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Katrina, Sandy, and Deepwater Horizon: Lessons Thrice-Learned

Session 3: Lessons Learned from Setting up Population Monitoring Registries

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Approach

- Post-disaster Cohorts (3x)
  - What we did
  - What we learned
  - What we would do differently
- Perspective from a small academic research shop who has worked with multiple collaborators and other academic institutions
- Personal perspective of a regular staff (ie not a Principal Investigator)

Cohorts Overview

1. Gulf Coast Child & Family Health Study (G-CAFH)
   - Observational Cohort Post-Katrina – 5 waves completed*
   - Event: August 2005
   - Baseline: February 2006 (LA) & August 2006 (MS)
2. Sandy Child & Family Health Study (S-CAFH)
   - Observational Cohort Post-Superstorm Sandy - 2 waves completed
   - Event: October 2012
   - Baseline: August 2014 - May 2015
3. Gulf Coast Population Impact (GCPI) / Resilient Children Youth & Communities Project (RCYC)
   - Cross-sectional Survey → Cohort Study – 3 waves completed
   - Event: April 2010
   - Baseline: April – October 2012

General Study Objectives: All three cohorts

- Create representative (either population or highly exposed) population-based cohorts to follow over time
- Examine how direct or indirect exposure may affect the physical and mental health of a household, particularly those with children (based on the socio-ecological model of recovery)
- Explore the event itself from the perspective of the individual or household

G-CAFH

Post-Katrina Cohort Study

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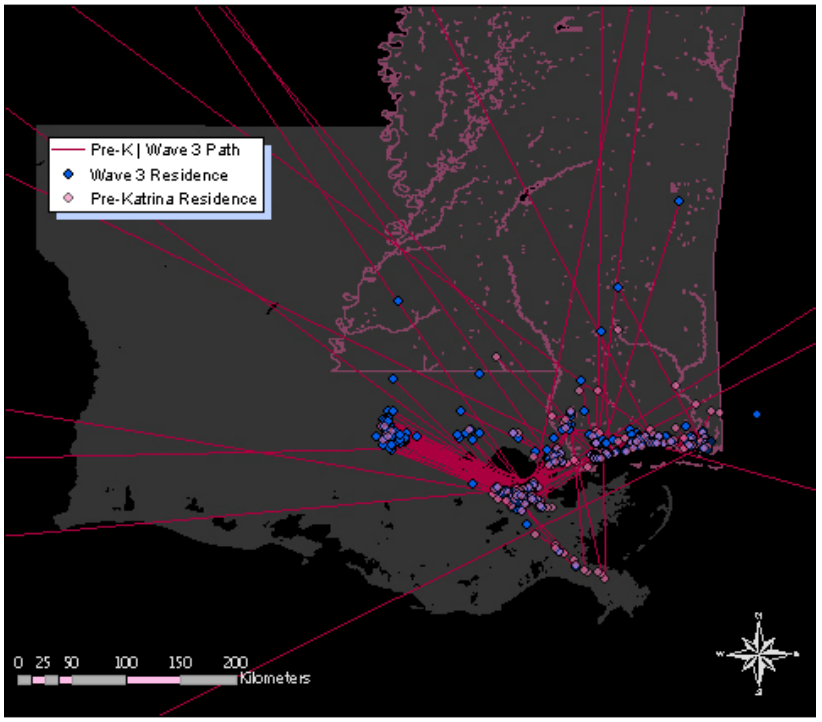
G-CAFH: Sampling Methodology

- Multi-stage cluster sampling (by size, type, state)
  - Louisiana: random selection of congregate settings by type and number of residential units (FEMA trailer parks, FEMA trailers in commercial parks, hotels)
  - Mississippi: random selection of congregate settings (FEMA trailer parks, FEMA trailers in commercial parks), FEMA-designated census blocks (moderately to extensively damaged)
- 1,079 households in Louisiana and Mississippi recruited within one year of Hurricane Katrina
- Sample representative of 60,000 to 100,000 displaced and/or heavily-impacted Katrina survivors
- Face-to-face interviews

G-CAFH: Baseline and Diaspora



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G-CAFH: Retention

	Total
Baseline (6-12 months post-Katrina, ~1 yr)	1,079
Wave 2 (20-23 months post-Katrina, ~2 yrs) *Retention Rate*	803 *75.2%*
Wave 3 (33-38 months post-Katrina, ~3 yrs) *Retention Rate*	777 *75.3%*
Wave 4 (51-58 months post-Katrina, ~4-5 yrs) *Retention Rate*	844 *87.6%*
Wave 5 (122 – 156 months post-Katrina, 10+ yrs) *Retention Rate*	646 *81.0%*

S-CAFH

Post-Superstorm Sandy Cohort Study

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S-CAFH: Objectives

- A random multi-stage cluster sample of 1,000 residents living in or near the coastal areas of New Jersey most directly exposed to the storm.
- Assess the health and well-being of affected population and socio-economic impact on households on the nine most affected counties in the state based on FEMA MOTF Impact Analysis
- This cohort is statistically representative of the 1 million New Jersey residents who were living in those geographic areas of the state most exposed to the storm, the Disaster Footprint
- Household survey with phone interview follow-up

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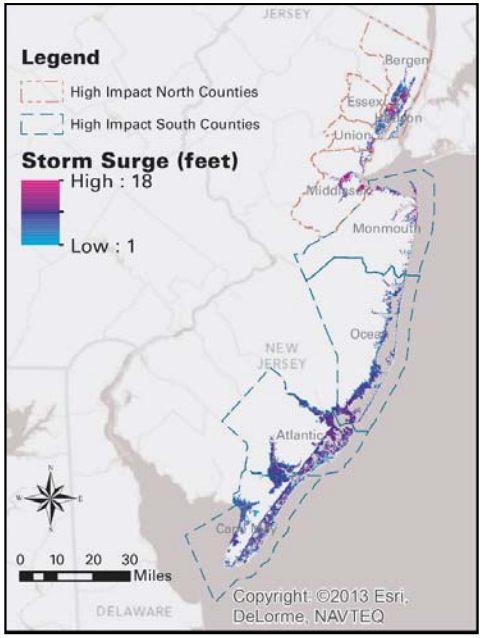
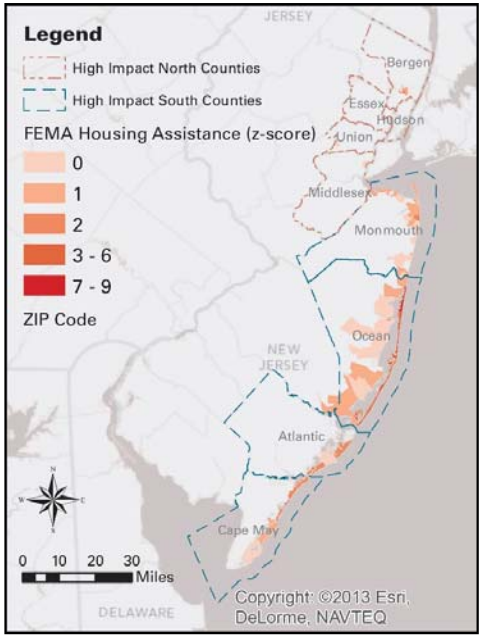
S-CAFH: Impact Areas



Storm Surge ≥ 1 foot



FEMA Housing Assistance Claims Zip Codes ≥ mean

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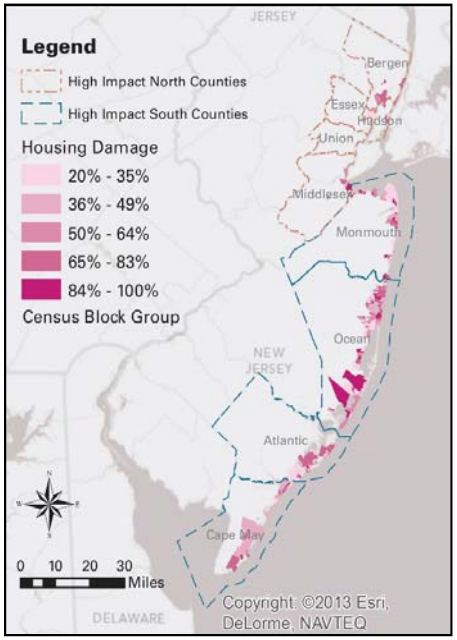
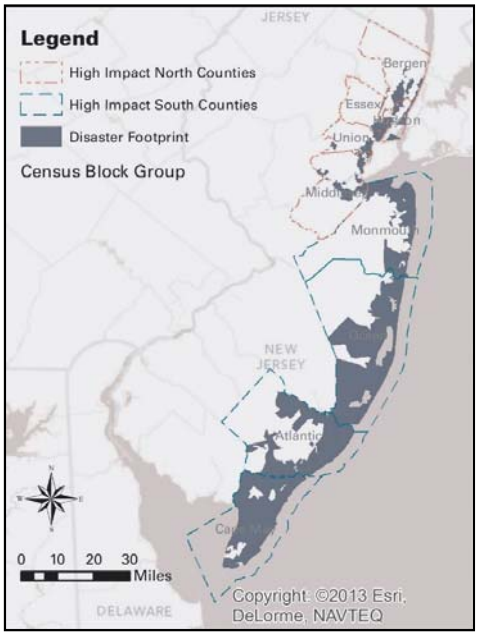


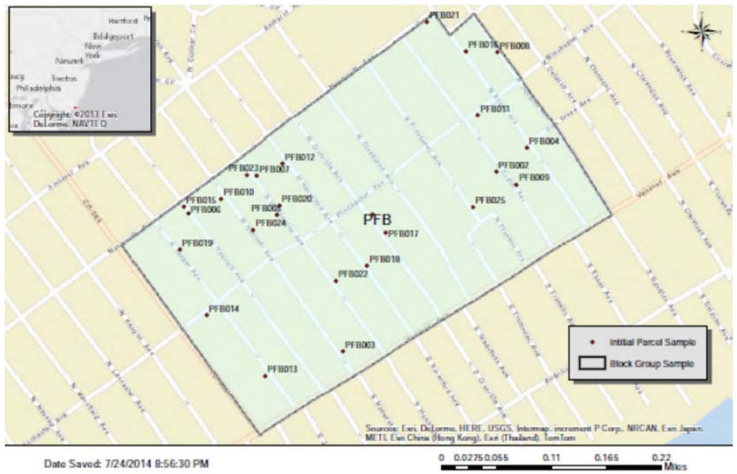
Housing Damage Census Block Groups with > 20% assessed units sustaining damage

S-CAFH: Disaster Footprint & Sample



- Representative of:
  - Population: 1,047,000
  - Households: 411,000

- Overlaid three geographical layers (Storm surge, housing assistance claims, housing damage)
- Census block groups that satisfied ANY of the three criteria were extracted and merged to create the final Disaster Footprint
- Stratified sample to include oversample of high damage and high poverty
- Using NJ taxlot data a random sample was drawn for recruitment



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S-CAFH: Sampling Frame

	Disaster Footprint							
Total # block groups	832							
Sampled # block groups	52							
GEOGRAPHY	**North**				**South**			
Total # block groups	262 (31%)				570 (69%)			
Sampled # block groups	18 (35%)				34 (65%)			
DAMAGE	**High**		**Low**		**High**		**Low**	
Total # block groups	3		259		76		494	
Sampled # block groups	3		15		24		10	
POVERTY	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**
Total # block groups	1	2	99	160	16	60	133	361
Sampled # block groups	1	2	12	3	13	11	7	3
SAMPLED HOUSEHOLDS	50	100	300	75	325	275	175	75
COMPLETED HOUSEHOLDS AS OF APRIL 15, 2015	58	97	117	52	254	179	152	74

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GCPI/RCYC

Post-Deepwater Horizon Oil Spill Cohort

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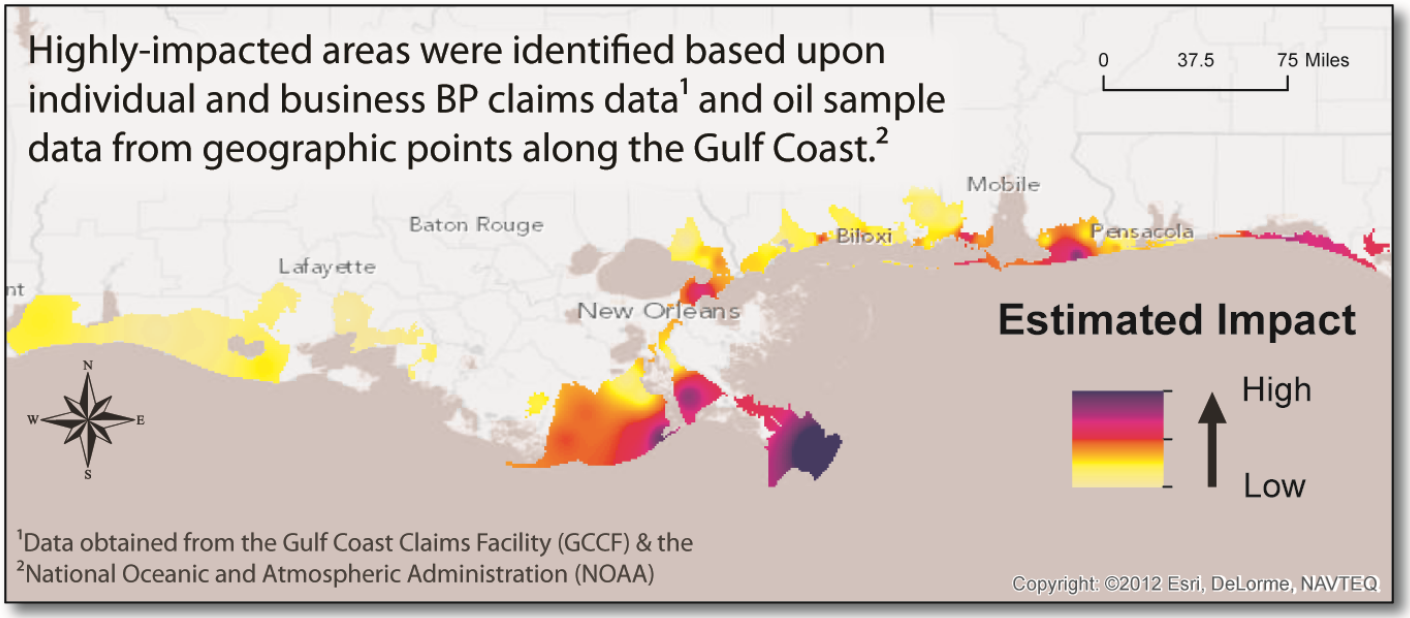
GCPI/RCYC: Sampling Methodology

- Use of secondary data - NOAA Oil data (SCAT) and BP Claims (IA/BA) to identify hardest hit regions
- Household survey – knocked on 6,800 doors, interviewed 1,437 parents (LA, MS, AL, FL)



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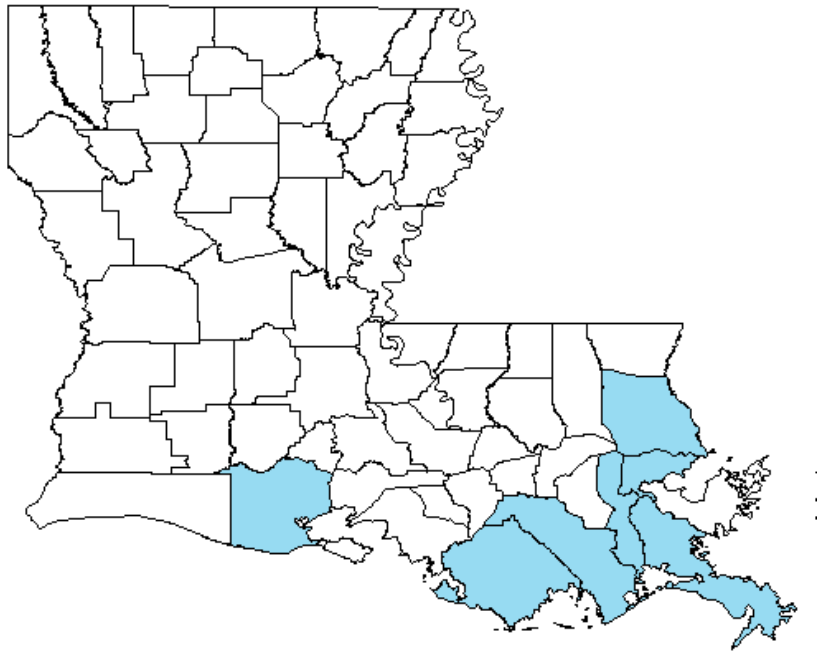
Baton Rouge Area Foundation

GULF OF MEXICO RESEARCH INITIATIVE

RCYC: Rentention

- Face-to-face survey of 655 families living in spill-affected areas of South Louisiana
  - **Wave 2, 2016**: 74% retention
  - **Wave 3, 2018**: ~74% retention



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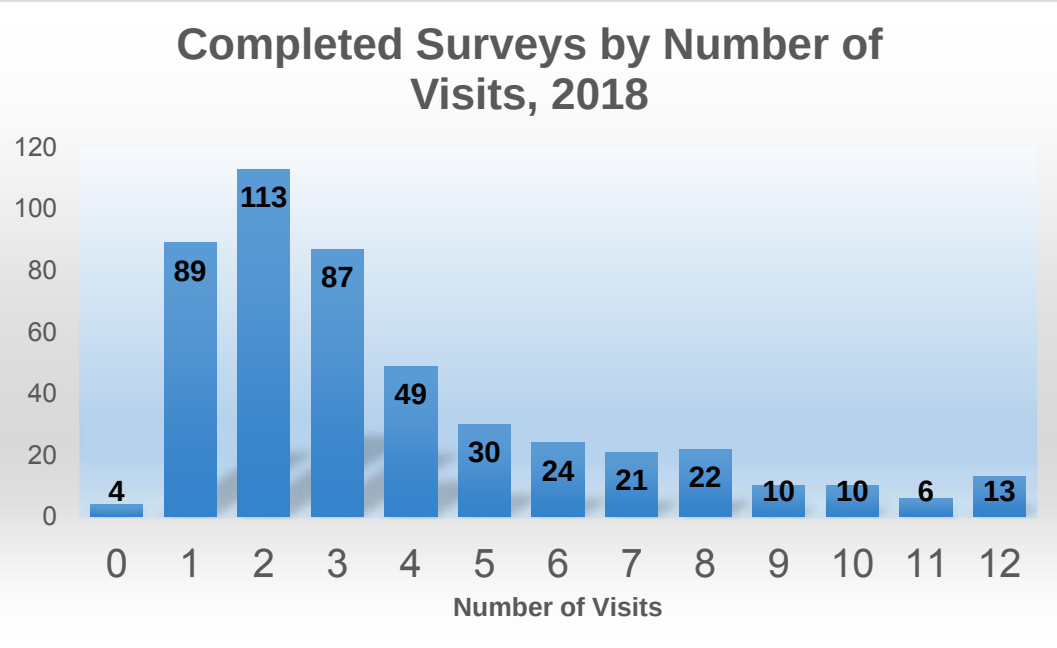
GCPI: Wave 3 Effort Tracking

- 7 months of fieldwork
- 2,422 phone calls
- 1,163 visits
  - Avg. 3.7 visits, 1.78 phone calls per case
- Over 60% completes by 3rd Visit
- Average case open 82 days
- Average complete open 48 days
- Completion peaked between 0-10 days
- ≥10 visits (N=52)



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Considerations

Recommendations and key questions based on learnings from three cohort studies

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Considerations: Data Storage & Management

- Mobile technology landscape continues to evolve
- Spatial data to aid sampling are not always readily available post-incident, may require significant processing and technical skill
  - Governmental agencies will have better access than others
  - Consider building partnerships and developing data use agreements pre-event
  - Spatial mismatch may introduce some sampling error (ie zip code + county + other)
  - Explore proxy data (eg cell phone data to locate a mobile population)
- Real-time + inter-wave data cleaning and management
- DOCUMENTATION - Implement organizational best practices for file system management and documentation from previous and ongoing projects to create a best practice culture
- Pre-identify and learn platforms to build a database as quickly as possible - not just platforms but also various technologies and staff skillsets
- Consider need for offline data access for field teams

Considerations: Population Access & Sampling Methods

- For exposed populations…
  - Most geographic data have administrative boundaries which may not be granular enough for to focus on a target population
  - Limitations in the speed of data availability
  - Literal access: gated communities and public housing
- Develop strategies to identify key local stakeholders, community gatekeepers, and partners to bolster credibility and trustworthiness
- Consider the ephemerality of your data – will drive urgency
- Compile possible recruitment sources from existing registries or lists and develop data use/sharing agreements in advance of an event

Considerations: Administrative & Operational

- Incentive Management
  - Assess institutional capability and guidelines on incentive management (especially IRB)
- Consider pre-drafted IRB templates and protocols for rapid deployment
- Field team management
  - Determine protocols for hiring students (paid or un-paid) and contractors
  - Draft Job Actions Sheets to assist in rapid Just-in-time training
- Face-to-face surveys are expensive – pursue long-term funding if possible

Considerations: Customer Service/CRM

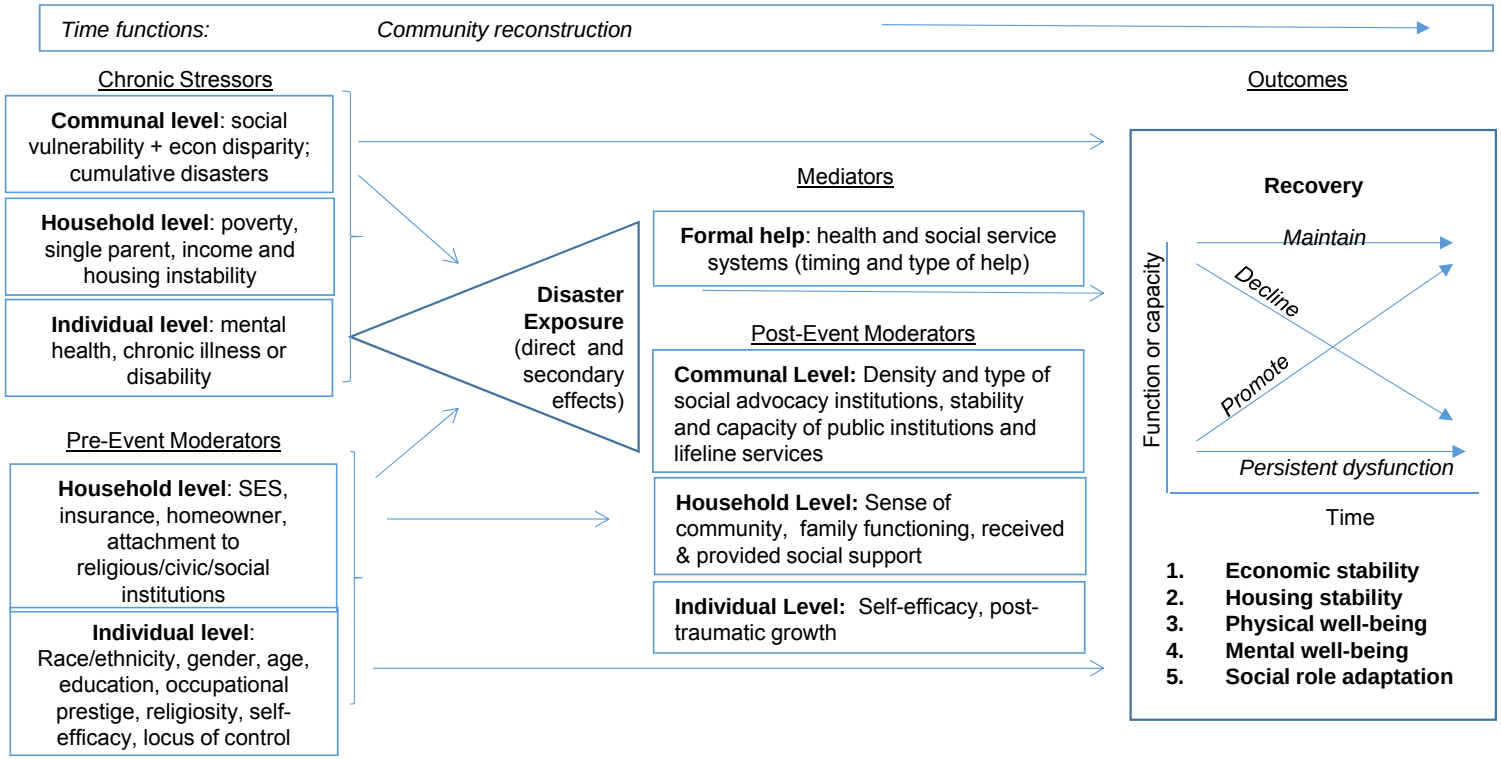
- Incentives and incentive amounts DO make a positive impact on response rates
  - Build into project budgets and ensure internal protocols for administrative management and tracking
- Reported addresses and USPS data do not always match
  - Return service requested can be valuable but not reliable particularly in rural areas
  - Ties back to data management and on-going staffing

Considerations: Customer Service

- Respondents should be valued for their time, energy, and experiences
  - Communicate research findings back to them in plain language and with clear graphics that are both culturally appropriate
  - Provide a single point of contact via phone AND via e-mail
  - Schedule regular correspondence to provide updated contact information
    - Consider staff time to collect and update records internally
  - Train field staff to be courteous, understanding, and when to walk away
- Implement robust quality control and assurance protocols – protects the integrity of the data and institutional time

Appendix

Socio-ecological Model of Recovery



Adapted from Abramson, DM, Stehling-Ariza, T., Park, Y.S., Walsh, L. and Culp, D (2010). "Measuring Individual Disaster Recovery: A Socio-ecological Framework." *Disaster Med and Public Health Prep* 4: S46-S54.

Rapid Research Response: Study Design

- **What is the research question?**
  - Disaster frame:
    - Short term recovery
    - Response phase / Mitigation
    - Long-term recovery
    - Crossover-Transition Phase
- **What is the study design?**
  - Cross-sectional: easy IRB, increased compliance, can be anonymous
  - Longitudinal: Tracking recovery = larger commitment
  - Primary vs Secondary data analysis
  - Identify sampling frame (Potentially pre-disaster)
    - School enrollment, other registries
- **What type of survey instrument?**
  - Web, mail, phone, face-to face, secondary, anonymous
- **Who is the study population?**
  - Geography- exposure specific- county vs. registry (ER, inpatient)
  - Exposure to hazardous agent
  - Direct or Indirect Exposure
  - Attributes of characteristic of indicator
    - All kids, vulnerable population, occupational/professional – first responder etc.

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Rapid Research Response: Feasibility

- **Financial feasibility**
  - First draft budget
  - Identify funding source
  - Field operations survey cost (*All numbers exclusive of staff salary)
    - Face-to-face: $200/person (final wave of G-CAFH ~$400/respondent
    - Field & Phone: 125/person
    - Phone: $75/person (now more expensive due to fewer landlines)
    - Mobile Office (RV) - $400 per day
- **Study Feasibility**
  - Internal vs external admin
  - Internal vs external field team
  - Field team - risk assessment, environmental hazards
  - Type of survey instrument
  - Partnerships
  - Access to technology and data systems

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