Median Household Income is Associated with Incidence of Sudden Unexpected Death in Wake County, NC

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Introduction

- Population estimates of the incidence of sudden unexpected death vary from 150,000 to 400,000 per year in the United States
- The Sudden Unexpected Death in North Carolina (SUDDEN) study captures all natural out-of-hospital sudden unexpected deaths (OHSUDs) in a socioeconomically and racially diverse community
- We studied the interaction between race, median household income, and sudden death incidence

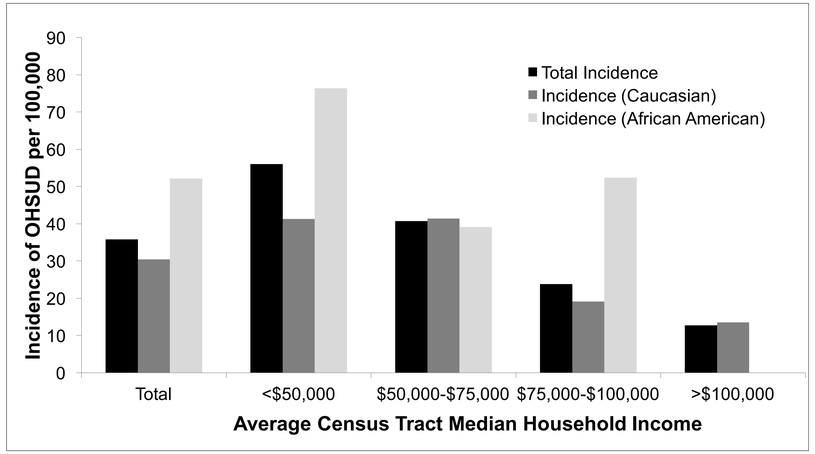
Methods

- The SUDDEN study is a population based case registry of OHSUD victims in North Carolina ages 18 to 64
- We present data from Wake County (predominantly urban, population *c*1 million) over one year
- Cases were identified from EMS trip data and verified by three independent cardiologists using death certificates, medical examiner's reports, and medical records
- Residence addresses were geocoded to census tracts
- Median household income, race, education, employment, and marital status were obtained for each census tract from the American Community Survey

Results

- 107/185 census tracts had at least one OHSUD; total 188 OHSUD victims (Table)
- Total incidence of OHSUD was 35.8/100,000 (18 to 64 population)
- African Americans were overrepresented in the OHSUD cohort–35.1% (66/188) vs. 18.5% in the population
- Median household income is the only variable significantly associated with count of OHSUD within a census tract (Poisson Regression)
- African Americans residing in census tracts in the lowest income band (<$50,000) had the highest incidence of OHSUD in our cohort (Figure)

Rate of SUD per 100,000 by Race and Income Groups in Wake County Population Ages 18-64



Comparison between census tracts with no sudden death and at least one sudden death

	No sudden deaths (78 tracts)	At least one sudden death (107 tracts)	OR	95% Confidence Intervals
	Mean (SD)			
Total population	4273 (1765)	5569 (2467)	1.4	1.2 – 1.6
Population, age 18 – 64	2838 (1209)	3764 (1611)	1.6	1.4 – 2.1
Population Density (ppl/sq. mi)	2241.4	2358.6	1.03	0.87 – 1.23
Male	48.1 (4.0)	49.2 (4.8)	1.06	0.99 – 1.14
Married	28.5 (9.1)	23.3(9.4)*	0.94	0.91 – 0.97
Caucasian	68.9 (18.1)	60.3 (22.3)	0.98	0.96 – 0.99
African American	13.5 (12.8)	22.1 (18.4)*	1.04	1.02 – 1.06
Median Household Income ($)	87,619 (33851)	63,740 (26088)*	0.77	0.69 – 0.86

Conclusions

- Median household income is related to out-of-hospital sudden unexpected death incidence
- This effect is prominent among African Americans who were overrepresented in the SUDDEN cohort, especially in the lowest income bands
- The characteristics of the community in which one resides are associated with the rate of sudden unexpected death in that community

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