

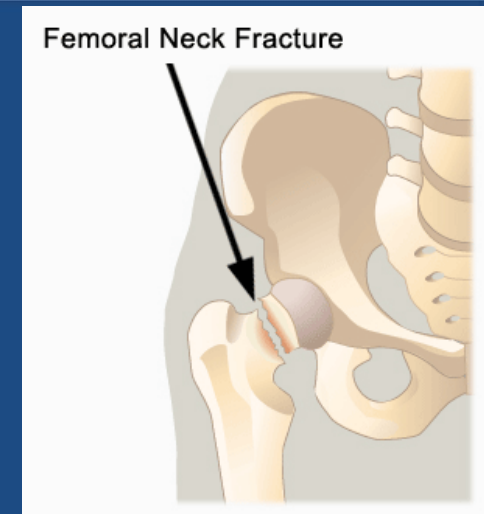


Displacement Following Disaster and Incidence of Injury: A Study of the Older Adult Victims of Hurricane Katrina

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Background

- Hurricane Katrina: August 2005
- Many injuries occur in recovery period of disasters
- Limited post-event surveillance
- Hip fracture and older adults
 - Demographic and medical risk factors: female sex, age, white race...
 - Environmental risk factors: institutions, apartments, mobile homes, environmental hazards



Research Aim

- To determine whether displaced victims are more likely to experience injuries than non-displaced victims in the aftermath of disaster



Methods



- Participants: 25,019 Managed Care Enrollees, People's Health
- Data Sources: Medical Claims and Enrollment Data (Johns Hopkins ACG® Case Mix System); FEMA Damage Shapefiles
- Measures
 - Independent Variable- Displacement: Pre-Katrina, 6 months, 12 months
 - Dependent Variables- Hip fracture, other fracture, lacerations, sprains/strains in 12 months post-Katrina
 - Covariates- Pre-Katrina risk status, race, gender, age, damage level, history of fracture, SES

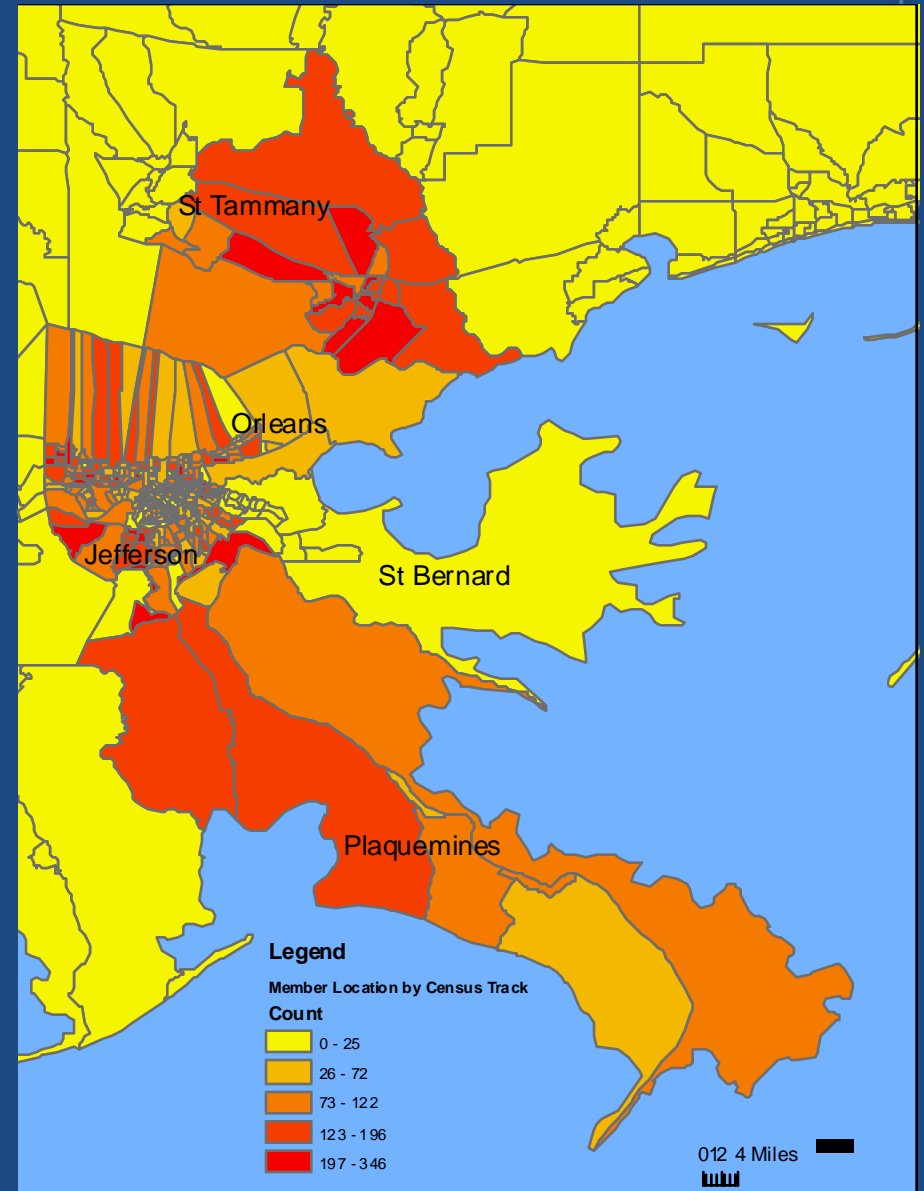


Methods (Cont)

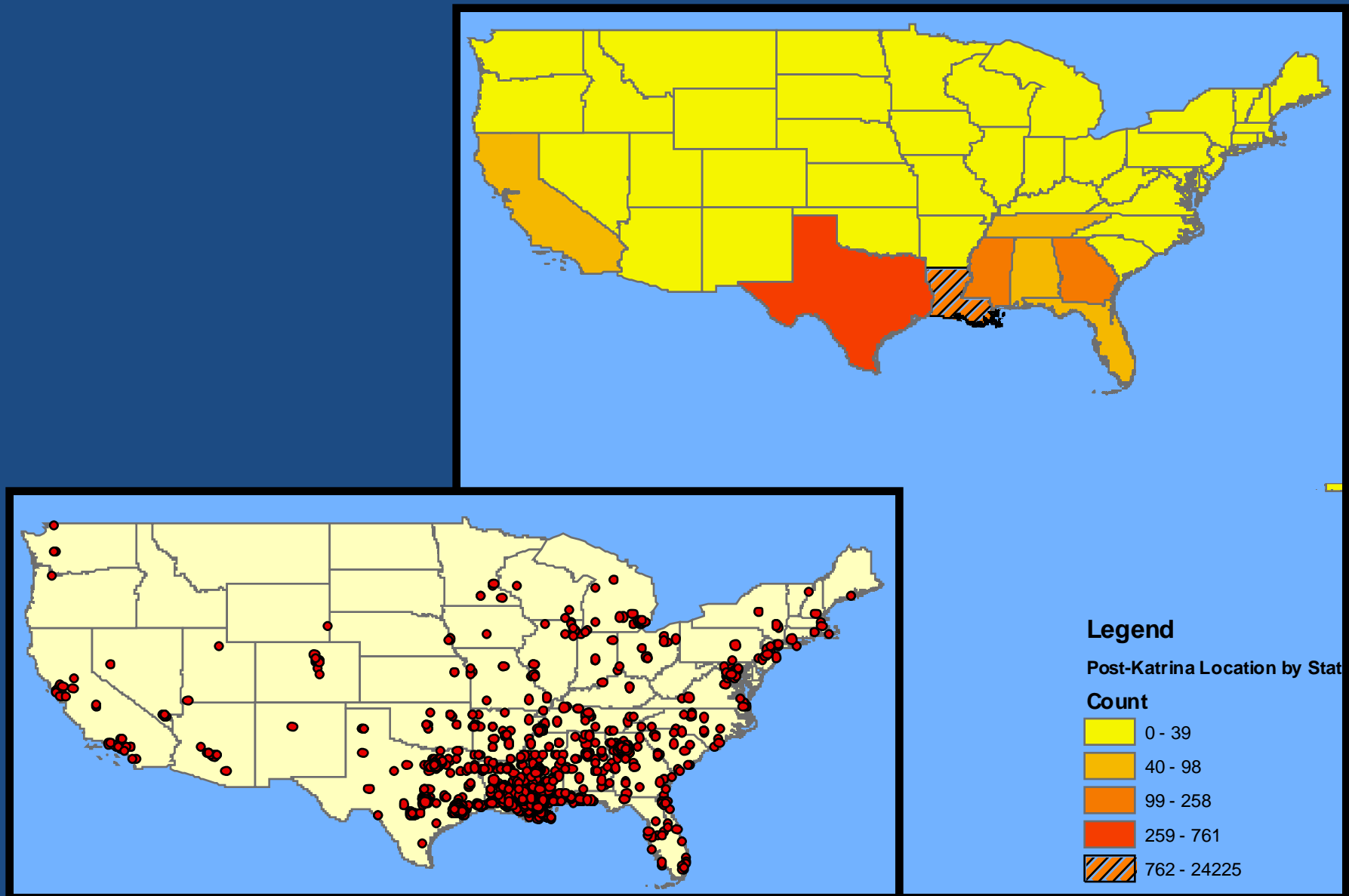
- Analysis
 - Geocoding of over 66,000 unique addresses
 - T tests, chi-squared tests
 - Logistic Regression
 - Propensity Score Methods- Displaced more likely to be poor, African-American, female, older, high-risk, from Orleans parish, from damaged area



Pre-Katrina Location of Study Population



Location of Study Population 12 Months Post-Katrina



Results

- 12 months post-Katrina
 - 186 (.74%) hip fractures; 1026 (4.1%) non-hip fractures; 1678 (6.7%) sprains/strains; 980 (3.9%) lacerations
- Predictors of Hip Fracture- Female sex, age, high risk status, history of hip fracture, white race (and displacement)



Results: Injury Outcomes Comparing Displaced & Non-Displaced Victims at 12 Months Post-Katrina

Outcome	Non-Propensity Model [^] OR (95% CI)	Propensity Adjusted Model ^{^^} OR (95% CI)
Hip Fracture	1.43 (1.03-2.00)*	1.53 (1.10-2.13)*
All Fractures (Excluding Hip)	1.22 (1.05-1.42)*	1.24 (1.07-1.44)*
Sprains/Strains	1.05 (.93-1.19)	1.06 (.94-1.20)
Lacerations	1.04 (.89-1.21)	1.05 (.90-1.23)

* Statistically significant (p<.05)

[^]Adjustment for displacement status at 12 months post-Katrina, African-American race, female sex, age, residence in damaged area, pre-Katrina risk status, Medicaid dual-eligibility, and history of fracture (fracture models only.)

^{^^}Adjustment for displacement status at 12 months post-Katrina, African-American race, propensity quintile, and history of fracture (fracture models only.)



Discussion

- Association of Displacement and Fracture
 - Inferior residences of the displaced; loss of health aids; additional home hazards that cause falls
- No Association of Displacement with Sprains or Lacerations
 - Sustained during clean-up activities (more likely to be engaged in by non-displaced)
- Displacement Effect More Pronounced in Other Disasters



Limitations

- Self-Reported Addresses to Determine Displacement
- One-Year History of Fracture Measure
- Claims Data: Utilization Rather Than True Morbidity
- Healthy Cohort (Excluded Those Who Died and Those Institutionalized)



Policy Recommendations

- After an evacuation, weigh the risks of permanent displacement on health against the risks and costs of return
- Provide housing to displaced older adults that is screened for environmental hazards; reconsider use of travel trailers
- Provide checklists to displaced older adults to help them assess personal and environmental risks of injury and take preventive action
- Conduct additional research on the adverse, unintended consequences of ongoing displacement on human health and healthcare utilization



Questions?

