



Functional Decline Predicts Site of Death



Presented by


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Background


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- Most people prefer to die at home - 70%
 - Majority die in institutions - 75%
 - Disconnect between what people want and what happens

Functional Decline in Last Year of Life






Review of the Literature

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- Between 1966 and 1999, only 16 studies employed multivariate statistical models
 - Limitations of these studies
 - 13 studies based on administrative data only
 - Studies that examined clinical data lacked generalizability
 - None looked at functional trajectory




Goal

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- To quantify the effect of demographic, social and clinical characteristics including functional decline on where people die in the US




Methods-Sample

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- 1993 National Mortality Followback Survey
 - 1% weighted sample of US deaths in 1993
 - Data from death certificate
 - Next of kin answer questions about decedent in last year of life
 - Exclude people who died from trauma, suicide, pregnancy related complications and acute infections




Methods-Independent Variables

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- Demographics-age, gender, race, education
 - Social support-marital status, # of carers
 - Hospice care
 - HMO
 - Cause of death
 - Functional decline
 - # of ADL limitations at 12 mos prior to death
 - Change in # ADL limitations in last 5 months



Methods-Statistical Analysis

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- Multinomial logistic regression model
 - Home v. Nursing home v. Hospital
 - Hospital death as referent group
 - Sample weights used in estimates
 - Odds ratios, confidence intervals

Sample Description

Characteristic	Home	Hospital	Nursing Home
1993 US Decedents	430,485	1,140,598	409,305
Survey Sample	2,090	6,463	1,569
Percent	22	57	21
Age			
Under 65	27	70	3
65-74	26	64	11
75-84	19	58	23
85 plus	17	40	43
Gender			
Male	21	63	16
Female	22	52	26
Race			
White	22	56	22
Black	19	70	11
Other	21	68	11

Sample Description

Characteristic	Home	Hospital	Nursing Home
Hospice Care			
Yes	74	18	8
No	18	61	21
Cause of Death			
Heart Disease	19	59	22
Cancer	37	48	15
CVA	9	63	28
COPD	16	66	18
CHF	24	44	32
ADLs-12 months before death			
No limitations	25	62	13
At least 1 limitation	16	52	32
ADLs-decline in 5 mos			
None	18	62	20
1 ADL	28	60	12
2 or more ADLs	29	48	23

Adjusted Odds Ratios


Covariate	Home Adj Odds Ratio	Nursing Home Adj Odds Ratio
Black	0.76 *	0.66 *
Region(South =ref)		
NE	1.13	1.28
MW	0.96	2.52 *
W	1.47 *	2.30 *
In HMO	0.56 *	0.88
# of carers	0.95	0.49 *
Hospice	11.2 *	1.31
Cause(cancer=ref)		
HD	0.58 *	0.65 *
CVA	0.28 *	0.84
COPD	0.35 *	0.51 *
Base ADL (per ADL)	1.08	1.34 *
Change in ADL (per ADL)	1.11 *	1.30 *

*p-value \leq 0.05

Adjusted for age, gender, marital status, Hispanic origin, education




Limitations

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- Relied on proxies-may have inaccurately reported information about decedent
 - Accuracy of death certificate report for cause of death questionable
 - Secondary analysis of existing data-limited to questions asked




Conclusions

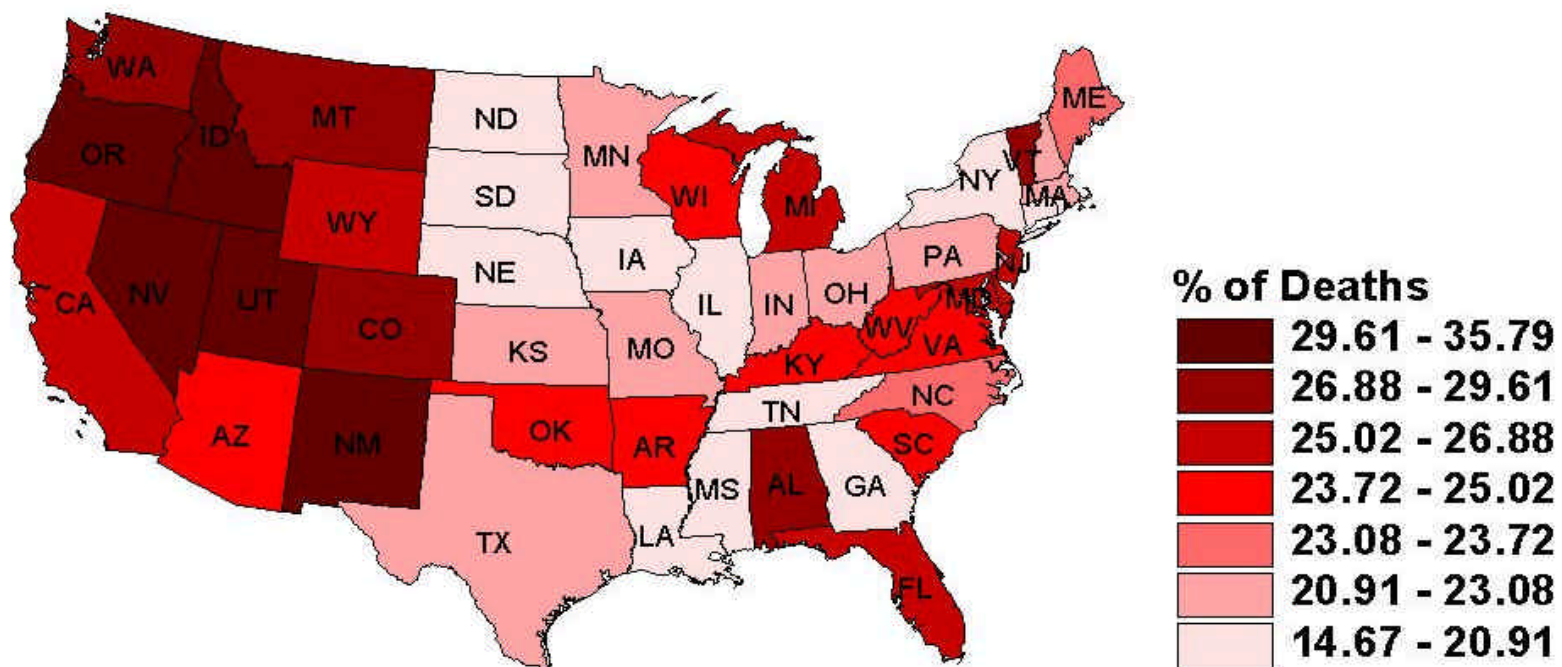
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- Functional decline-important clinical determinant for site of death
 - This study examines functional decline adjusting for other factors
 - Those who are impaired for at least 12 months before death are more likely to die in nursing home
 - Rapid and late decline is predictive of dying at home



Future Research

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- Prospective studies to better measure functional decline and site of death
 - Include measures of patient preference for site of death
 - Consider studying site of care, rather than site of death
 - Combine area level characteristics together with individual characteristics

Proportion of Deaths Occurring at Home 1997



- Distribution varies across the US