

THE CHALLENGE OF MEASURING HEALTH DETERMINANTS IN A SMALL AREA, RURAL AREA, OR AREA IMPACTED BY DISASTER

Lessons from a Health Impact Assessment

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Overview

- Health Impact Assessments (HIAs) ...
 - ▣ Provide information on health implications of **upcoming** decisions – not to examine past decisions' effects
 - ▣ Also intended to provide **mitigation options** for different potential decisions
 - ▣ Rely on an evidence-based, data-driven approach
- Obtaining data for HIAs can be challenging under the best circumstances
 - ▣ Even good data rarely designed for health research
 - ▣ Local variation and “quirks” may reduce relevance of regular national data sets (i.e., census tracts in small or rural geographies)
 - ▣ Critical local data may simply not exist or be badly out of date (i.e., locations of sources of healthy foods or social cohesion data)

Global Issues and Challenges

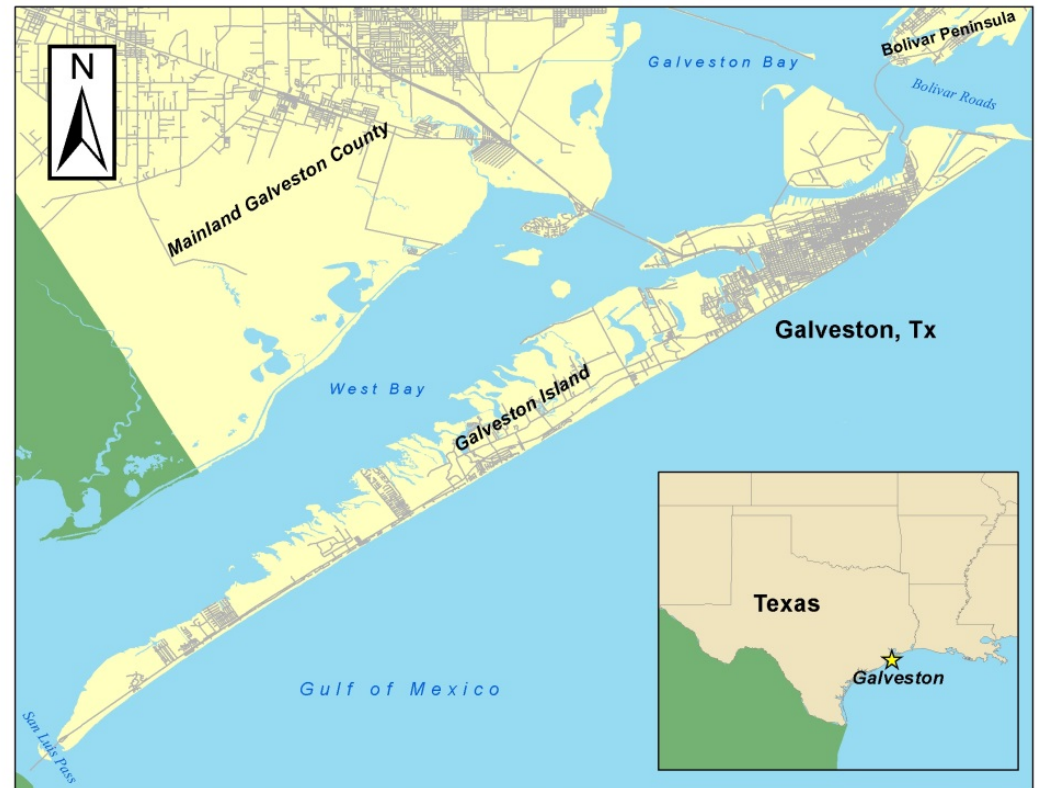


- With HIAs conducted in small or rural areas, or following a disaster, these challenges can become even greater ...
 - ▣ Data for rural areas are often aggregated over relatively larger geographic areas
 - ▣ Census tract boundaries may not follow local contextual factors
 - ▣ Standard data sources tend to become less valid in the wake of disasters, such as hurricanes or tornadoes, as populations and environments can shift quickly.
- Creative solutions to these challenges will be increasingly important in coming years
- Examples from Galveston's HIA:
 - ▣ Estimating unavailable data from existing data sets in innovative ways
 - ▣ Application of qualitative methods

Background & Setting

Galveston, Texas

- Barrier island 1 hour southeast of Houston
- Population: 48,444, with gusts to over 400,000
- Resident population is relatively
 - ▣ Older
 - ▣ Less resourced
 - ▣ More Minority
- Hit by Hurricane Ike in 2008



Local Context

- Hurricane Ike struck Galveston, Texas in 2008, damaging over 75% of housing units on the island
 - ▣ 569 units of public housing were lost in the Hurricane
 - ▣ Recovery funding sources are requiring that these units be replaced in the city of Galveston
 - ▣ Plans call for a hybrid approach to replacing these public housing units
 - Mixed-income developments
 - Scattered-site units
- The Center to Eliminate Health Disparities at UTMB and the Georgia Health Policy Center conducted an HIA on potential health impacts of siting the “scattered-site” housing units in different parts of Galveston

Local Issues and Challenges

- Galveston is a small but highly varied area
 - ▣ Less than 50,000 people, but relatively high population density
 - ▣ Lots of integrated SES and race/ethnicity areas
 - Significant variation literally block-to-block
 - ▣ Large surveys not useful (i.e., BRFSS)
 - Sample size insufficient to make within-city comparisons
- After the hurricane, the demographic composition of the island changed, but could not demonstrate this change
 - ▣ Census and other trends temporarily unreliable
 - ▣ Data not available for small geographic areas
 - ▣ Delay in getting data-collection efforts restored
 - ▣ Some data not collected at all

Examples of Challenges and Solutions



- Small area poverty estimation
- Social cohesion and perceived neighborhood factors related to health

Poverty Estimation

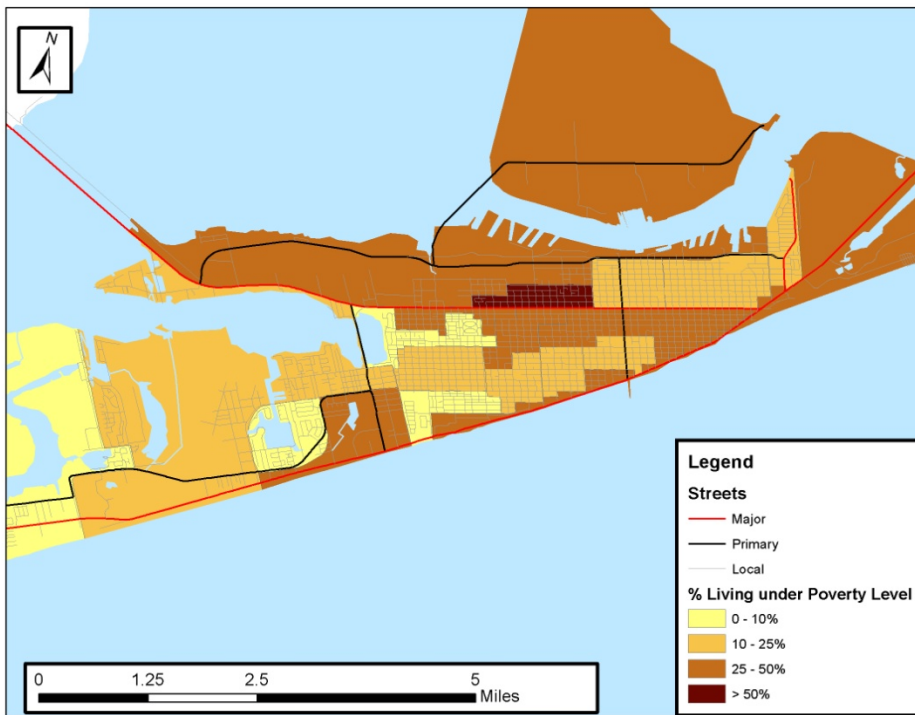


- Block-Level Poverty Proxy
 - ▣ Poverty concentration related to health and therefore an important measure to capture
 - ▣ But Census-tract data not helpful as measure for poverty levels in highly-mixed tracts of Galveston
 - Census block-level data would be most appropriate
 - Also, areas concentrated with college students or with many areas of unpopulated areas may misrepresent poverty at local levels

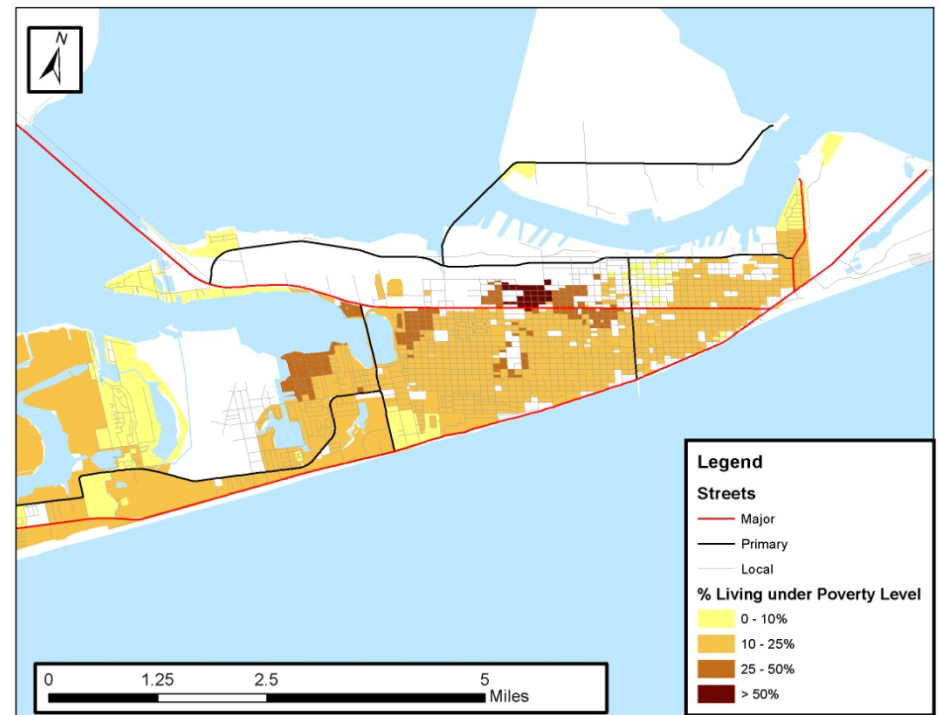
Poverty Estimation

- Noted that counts of single-parent households, which are available at block and tract level, and households with incomes at or below poverty level (only available at tract level) were highly correlated ($r=0.785$).
- Performed a linear regression at the tract level
 - In Galveston, for every 1% gain in the number of single-parent households, there was a 1.95% gain in the number of households with incomes in poverty ($p<0.001$, $r^2 = 0.616$).
 - Used blocks with geographic centroids within the surrounding $\frac{1}{4}$ mile to calculate a block's estimated household poverty concentration

Poverty Estimation



Census Tract Level



Populated Census
Block Level

Social Cohesion and Perceptions of Neighborhood Health

□ Focus Groups

- Social cohesion and perceptions of neighborhood health deterring or promoting factors among public housing residents were important clues to “locating” future scattered-site public housing
- No funding or time to conduct a survey with a representative sample
 - Conducted a series of focus groups on the island
 - Sampled housing choice voucher (section 8) users, a reasonable approximation for future scattered-site residents
 - Rich data, especially on perceptions of health-affecting issues on island

Sampling



- Chose 3 neighborhoods with concentrations of housing choice voucher users
 - ▣ Addresses of voucher users was publically available
- Divided each neighborhood into quadrants
- Randomly assigned ranks to each household within each quadrant
- Visited addresses in rank order
- Recruited the actual voucher holder to participate in the focus group
- Food, childcare and monetary stipend were provided

Results



□ Focus Groups

- Local (“grounding”) insights into health-affecting issues
 - Actual vs. assumed behaviors, like use (or avoidance) of sidewalks and specific parks
 - Significance of landmarks or particular neighborhoods to perceptions of health and health behaviors
- Useful for family placement issues
 - Helped research team understand how individuals vs. families might see living in certain areas differently
 - Suggested questions for family placement in future scattered site locations
- Potential for uncovering health-related issues that research team or community leaders had not thought of

Discussion



- Focus groups are not representative, but can illustrate potential areas of interest or concern
 - In specific situations can be very helpful, like issues related to family placement in this HIA
 - Can help interpret meaning of large data sets or maps based on large data sets in a local setting

Next Steps



- Further validate poverty-proxy measure
 - ▣ The poverty co-efficient is valid only for the study area at the time studied
 - ▣ Less reliable in areas with concentrated older adults
 - ▣ Method can be replicated elsewhere

- Expand the use of these techniques to other small or rural areas conducting HIAs

- Use techniques in this study to inform HIAs working in post-disaster settings after disasters

Questions?