Collaboration for Leadership in Applied Health Research and Care East of England

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UNIVERSITY OF CAMBRIDGE Institute of Public Health

Frailty Trajectories: Understanding Tipping Points Across Care Settings

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Background and Aims

- Frail older adults often present with a range of health and social care needs thus require various health and social care services.[1] This occurs at a time when they lack the physical and cognitive ability to deal with the use/coordination of various services.
- Decision makers are concerned about the increased demand of care as well as the quality and safety of the care given across the continuum of health and social care services.

***This project aims to optimise the journeys through care for frail older people living in the community* by:**

- Describing care trajectories to capture the process of frailty in later life;
- Testing the effects of known predictors of transitions, adverse events or harm;
- Describing configurations of service utilisation and costs to inform planning and commissioning.

Methods

- Analysis of routinely collected administrative data for adults aged ≥65years within and across various health and social care settings.
- Frailty measures, latent class and transition analyses will be used to identify meaningful subgroups and risk factors for transitions within and across various health and social care settings.
- Econometric models will be used to investigate access and cost of several types of care services.

This 24-months CLAHRC funded project is a co-production between CLAHRC researchers and Addenbrooke's Hospital; Cambridge Analytics; CPFT; Cambridgeshire County Council; East of England Ambulance Trust; Cambridgeshire and Peterborough CCG; Eastern Academic Health Science Network.

Progress to date

Access to ***hospital*** data from Addenbrooke's:
- Data available and cleaned
- Analysis in progress
- Preliminary results below

Access ***hospital*** data from *Cambridge e-Hospital Clinical Informatics Database*
- Project has been approved. Finalising data request

Access to ***mental health*** and ***community*** data from CPFT's research database (CRATE)
- Data request has been approved.

PPI group active. Members from:
- Healthwatch
- EoE Citizen Senate
- Care Network Cambridgeshire
- PIRAD & CPFT PPI group

Preliminary analysis of hospital service evaluation data

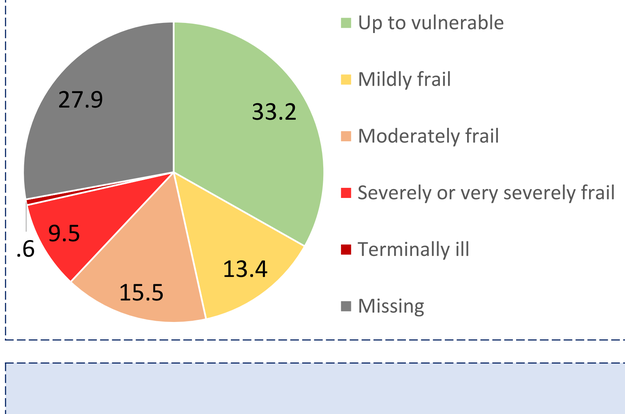
Sample characteristics

Number of admission = 39,504
Number of cases = 22,706

Age range= 65 – 107years
Median age = 79-years
53% female, 47% male

In cases ≥ 75years only:
Clinical Frailty Scale (CFS)
Range= 1-9 (fit to terminally ill)
Median = 5 (mildly frail)

Distribution of frailty categories for cases ≥75-years (n=14,777)

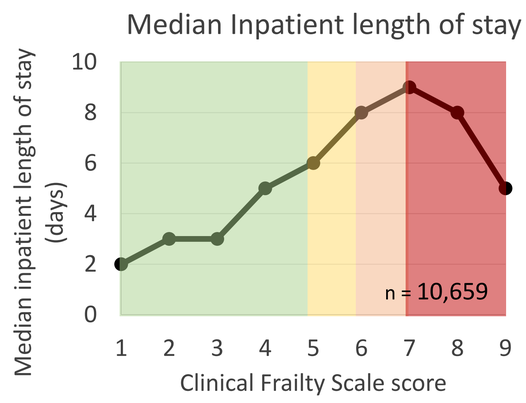


Length of stay in hospital (LOS) and 30-days readmission

LOS Range= ≤1day to 288-days
Median LOS=4-days.

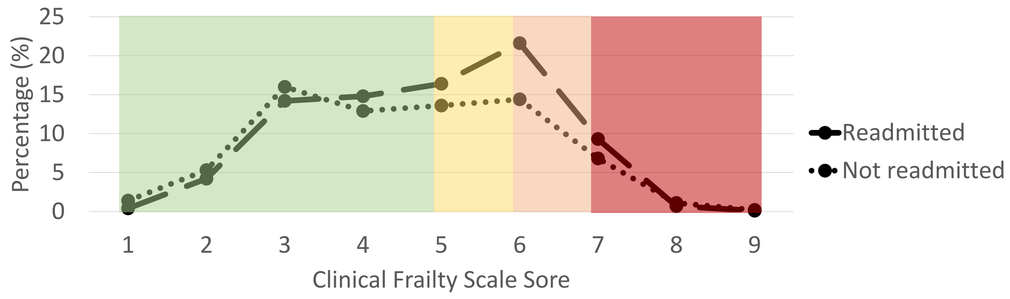
LOS and CFS were found to be positively correlated.

CFS accounted for 7% of the variability in LOS (p<0.01).



LOS explained 1.9% of the variability in 30-days readmission to hospital (p<0.001).Number of 30-days readmission=2003 (9.7%)

Distribution of 30-days readmission by frailty categories for cases ≥75-years (n=9,634)

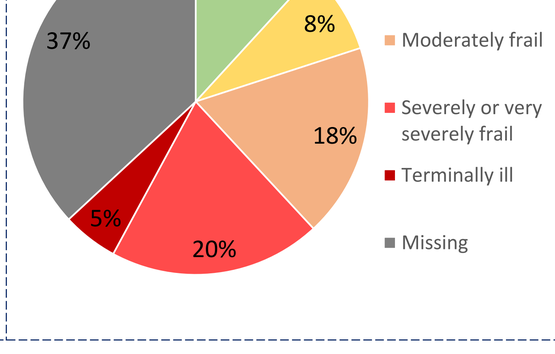


Inpatient mortality

Number of death=1286 (5.7%)

Frail adults ≥ 75years were 4 times more likely to die in hospital than adults ≥75years who were not frail (9.1% vs 2.4%, p<0.001, X^2 =204.57).

Distribution of inpatient mortality by frailty categories in cases ≥75-years (n=1,016)



Expected outcomes

- Robust descriptions and implications of the following on quality of care, health outcomes (including harm) and cost:
  - Clinically meaningful subgroups of frail older people
  - Typical care trajectories, risk factors and triggers for tipping points in care trajectories
- Data driven tools and risk identification measures compatible across various care settings to help deploy timely and evidence-based interventions to pre-empt and respond to deterioration.

1) Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults evidence for a phenotype. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences. 2001;56(3):M146-M57.

Frailty Trajectories website: http://www.clahrc-eoe.nihr.ac.uk/2016/06/frailty-trajectories-understanding-tipping-points-across-care-settings/

*Frailty Trajectories team: Barclay Stephen, Brayne Carol, Coker Joyce, Drumright Lydia, Dunmore Russell, Fleming Jane, Ford John, Fox Chris, Hinkins Geoff, Keevil Victoria, Lafortune Louise, Martin Maria, Mavrodaris Angelique, Nally Rhiannon, O'Driscoll Richard, Romero-Ortuno Roman, Simpson Rhian, Skedgel Christopher, Taylor Sabina, Went Susan.