Can care costs rise as patients gain independence through rehabilitation?

A post hoc analysis of prospectively collected data

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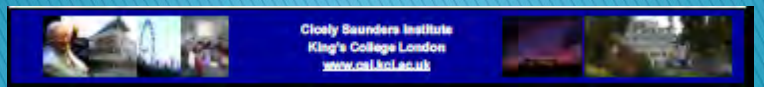

Presentation Content

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Background

Sudden Acquired Brain Injury or Neurological event

- Major Trauma Centres save more lives
- Most recovery rapidly and return home
- Small proportion have very complex needs and require longer rehabilitation programmes to reach their potential
- Post-acute phase leads to a long journey of recovery

Primary goals for rehabilitation

- Increase independence/maximise potential
- Support family and patient along the journey
- Reduction of on-going care costs

The issue

Between admission and discharge from rehabilitation:

The majority of patients show

- ❖Increased independence
- ❖Reduced care needs and care costs

Paradoxically, a small proportion show

- ❖Increase independence
- ❖But increased care costs

Why might this be?

Aim of Study

- To explore change in care costs
- To gain understanding why care costs increase
- To identify specific areas of care needs that adversely affect care costs

Setting

- Specialist hyper-acute rehabilitation unit in North West London
- 24 bedded unit based within a large general hospital
- Cares for patients primarily with Complex Acquired Brain Injury
- Average length of stay is 90 days

The UK Rehabilitation Outcomes Collaborative (UKROC) Database

National clinical dataset for specialist rehabilitation

- Collates data on needs, input and outcomes
- For all specialist rehabilitation services in England

Outcomes include:

- The Northwick Park Dependency and Care Needs Assessment (NPCNA)
  - Measures nursing dependency, care needs and care costs
- The UK Functional Assessment Measure (UK FIM+FAM)
  - Measures functional independence

Assessment tools

Northwick Park Care Needs Assessment (NPCNA)

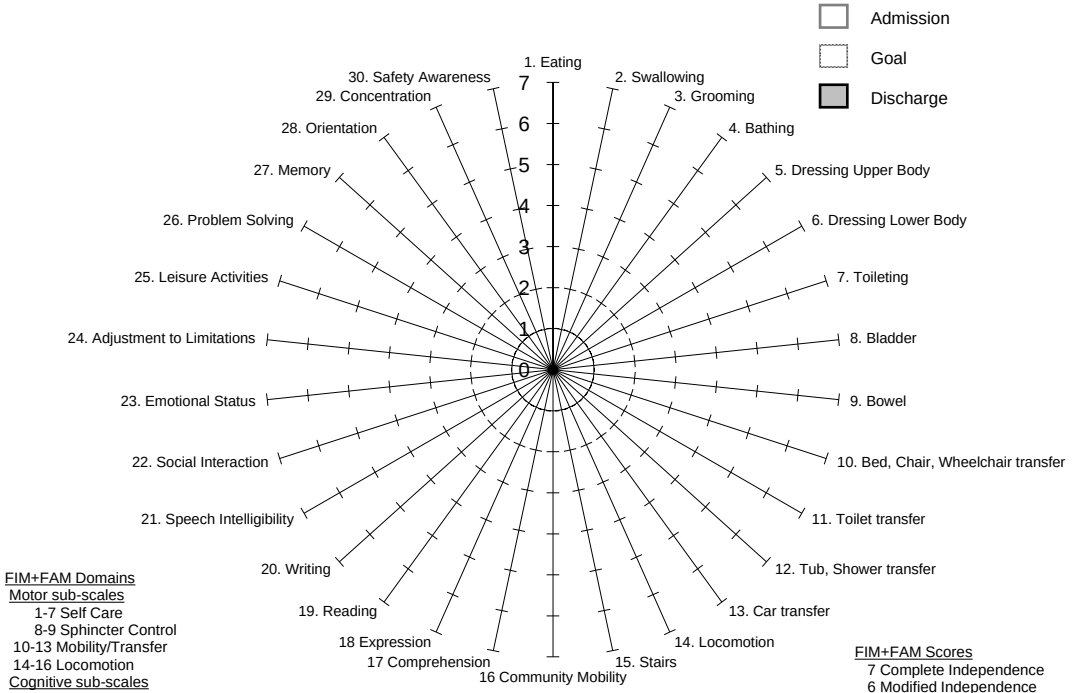
- Nursing dependency tool
- Used throughout the UK and in other countries
- Describes care needs
- Estimates care costs and package of care via a computerised programme

Care package				AVERAGE COST (£)	Min	Max
1st carer	Yes	7	Live in carer and 4 hrs cover daily	1064	1044	1090
2nd carer	Yes	D	2nd live-in carer	800	800	800
Waking night care	Yes		1 carer	776	617	1015
Skilled care	Yes		4 hours a week	92	68	140
Domestic care	Yes		4 hours a week	36	34	40
Total weekly cost of care				**2768**	**2563**	**3085**

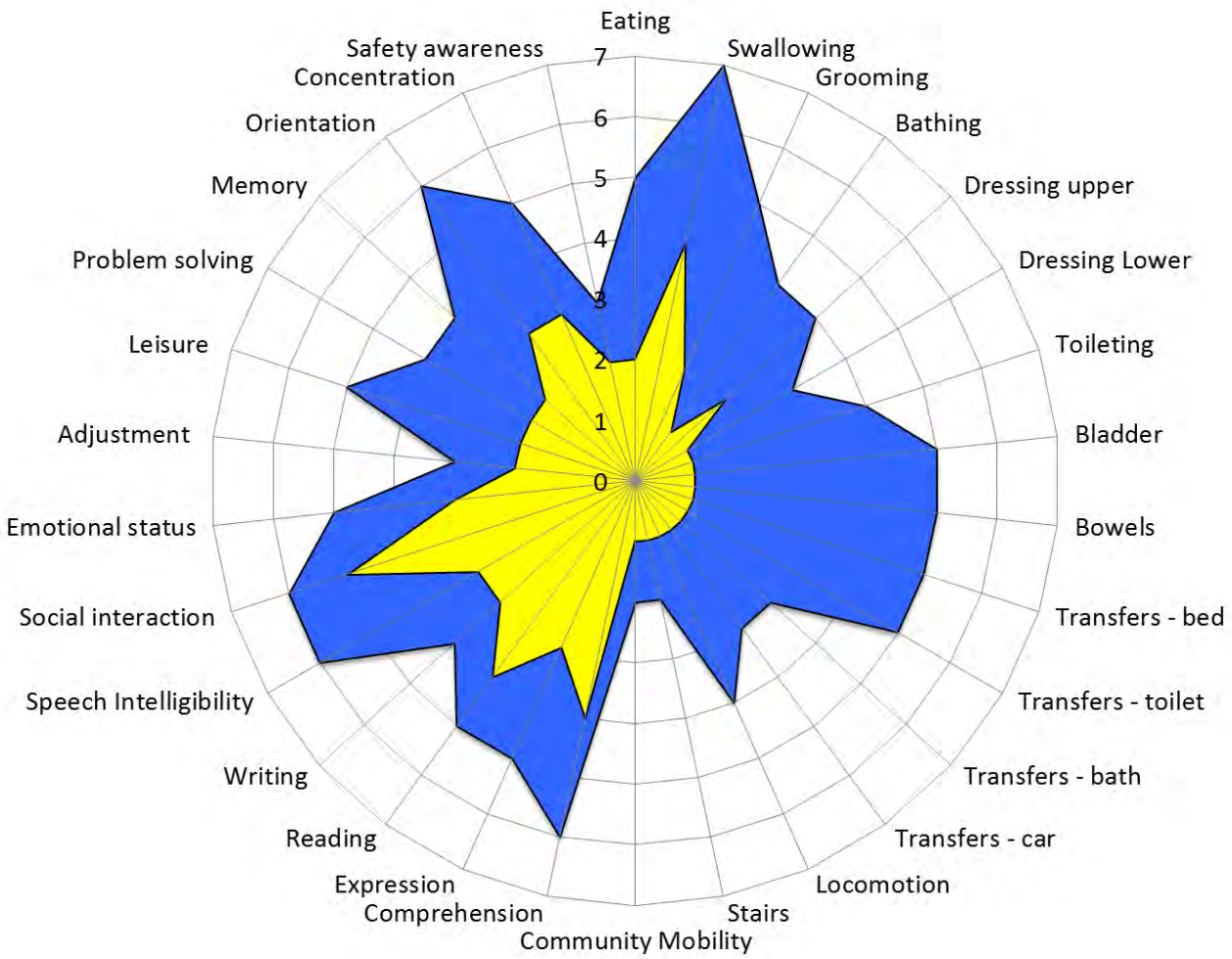
Assessment tools

UK FIM+FAM

- Measure functional independence
- 30 items- scored from 1-7
- Ordinal scale from 30 - 210



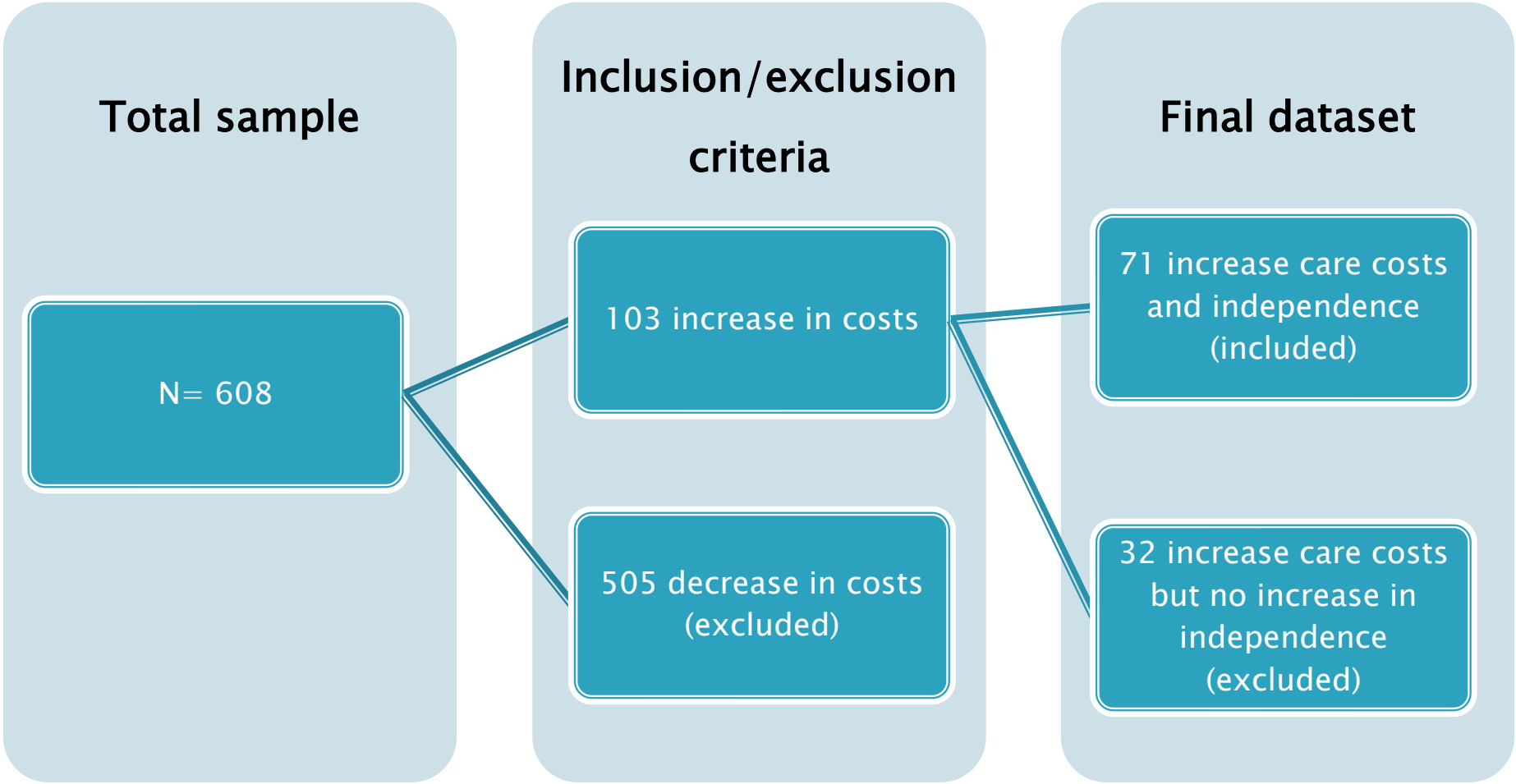
Composite UK FIM+FAM Splat (n=608)



Study Methodology

- Retrospective analysis of UKROC data
  - from our our specialist neurorehabilitation unit
- Data were extracted for
  - All admissions to our rehabilitation unit between 2010-2017 (N=608).
  - Admission and discharge data for
    - NPCNA
    - UK FIM+FAM
- Inclusion criteria for subset of interest:
- Episodes that showed
  - Increased independence and
  - Increased care costs

Recruitment flow chart



Analysis

- Demographic information of study sample
- Increased independence
- Increased care cost
- Nursing care items associated with increased cost

Demographic information

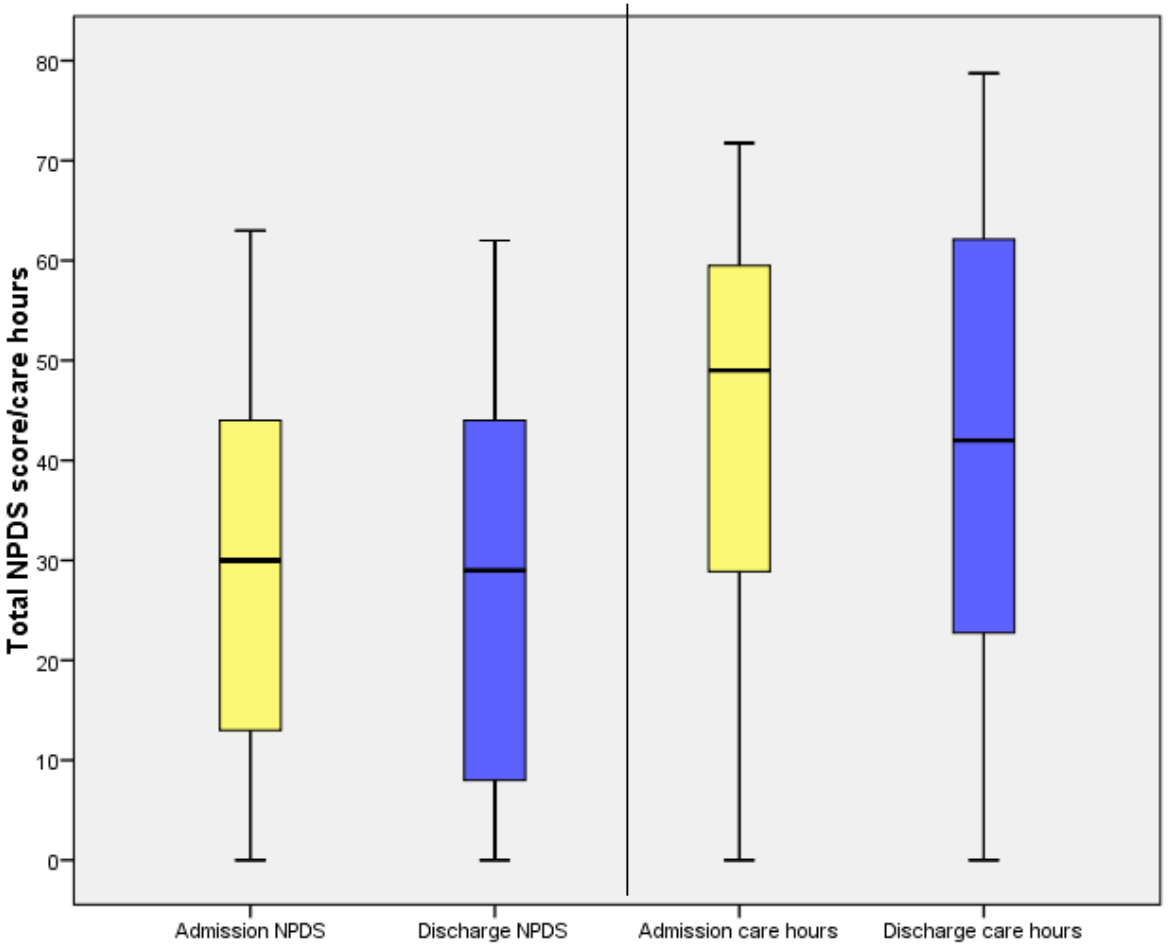
	No cost increase (n=505)	Increased costs & Increased independence (n=71)	Increased cost but no increase in independence (n=32)
Age	16–74 43 (sd 14)	17–75 45 (sd13)	23–68 45 (sd 11)
Gender	65%:35% (Male/Female)	59%:41% (Male/Female)	78%:22% (Male/Female)
Diagnosis – ABI	90%	90%	94%
Length of stay	2–372 days 103 (sd 52)	13–227 days 102 (43)	15–199 days 88 (sd 46)

Findings of study cohort

Change in Nursing dependency score and care hours (n=71)

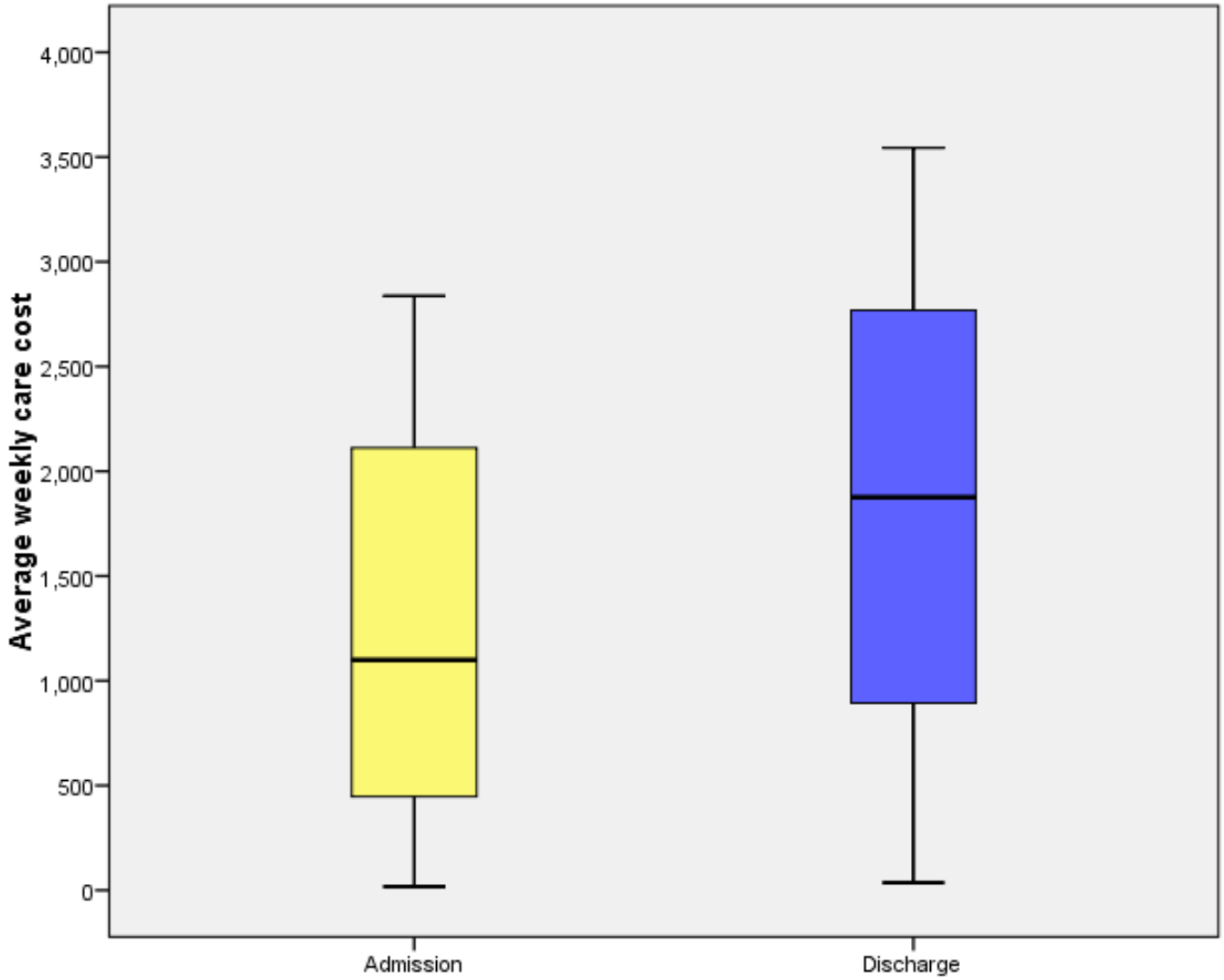
Dependency:
Admission:
Median 30 (IQR 13-44)
Discharge:
Median 29 (IQR 8-44)

Care hours:
Admission:
Median 49 (IQR 28-59)
Discharge:
Median 42 (IQR 21-63)

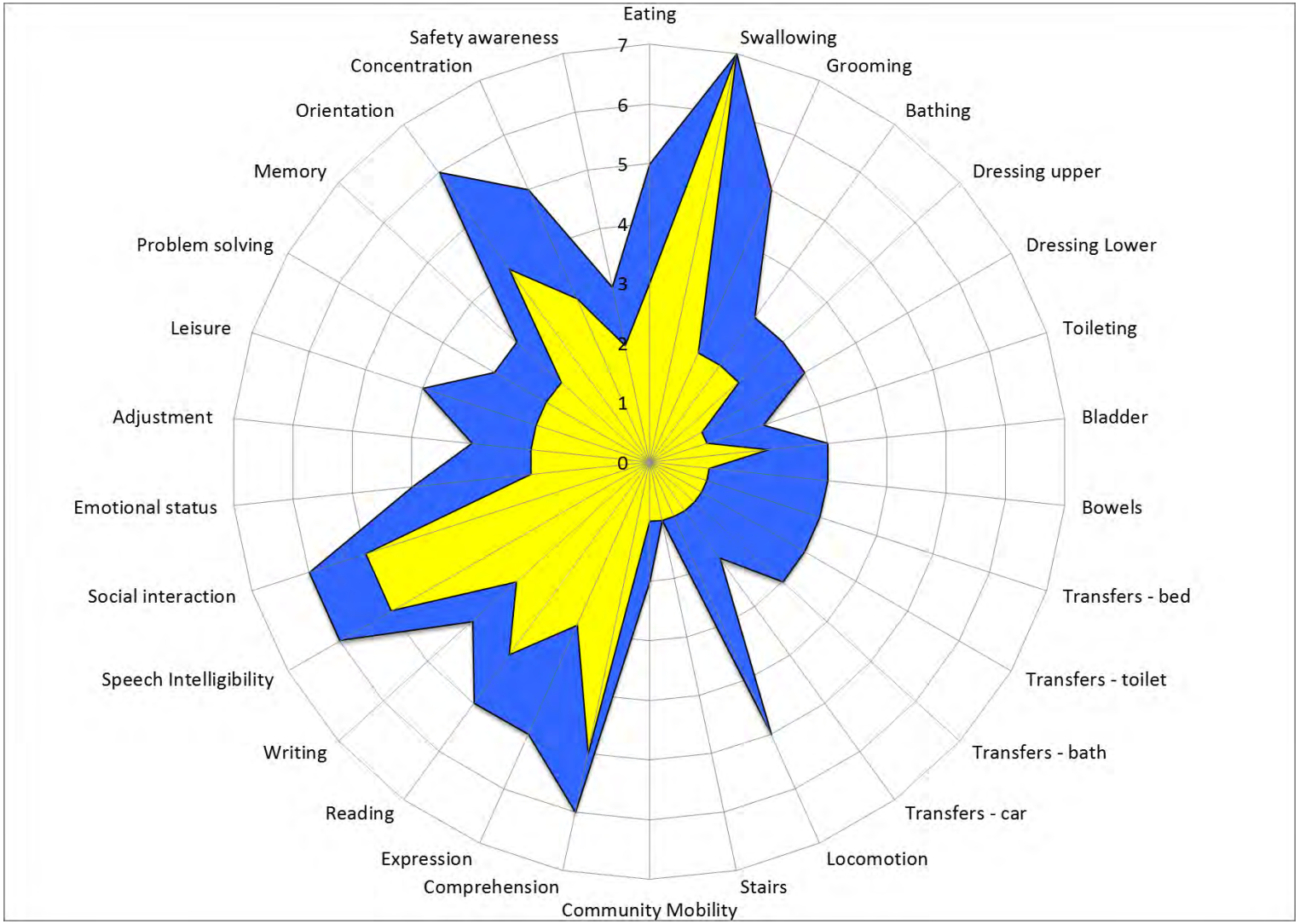


Changes in care costs on discharge (n=71)

Increase in Care cost
Median £512,
IQR £140-£684



Change in FIM+FAM score (n=71)



Basic Care Need changes

Five basic care need nursing dependency scores significantly decreased From admission to discharge as independence returned.

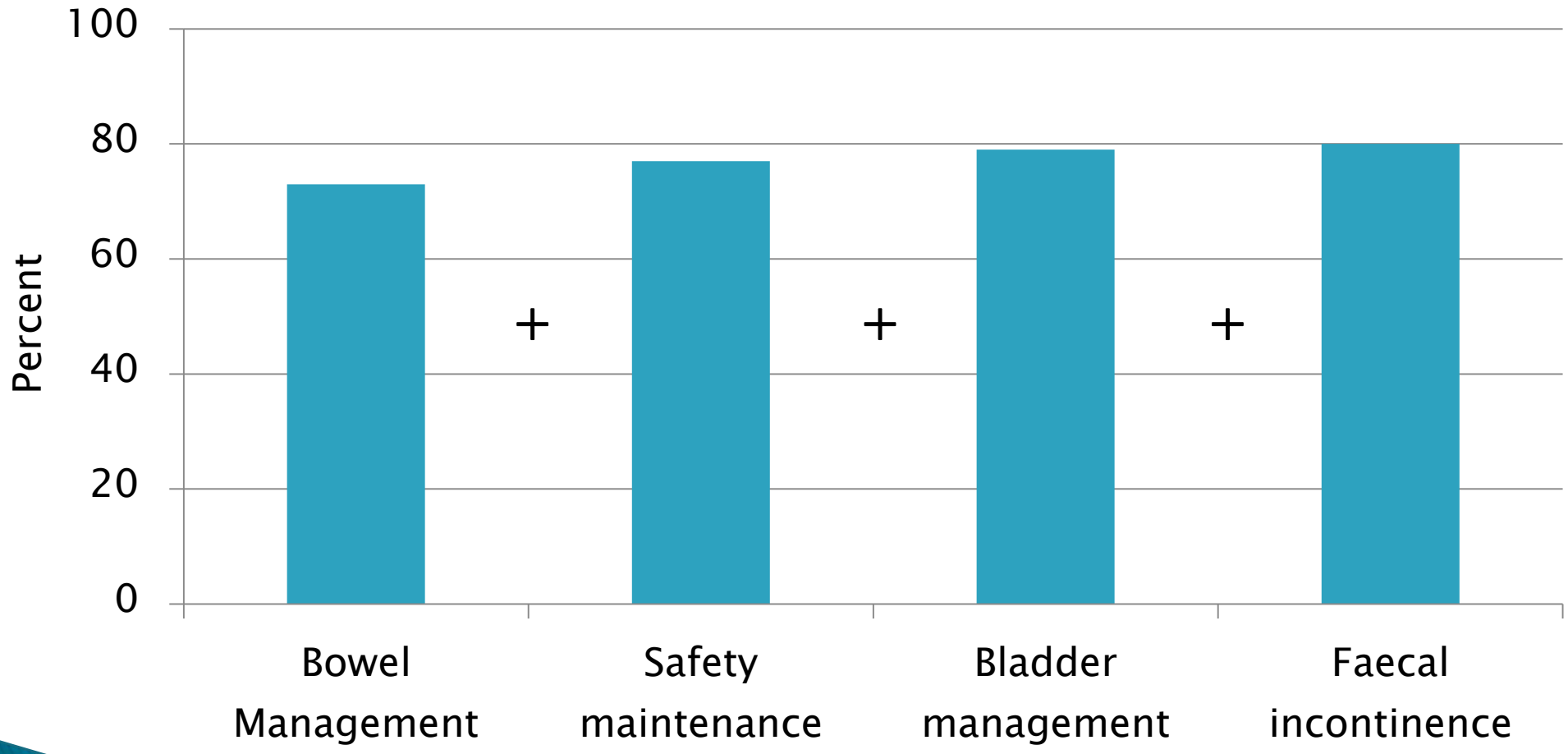
Paired T-Test		95% Confidence Interval		
Basic Care Need items	Mean paired difference	Lower	Upper	Significance
Mobility	0.58	0.35	0.81	P<0.001
Washing	0.69	0.41	0.97	P<0.001
Bathing	0.41	0.16	0.69	P<0.003
Dressing	0.37	0.11	0.63	P<0.005
Communication	0.61	0.29	0.96	P<0.001

Basic Care need changes

Four basic care need nursing dependency scores increased.
Additional care support was required to meet the changing level of Independence – helping return of independence rather than "doing for"

		95% Confidence Interval		
	Mean paired difference	Lower	Upper	Significance
Bladder	-0.31	-0.62	-0.04	P<0.04
Urinary incontinence	-0.24	-0.51	0.02	P<0.08
Faecal incontinence	-0.09	-0.3	0.13	P<0.41
Behaviour	-0.32	-0.66	-0.04	P<0.04

Regression Model



Conclusions

- Whilst care costs fell for most patients
  - They increased for 12% despite improvements in independence
    - For mobility and self care

- The main factors that explained the increase costs were:
  - Bowel and bladder management
    - Including faecal incontinence
  - Maintaining safety

Implication to Practice

- As patients get back on their feet following major injury
  - Other problems may come to light
  - that impact on the costs of caring for them
- Teams should be especially vigilant for issues relating to
  - Incontinence and safety-awareness
  - These require proactive intervention and planning
  - (although they may not always be avoidable)

- Findings from this study emphasise
  - The importance of nurses
    - as an integral part of the rehabilitation team
  - The systematic evaluation of dependency using the NPCNA
    - To highlight issues that may require specific proactive management

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