

Excess Mortality of Older Individuals with Diabetes Following Hurricanes Katrina and Rita

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 - "The Long-Term Effects of Disasters on Seniors with Diabetes: Evidence from Hurricanes Katrina and Rita" (w/ Ross Andel & Archana Sudha). *Diabetes Care*. 2019. 42(11):2090-2097.

Data

- Medicaid & Medicare data
 - Enrollment
 - Claims
 - Co-morbidities
 - Mortality (National Death Index)
- Pre-matched population
 - Medicare FFS enrollees w/ diabetes diagnosis living in LA, TX, MS, or AL in 2005
 - Additional criteria, including coverage basis & continuity

Data

• Define affected & control subjects by

- County of residence (2004)

- County-level FEMA assistance level



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Estimation

- Affected & unaffected one-to-one propensitymatched based on
 - Demographic characteristics
 - Coverage
 - Chronic conditions (27)
- Evidence that proportional hazards assumption was violated
 - \rightarrow Estimated model via conditional logistic regression & calculated odds ratios

Estimation

- Types of mortality
 - All-cause
 - Underlying cause
 - Diabetes mellitus
 - Major cardiovascular disease
 - Nephritis
- Affected subjects also differentiated by whether &, if so, where the individual moved after hurricanes

	One month	One year	Three years	Full period
All				
(n = 170, 328)				
All-cause	1.395	1.132	1.087	1.100
	(1.298; 1.155)	(1.107; 1.158)	(1.070; 1.104)	(1.083; 1.116)
Diabetes mellitus	1.077	0.911	N/A	N/A
	(0.837; 1.386)	(0.845; 0.983)		
Heart disease	1.348	1.146	N/A	N/A
	(1.206; 1.508)	(1.107; 1.186)		
Nephritis†	1.574	1.258	N/A	N/A
	(1.091; 2.273)	(1.124; 1.409)		
Did not move to different				
county				
(n = 161,729)				
All-cause	1.401	1.119	1.073	1.083
	(1.303; 1.508)	(1.094; 1.146)	(1.055; 1.090)	(1.066; 1.099)
Moved to different county				
(n = 8,599)				
All-cause	0.951	1.242	1.262	1.405
	(0.695; 1.300)	(1.129; 1.366)	(1.180; 1.349)	(1.312; 1.503)
Moved to affected county				
(n = 4,312)				
All-cause	1.095	1.298	1.361	1.570
	(0.719; 1.668)	(1.137; 1.482)	(1.239; 1.496)	(1.423; 1.732)
Moved to unaffected county				
(n = 4,287)				
All-cause	0.886	1.257	1.183	1.315
	(0.544; 1.442)	(1.094; 1.444)	(1.075; 1.303)	(1.195; 1.446)

Data Limitations

- Don't know location at precise time of storm
- Concern re data quality immediately after storms
- Coding imperfections
- Don't have data for Medicare Advantage enrollees
- Confounding of effects of Katrina & Rita

Additional Comments

- Challenges related to baseline data
 Delay in obtaining, cost, security protocol
- Decision making around when to measure, what to measure, & for how long
 - Value in long-term perspective
- "What counts" as a disaster-related health impact
 - Can't claim to have any insight