Social Isolation in Resuscitation of Out-of-Hospital Sudden Unexpected Deaths

Brian Simpson[1], MD; Stephanie Crapo[2], MD; Thomas Griggs[2], MD; Carter Devlin[2] BS; Jasmine Chigbu[2] BA; Lauren E Bolger[2], BS; Irion Pursell[2], RN; Bradley Layton[2] PhD; Tony Fernandez[2], PhD; Ross J Simpson Jr[2], MD, PhD

[1]*Department of Medicine, East Carolina University;*
[2]*University of North Carolina at Chapel Hill*

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Background

- Social isolation is associated with increased morbidity and mortality in a range of medical conditions, including coronary artery disease and stroke.
- Community paramedicine is a novel approach to medical care that has the potential to connect isolated patients with available medical and social resources.
- We examined the association between social isolation and the initiation of cardio-pulmonary resuscitation (CPR) in a cohort of out-of-hospital sudden unexpected death (OHSUD) victims, a population that could have benefited from early connection with such resources.

Methods

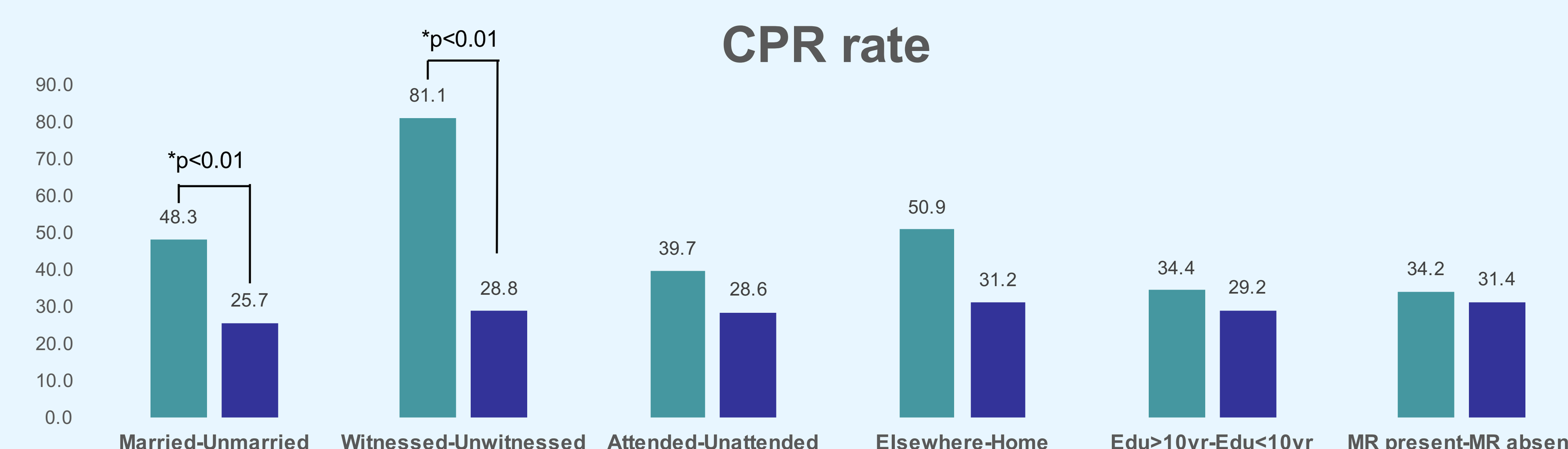
- SUDDEN is a population based study of OHSUD victims ages 18 to 65 in Wake county, North Carolina.
- Exclusion criteria are applied to all cases of suspected OHSUD referred by the Wake County Emergency Medical Services. Determination for cohort inclusion is made by three cardiologists from the adjudication committee using death certificates, medical examiner's reports, and medical records
- Variables selected a priori as markers of social isolation were obtained from Emergency Medical Services (EMS) referrals and death certificates. Medical records for patients were requested from local healthcare providers.
- Initiation of CPR was determined by EMS records. Relative rates of CPR initiation were calculated for each of six criteria (marital status, witness of event, location, attending on death certificate, education, and medical records available).

Results

- 408 victims of OHSUD occurred from March 2013 to February 2015.
- 35% of victims were married; 83% died at home; and 9% had a witnessed death.
- CPR initiation according to pre-selected variable is summarized in Table 1.

	CPR initiated	CPR not initiated	%CPR initiated	Relative CPR rate	P. Value for comparison
Married	69	74	48.3		
Unmarried	68	197	25.7	0.53	<0.0001
Witnessed Death	30	7	81.1		
Unwitnessed Death	107	264	28.8	0.36	<0.0001
Attended Death	79	120	39.7		
Unattended Death	57	142	28.6	0.72	0.02
Died Elsewhere	29	28	50.9		
Died at Home	106	234	31.2	0.61	0.0036
Education>10yr	127	242	34.4		
Education≤10yr	7	17	29.2	0.85	0.6
Medical Records Present	110	212	34.2		
Medical Records Absent	27	59	31.4	0.92	0.62

- For unmarried victims with an unwitnessed death at home, CPR was initiated 19.5% of the time (40/205, rr 0.41, p<0.0001); with four criteria 12.4% (13/105, rr 0.30, p<0.0001); and with five criteria 7.4% (2/27, rr 0.20, p=0.0016). Of two victims with six criteria, neither was resuscitated.



Conclusions

- Measures of social isolation were associated with lower rates of attempted cardiopulmonary resuscitation by Emergency Medical Services.
- Social isolation may delay identification of cardiac arrest and consequently the initiation of cardio-pulmonary resuscitation, in addition to contributing to the previously discovered association with increased morbidity and mortality with other medical conditions.
- Identification of patients at risk of sudden unexpected death is challenging, given its nature of being unexpected.
- Community paramedicine, in conjunction with other community resources such as social work and case management, may be able to reduce the impact social isolation has on the rate of resuscitation in sudden cardiac deaths, and has the potential to reduce the number of irreversible sudden deaths.
- Additional research is required into the impact social isolation has on the rate of sudden unexpected death.

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