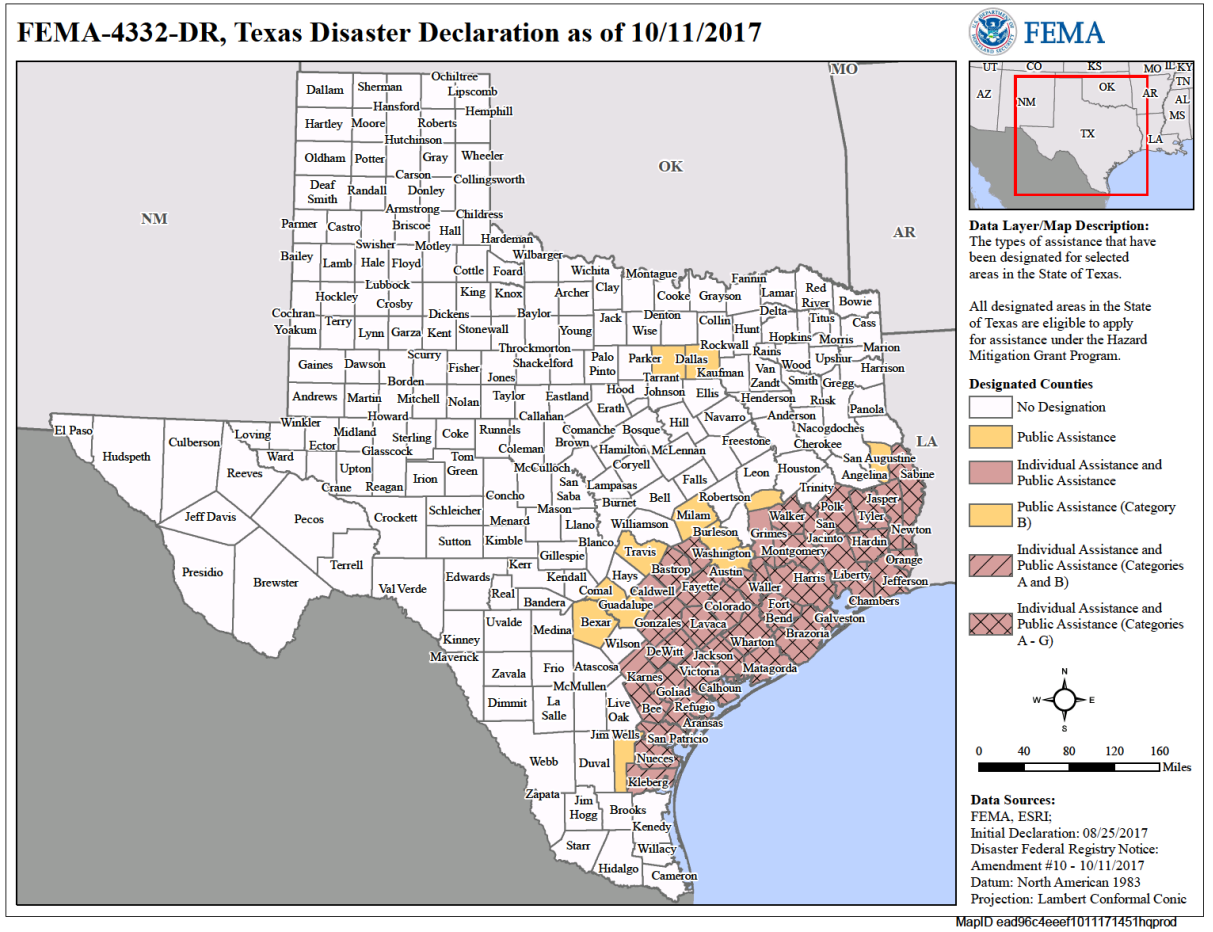


By the Numbers

- Category 4 storm with 3 landfalls in 6 days.
- Texas landfall – August 25, 2017.
- $125 billion in damage.
- 13 million people affected across 5 states.
- September 1, 2017, 1/3 of Houston was underwater.
- 2 feet of rain fell in the first 24 hours.
- Flooding forced 39,000 people out of their homes and into shelters as far away as Dallas.
- At least 68 deaths from the direct effects of the storm in Texas.

Redirected Inbound Call Sampling (RICS)

- Reconnect Research (RR)
  - Connected to over 3,000 carriers who provide calls for RICS data collections.
  - Approximately 100,000 MIDI calls per day, yielding approximately 8,000 daily surveys.
  - As of June, 2017, Texas made up the second highest proportion of RICS calls across the 50 states.
- Sample
  - Misdialed, Incomplete, Disconnected or Inbound (MIDI) calls.
  - Calls that could not be completed by a carrier were sent to RR if in a certain geography.
    - Counties in FEMA Disaster Area
    - Based on rate center of the caller's phone number (Also flags cell or landline)
  - Callers received an intercept message which invited them to take a survey.



Screening

- The intercept message provided the caller with:
  - Confirmation that the initial call could not be completed, and that the caller was sent to a voluntary survey,
  - The topic and sponsor of the survey,
  - The length of time the survey took to complete, and
  - Confidential nature of the data collection.
- Callers who agreed to participate were first asked their age in order to screen out minors age 17 or younger.

Survey Content

- The effort utilized questions developed in other Abt surveys conducted after hurricanes and focused on the following:
  - Impact/damage to residences,
  - Displacement and relocation in the wake of the storm,
  - Availability or scarcity of needed resources, such as food and water,
  - Personal impacts, and
  - Basic demographics for analysis.
- The survey also included QC checks, encouragement prompts and most importantly, information on available resources for storm victims.

Completions, 9/11/17 through 9/14/17

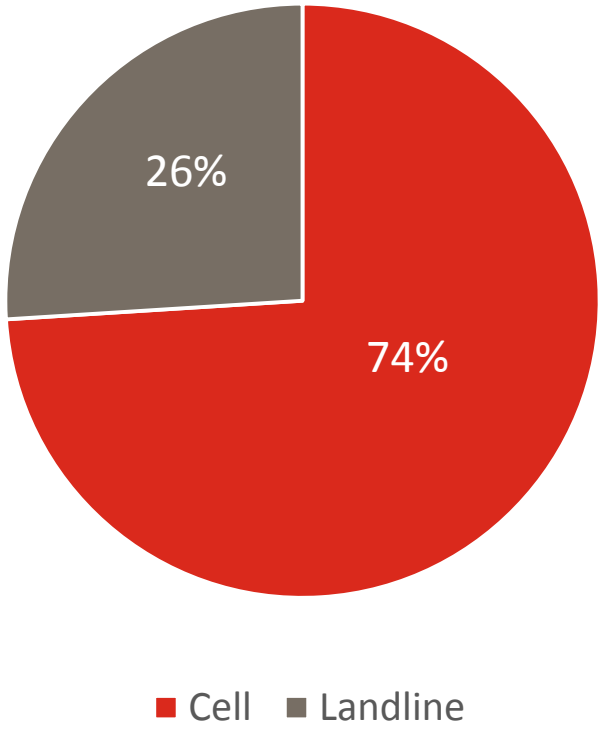
8,786 callers transferred

1,105 completed surveys (12.6%)

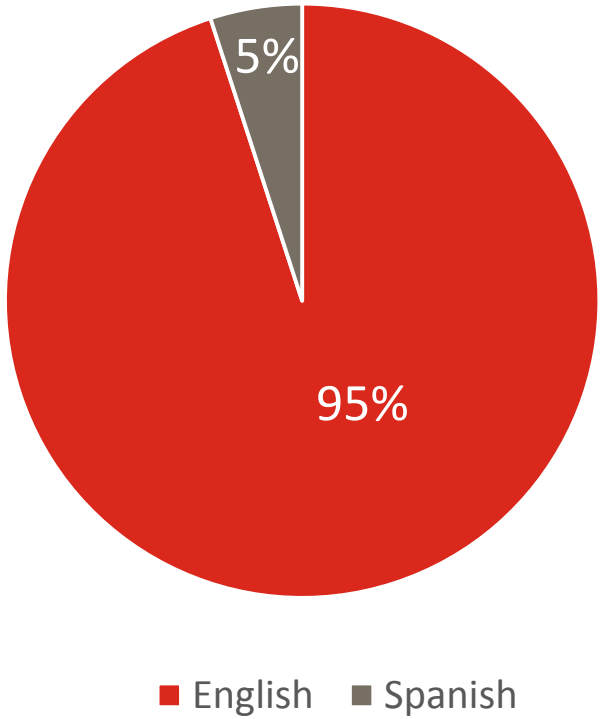
94 (8.5%) completes flagged

Phone and Language

Phone Type



Survey Language



Demographics

- Because of the customized geography we selected (the counties declared a disaster area by FEMA), quickly available top line demographics to compare to were difficult to find.
- The first attempt at comparison was the Houston–The Woodlands–Sugar Land MSA.
  - More females,
  - Less Hispanic,
  - More whites, and
  - Older.

Timing & Item Nonresponse

- Completion time
  - Estimated that the survey should take 4 to 5 minutes.
  - Mean time for the 1,011 valid completes was 5.07 minutes.
  - 50.4% of valid completes were done in 3 to less than 5 minutes.
  - No valid completes under 3 minutes.
- Item Nonresponse
  - No wide scale opting out of items.
  - Highest refusals were in the demographics section at the end.

Skipping and “Straight-lining”

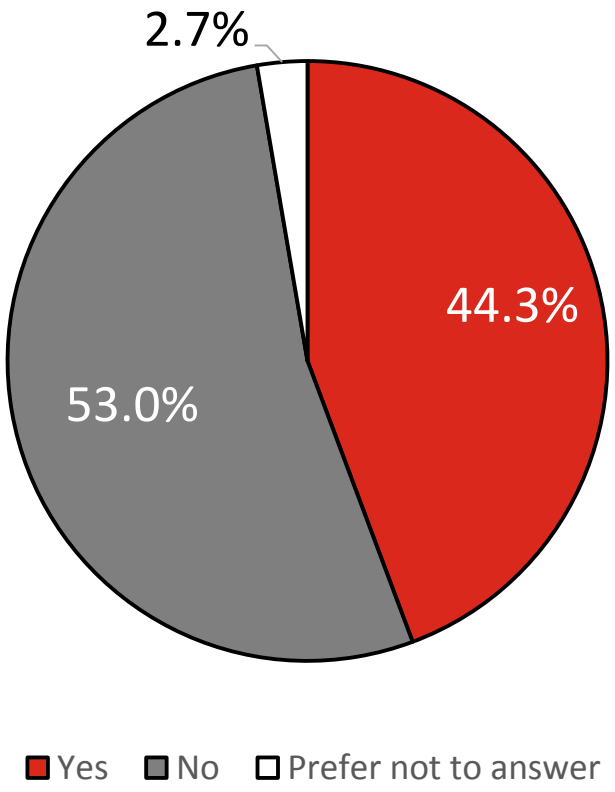
- Skipped questions
  - Looked at the mean number of skipped items for three groups:
    - All completes before flagged cases were removed (1.34 items)
    - 62 completes marked as skipping too many items (20.58 items)
    - 1,011 valid completes (.20 items)
- Straight-liners
  - Focused on people pressing ‘1’ on a few different combos of items:
    - All substantive questions: n = 0
    - The first group of “experience items: n = 4 (.4%)
    - Second group of items that focused on disruption: n = 41 (4%)
    - All items after the scripted “Halfway done” message: n = 48 (4.8%)

Geography

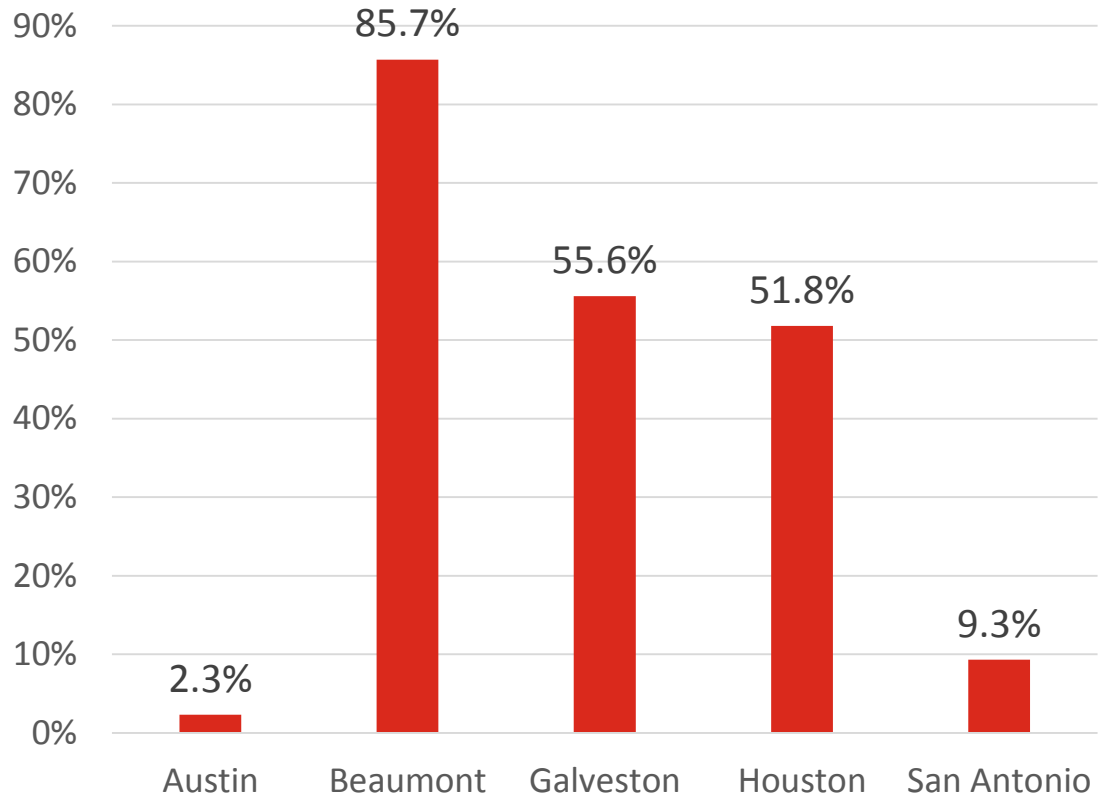
- City
  - All valid completes had a city identified by the RR system.
  - Collapsed city shows that about 64% of the sample was from Houston (42%), San Antonio (9%), Austin (4%), Beaumont (4%) Texas City (3%) and Galveston (2%).
  - Remaining 36% were from towns that made up <2% of the total completes, each.
- Zip Code
  - RR was able to systematically capture zip codes for about 97% of the cases that called in.
  - By comparison, respondent reported zip code was not as clean, and included 111 entries (11%) that were either less than 5 digits, or 5 digits that did not reflect a zip code from the selected area.

Impact of the Storm

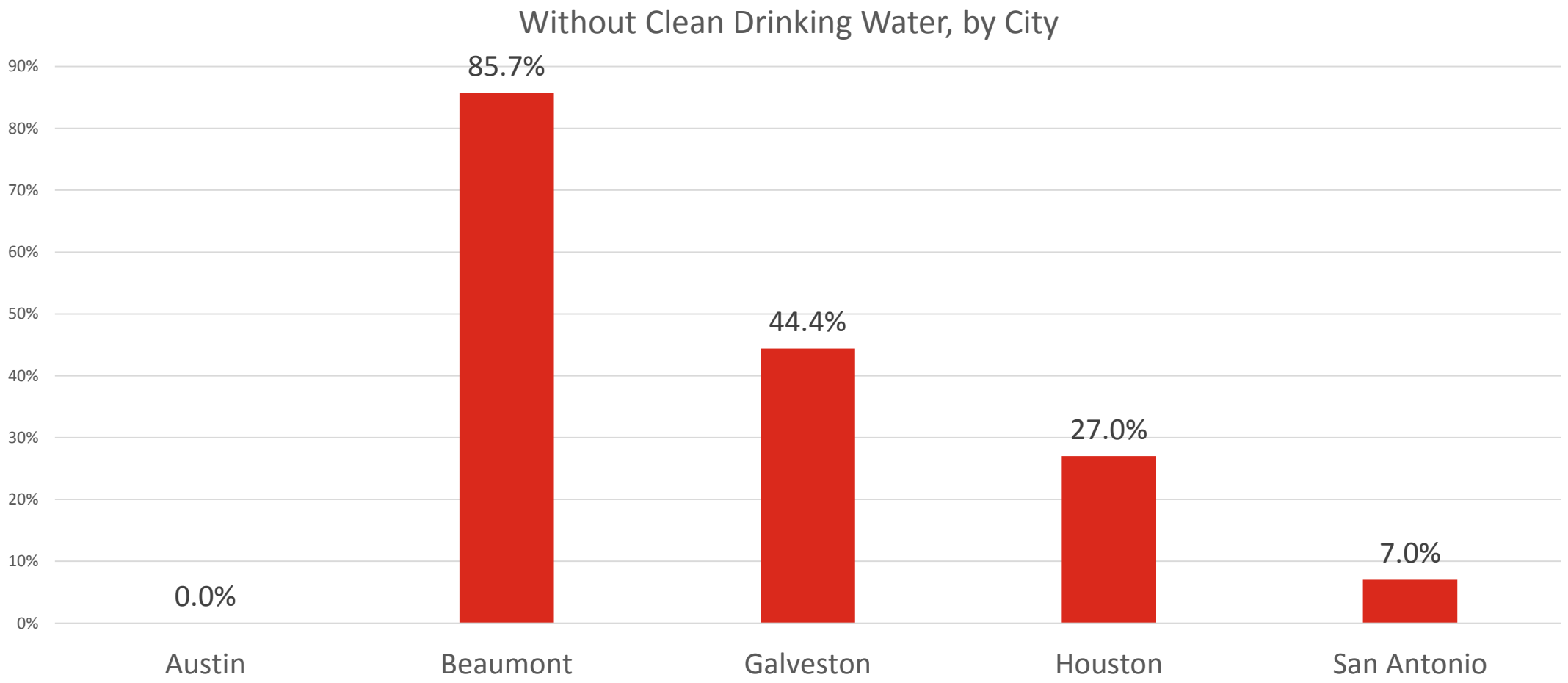
Did you have to leave your home for a day or more?



Had to Leave Home for a Day or More, by City



Impact of the Storm, Ctd.



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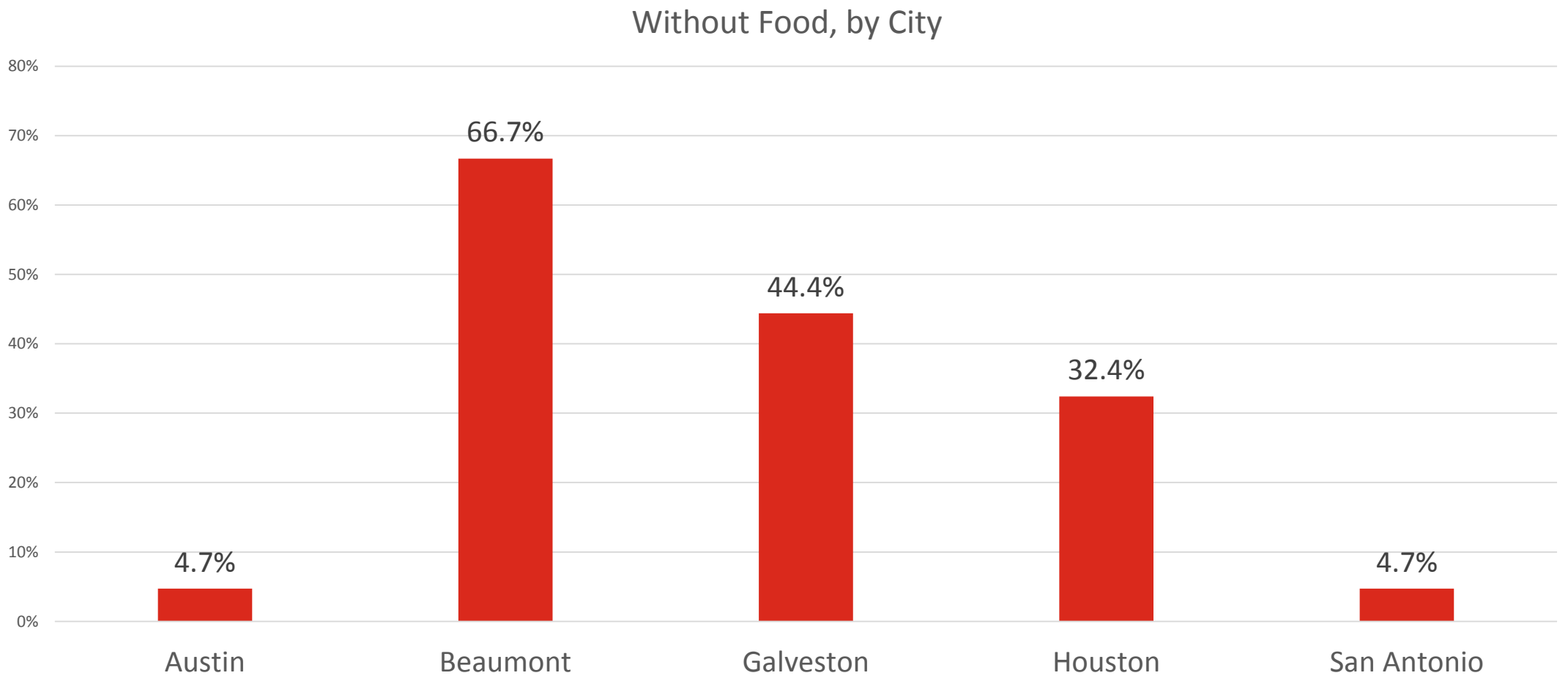

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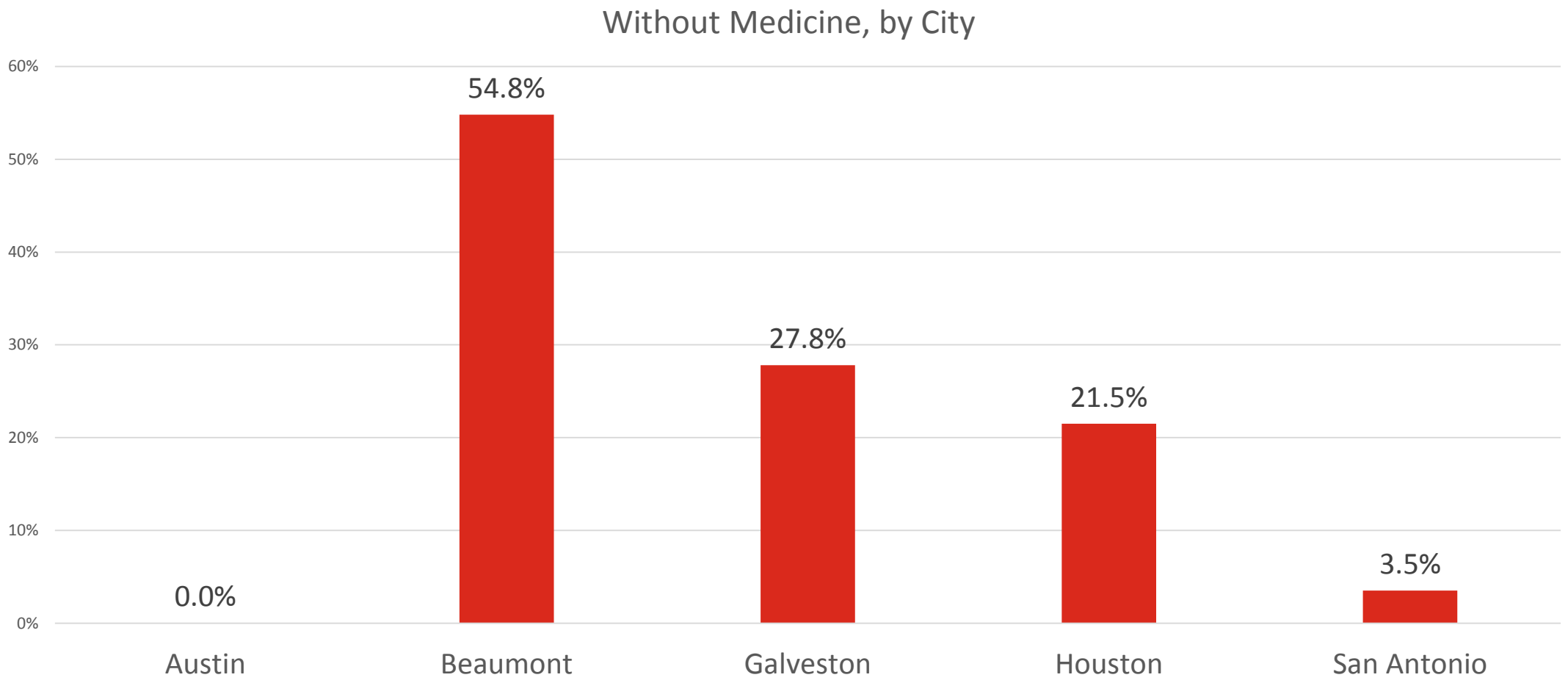

Lessons Learned & Limitations (Besides Sample Type!)

- While data collection is quick, approval and clearance is not. At least the first time…
  - Harvey made landfall Friday August 25, 2017
  - Data collection ran from Monday September 11 through Thursday September 14.
- Questionnaire changes for IVR are necessary, but there is push and pull between RICS experts and survey experts.
  - Learning each other's "language" is critical.
- The use of flags for too many skips, etc. is helpful in locating cases that are not worthy of inclusion in analysis.
  - Moving forward, we should expect an 8% to 10% loss.

Lessons Learned & Limitations, Ctd.

- Until numeric items (like zip codes) force respondents to enter the proper number of digits, we should be cautious about using questions that require numeric responses.
- We still need to do some work looking at geography.
- We must continue to stay aware of burden and maintain an ethical approach.

Potential Benefits & Next Steps

- If we continue to view this as a non-generalizable, fit for purpose exercise, this could be a starting point for identifying problems, especially in a rapid response scenario.
- For example, if we can quickly tell a county or organization that it looks like a pocket of people may need some type of help, etc., these data could have value.
- More testing and refinement.
- Exploration around sampling and weighting.
- Continued engagement with Abt's experts in Disaster Response and Resilience
  - Feedback on our approach,
  - Potential uses for and dissemination of these data in the future.

BOLD
THINKERS
DRIVING
REAL-WORLD
IMPACT