

Can home care reduce the risk of emergency readmissions of older people?

Evidence from the linked health and social care data in Scotland



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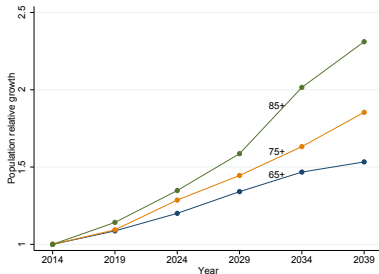
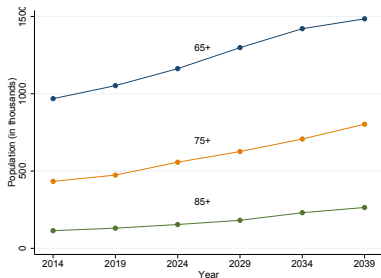
Introduction

Backgrounds: Population Ageing

In Scotland, it is projected the number of older people aged 65 or over will increase by 53% from 2014 to 2039 and those aged 80 or over will be doubled over the same period of time (National Records of Scotland, 2015).

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- An effective understanding of how the health and social care systems interact at the present

Pathways through Health and Social Care Project

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- To understand the interaction of health and social care services using population administrative data
- To develop an understanding of the practicalities and challenges in working with linked health and social care data

Research Questions

- Does *home care* ▶ play a role in reducing the risk of hospital *emergency readmission* ▶ for older people?

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- Is there any difference between older people with and without dementia?

Data & Method

Linked Health and Social Care Data

- The Scottish Government, in collaboration with Information Services Division (ISD) Scotland, Scottish health boards and Scottish local authorities have developed a linkage of specific social care, housing support and health data in order to produce improved analytical evidence to enhance the delivery of these services
- Further information about the project can be found:
<http://www.gov.scot/Topics/Statistics/Browse/Health/Datalinking/HealthSocialCareandHousin>

Data Components

Hospital Admission Data

Hospital episode data
for 2010/11 from
SMR01 & SMR04

Social Care Data

Home care and
self-directed support
data for 2010 & 2011

Prescribing Data

Dataset containing
counts of items
dispensed in 2010/11

Personal ID

allows data to
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Demographics Data

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Data linkage is available for five local authorities:

- Edinburgh
- Stirling
- Clackmannanshire
- South Ayrshire
- South Lanarkshire

Method: Survival Analysis

- Conditional risk set model, also known as the Prentice, Williams and Perterson model (Prentice et al., 1981)

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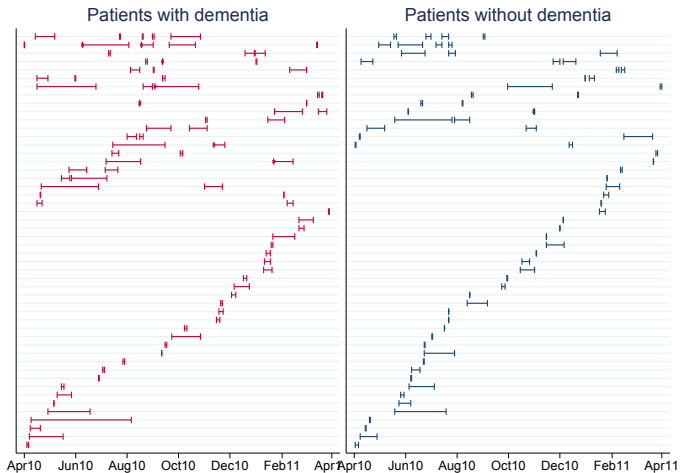
$$h_k(t, x, \beta) = h_{0k}(t) \exp(x' \beta) \quad (1)$$

- Cause-specific hazard model (competing risks)

$$h_{ik}(t, x, \beta) = h_{0ik}(t) \exp(x' \beta^t_i) \quad (2)$$

Results

Health Care Pathway Comparison

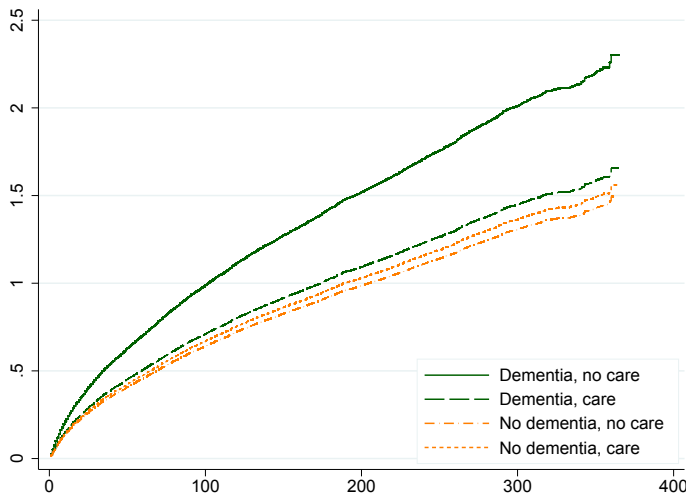


Results from Survival Analysis

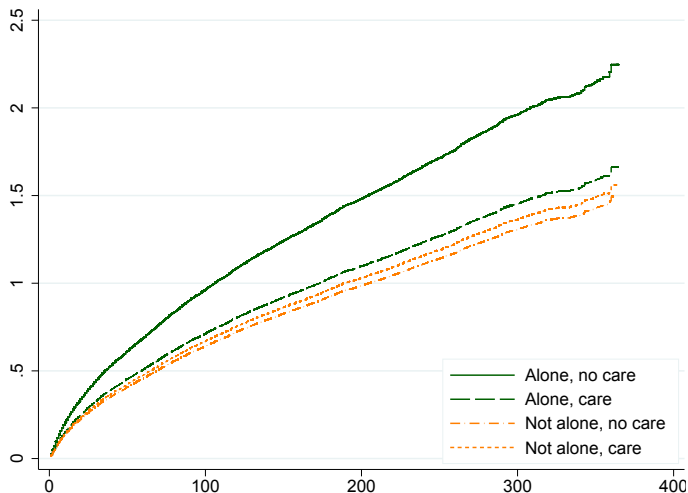
	Coef.	SE	Haz. R	95% CI	
				Lower	Upper
Dementia	0.42***	0.03	1.52	1.42	1.62
Live alone	0.37***	0.05	1.45	1.31	1.60
Home care	0.07	0.04	1.08	1.00	1.14
Dementia*home care	-0.37***	0.07	0.69	0.61	0.79
Live alone*home care	-0.31***	0.11	0.74	0.59	0.92
Other control variables omitted [†]	-	-	-	-	-

Notes: [†] Other control variables include: gender, age, dependent level (IoRN), health condition (CCI), deprivation level (SIMD) and local authority

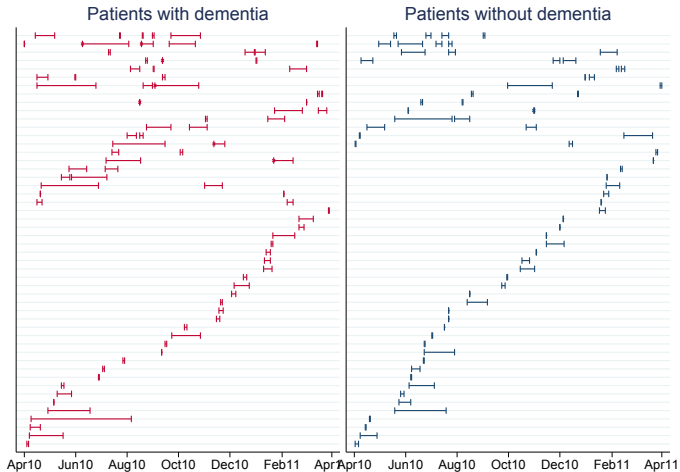
Estimated Cumulative Hazard Functions: I



Estimated Cumulative Hazard Functions: II



Health Care Pathway Comparison (Revisited)



Competing Risks: Injury vs. Non-injury

	Injury readmission			Non-jury readmission		
	Coef.	SE	Haz. R	Coef.	SE	Haz. R
Dementia	1.05***	(0.10)	2.86	0.40***	(0.04)	1.50
Home care	0.01	(0.12)	1.01	0.05	(0.05)	1.05
Dementia*Social care	-0.85***	(0.23)	0.43	-0.27***	(0.08)	0.76
Live alone	0.61***	(0.16)	1.84	0.46***	(0.06)	1.58
Other control variables omitted [†]	-	-	-	-	-	-

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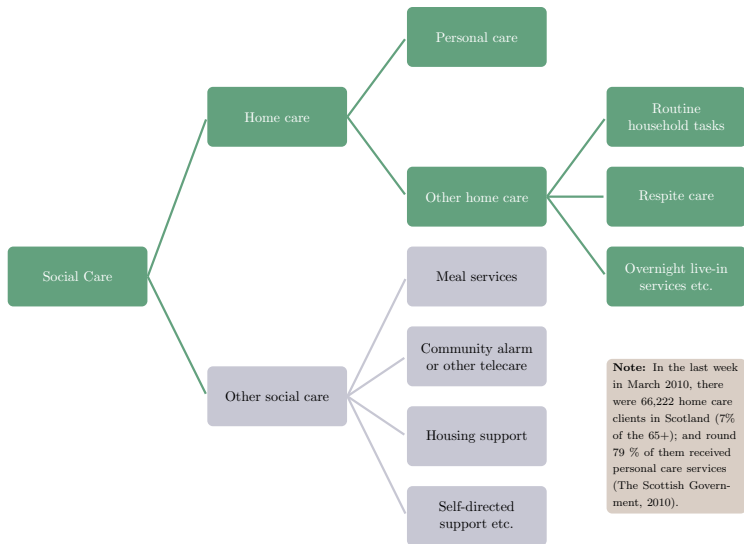
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- However, home care significantly reduces the rate of hospital emergency readmission for dementia patients
- Without home care, dementia patients are at a significantly higher rate of emergency readmission, injury-related or not
- For dementia patients, home care reduces the rate of both injury and non-injury readmission, but the effect appears to be stronger for injury-related readmissions

Thank you!



Note: In the last week in March 2010, there were 66,222 home care clients in Scotland (7% of the 65+); and round 79 % of them received personal care services (The Scottish Government, 2010).

Back 

- The number of emergency patients is around 2.5 times higher than the number of elective patients (ISD Scotland, 2015)
- From 2005 to 2015, the emergency admission rate has increased by 18% in Scotland ▶

