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

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
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
## G-CAFH: Retention

<table>
<thead>
<tr>
<th>Wave Description</th>
<th>Total</th>
<th>Retention Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (6-12 months post-Katrina, ~1 yr)</td>
<td>1,079</td>
<td></td>
</tr>
<tr>
<td>Wave 2 (20-23 months post-Katrina, ~2 yrs)</td>
<td>803</td>
<td>75.2%</td>
</tr>
<tr>
<td>Wave 3 (33-38 months post-Katrina, ~3 yrs)</td>
<td>777</td>
<td>75.3%</td>
</tr>
<tr>
<td>Wave 4 (51-58 months post-Katrina, ~4-5 yrs)</td>
<td>844</td>
<td>87.6%</td>
</tr>
<tr>
<td>Wave 5 (122 – 156 months post-Katrina, 10+ yrs)</td>
<td>646</td>
<td>81.0%</td>
</tr>
</tbody>
</table>
S-CAFH
Post-Superstorm Sandy Cohort Study
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.
S-CAFH: Impact Areas

**Storm Surge**

≥ 1 foot

**FEMA Housing Assistance Claims**

Zip Codes ≥ mean

**Housing Damage Census Block Groups**

with > 20% assessed units sustaining damage
S-CAFH: Disaster Footprint & Sample

- 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

- Representative of:
  - Population: 1,047,000
  - Households: 411,000
## S-CAFH: Sampling Frame

<table>
<thead>
<tr>
<th></th>
<th>Disaster Footprint</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total # block groups</strong></td>
<td>832</td>
</tr>
<tr>
<td><strong>Sampled # block groups</strong></td>
<td>52</td>
</tr>
<tr>
<td><strong>GEOGRAPHY</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total # block groups</strong></td>
<td>262 (31%)</td>
</tr>
<tr>
<td><strong>Sampled # block groups</strong></td>
<td>18 (35%)</td>
</tr>
<tr>
<td><strong>DAMAGE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total # block groups</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Sampled # block groups</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>POVERTY</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total # block groups</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Sampled # block groups</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>SAMPLED HOUSEHOLDS</strong></td>
<td>50</td>
</tr>
<tr>
<td><strong>COMPLETED HOUSEHOLDS</strong></td>
<td><strong>AS OF APRIL 15, 2015</strong></td>
</tr>
</tbody>
</table>
GCPI/RCYC
Post-Deepwater Horizon Oil Spill Cohort
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)

Highly-impacted areas were identified based upon individual and business BP claims data\(^1\) and oil sample data from geographic points along the Gulf Coast.\(^2\)

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\(^1\)Data obtained from the Gulf Coast Claims Facility (GCCF) & the
\(^2\)National Oceanic and Atmospheric Administration (NOAA)
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
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)
Considerations

Recommendations and key questions based on learnings from three cohort studies
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 (i.e., zip code + county + other)
  • Explore proxy data (e.g., 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
Socio-ecological Model of Recovery

**Time functions:**

- Community reconstruction

**Chronic Stressors**

- Communal level: social vulnerability + econ disparity; cumulative disasters
- Household level: poverty, single parent, income and housing instability
- Individual level: mental health, chronic illness or disability

**Pre-Event Moderators**

- Household level: SES, insurance, homeowner, attachment to religious/civic/social institutions
- Individual level: Race/ethnicity, gender, age, education, occupational prestige, religiosity, self-efficacy, locus of control

**Disaster Exposure**

- (direct and secondary effects)

**Mediators**

- Formal help: health and social service systems (timing and type of help)

**Post-Event Moderators**

- Communal Level: Density and type of social advocacy institutions, stability and capacity of public institutions and lifeline services
- Household Level: Sense of community, family functioning, received & provided social support
- Individual Level: Self-efficacy, post-traumatic growth

**Outcomes**

- Recovery
  - Maintain
  - Decline
  - Promote
  - Persistent dysfunction

**Function or capacity**

- 1. Economic stability
- 2. Housing stability
- 3. Physical well-being
- 4. Mental well-being
- 5. Social role adaptation

**Time**

- Maintain
- Decline
- Promote
- Persistent dysfunction

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.
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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