2013

Subacute inpatient rehabilitation across a range of impairments: intensity of therapy received and outcomes

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Publication Details

J. T. Capell, F. D. Simmonds & M. Snoek, "Subacute inpatient rehabilitation across a range of impairments: intensity of therapy received and outcomes", 21st Annual Scientific Meeting of the Australasian Faculty of Rehabilitation Medicine. (2013)

Subacute inpatient rehabilitation across a range of impairments: intensity of therapy received and outcomes

Abstract
Context

- in sub-acute rehabilitation there is an increasing body of research regarding the relationship between IOT and a range of outcomes, such as LOS and functional gain
- amount and type of inpatient rehabilitation treatment required to maximise outcomes not clearly established

Keywords
subacute, therapy, inpatient, received, outcomes, rehabilitation, across, range, impairments, intensity

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AROC
Intensity of Therapy Project

AFRM Conference

18 September 2013

What is AROC ?

- AROC began as a joint initiative of the whole Australian rehabilitation sector (providers, payers, regulators and consumers) with support from key New Zealand providers
- Established 1 July 2002 as a not-for-profit Centre
- The Australasian Faculty of Rehabilitation Medicine (AFRM) is the auspice body and data custodian
- The Centre for Health Service Development (CHSD) at the University of Wollongong is the data manager and responsible for AROC's day to day operations

AROC Coverage

- 196 Australian rehabilitation units submitted data to AROC in the 2012 calendar year
- 36 New Zealand rehab unit members
- In 2012 data describing nearly 95,000 episodes was submitted to AROC between the two countries

Context

- in sub-acute rehabilitation there is an increasing body of research regarding the relationship between IOT and a range of outcomes, such as LOS and functional gain
- amount and type of inpatient rehabilitation treatment required to maximise outcomes not clearly established

Recommended IOT

- General recommendations

  Eg: AFRM Standards for the Provision of Inpatient Adult Rehabilitation Medicine Services in Public and Private Hospitals (2011)

- Impairment specific clinical guidelines

  Eg: National Stroke Foundation: Clinical Guidelines for Stroke Management (2010)

Research questions

For rehabilitation inpatients:

- does intensity of therapy vary across impairment groups?
- does intensity of therapy have an impact on functional outcomes within impairment groups?
- does intensity of therapy have an impact on length of stay within impairment groups?

Study design

- intensity of therapy (IOT) in this study was defined as total therapy minutes received by the patient/therapy day
- prospective multisite observational design
- ethics approval gained (UOW/ISLHD)
- DOHA: 12 months' funding

Data sources

- AROC core data collection
- Intensity of therapy project data

IOT project data items

Episode details

- Enable data linkage with core AROC data collection eg date of birth, rehabilitation impairment code, episode begin and end date

Therapy occasion of service details

- Date, group/individual, therapy time (actual total minutes of direct face-to-face therapy received by the patient), therapy type, therapist

IOT project data collection

- commenced at facilities' convenience between 1 March and 20 June 2012
- continuous period of approximately 12 weeks
- all rehabilitation episodes commenced and finalised within the data collection period
- data collection on "tail end" episodes negotiated with individual facilities

Outcome measures

AROC outcome measures include:

- Functional Independence Measure (FIM)
- Length of stay
- Discharge destination

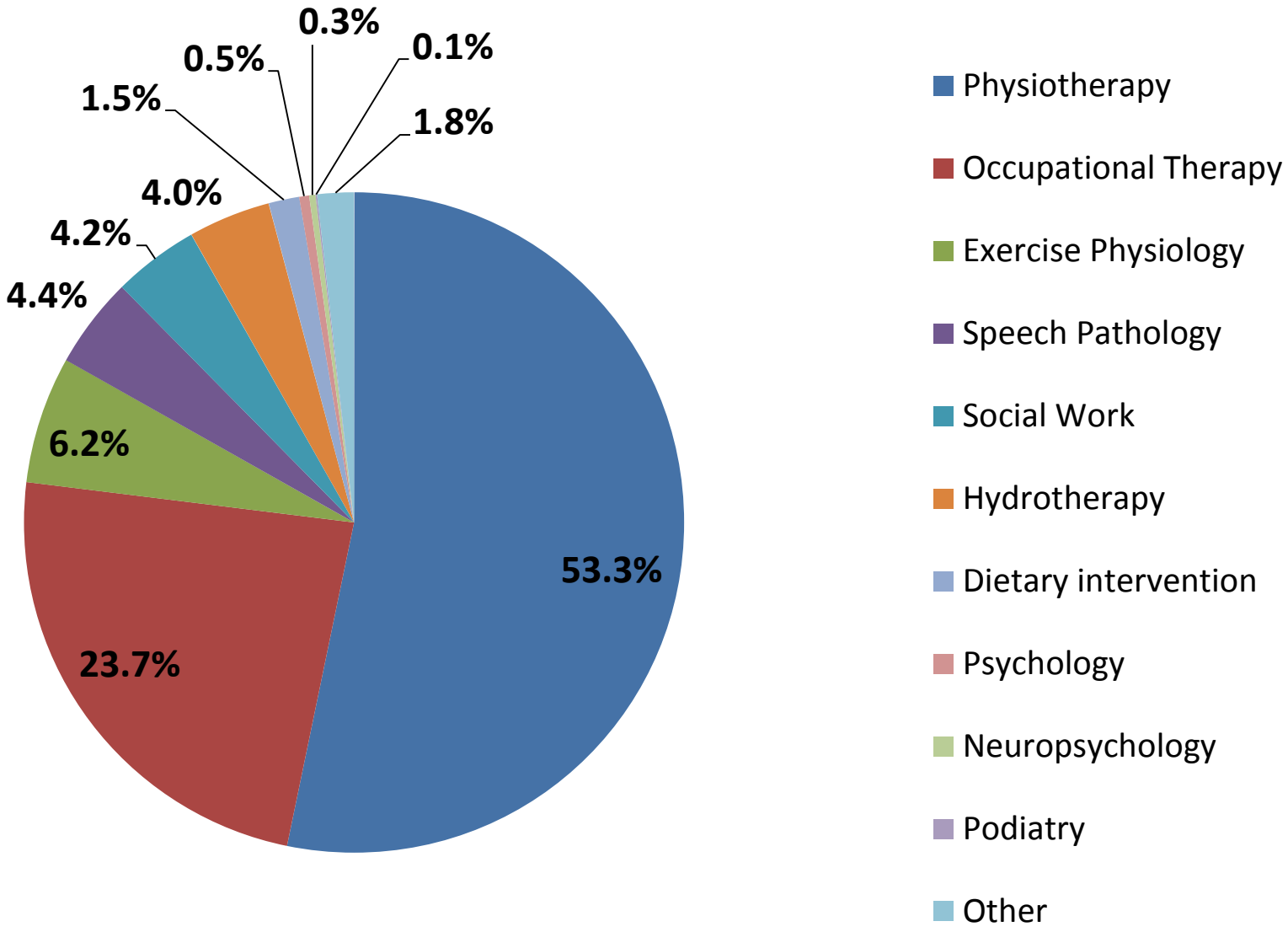
Results

- EOI: 76 facilities (approximately 40% AROC Australian membership)
- Agreement to participate: 29 facilities
- Actual participants: 26 facilities
- Total IOT episodes: 2,439
- Total IOT episodes merged with AROC data: 2,018

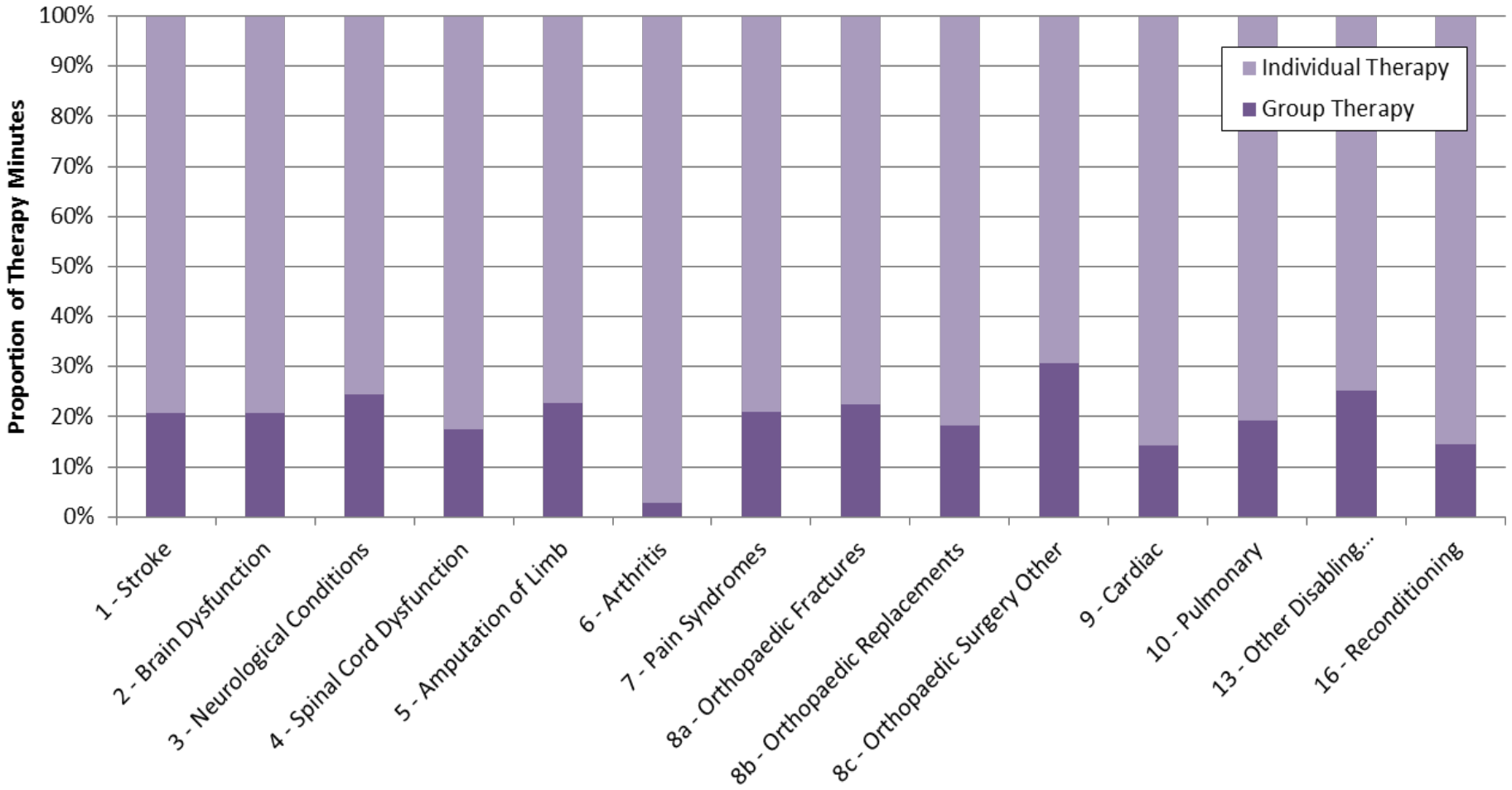
Impairment	IOT Episodes merged with AROC data	
	Number	%
Orthopaedic Replacements	401	20%
Reconditioning	394	20%
Orthopaedic Fractures	327	16%
Stroke	263	13%
Orthopaedic Surgery Other	110	5%
Pain Syndromes	103	5%
Cardiac	78	4%
Brain Dysfunction	70	3%
Neurological Conditions	68	3%
Pulmonary	63	3%
Amputation of Limb	57	3%
Other Disabling Impairments	32	2%
Spinal Cord Dysfunction	26	1%
Arthritis	13	1%
Major Multiple Trauma	9	0%
Congenital Deformities	2	0%
Burns	2	0%
Developmental Disabilities	0	0%
Total	**2,018**	**100%**

Impairment	IOT Episodes merged with AROC data	
	Number	% all impairments
Orthopaedic Replacements	**401**	**20%**
Reconditioning	**394**	**20%**
Orthopaedic Fractures	**327**	**16%**
Stroke	**263**	**13%**
Orthopaedic Surgery Other	**110**	**5%**
Pain Syndromes	**103**	**5%**
Total	**1,598**	**79%**

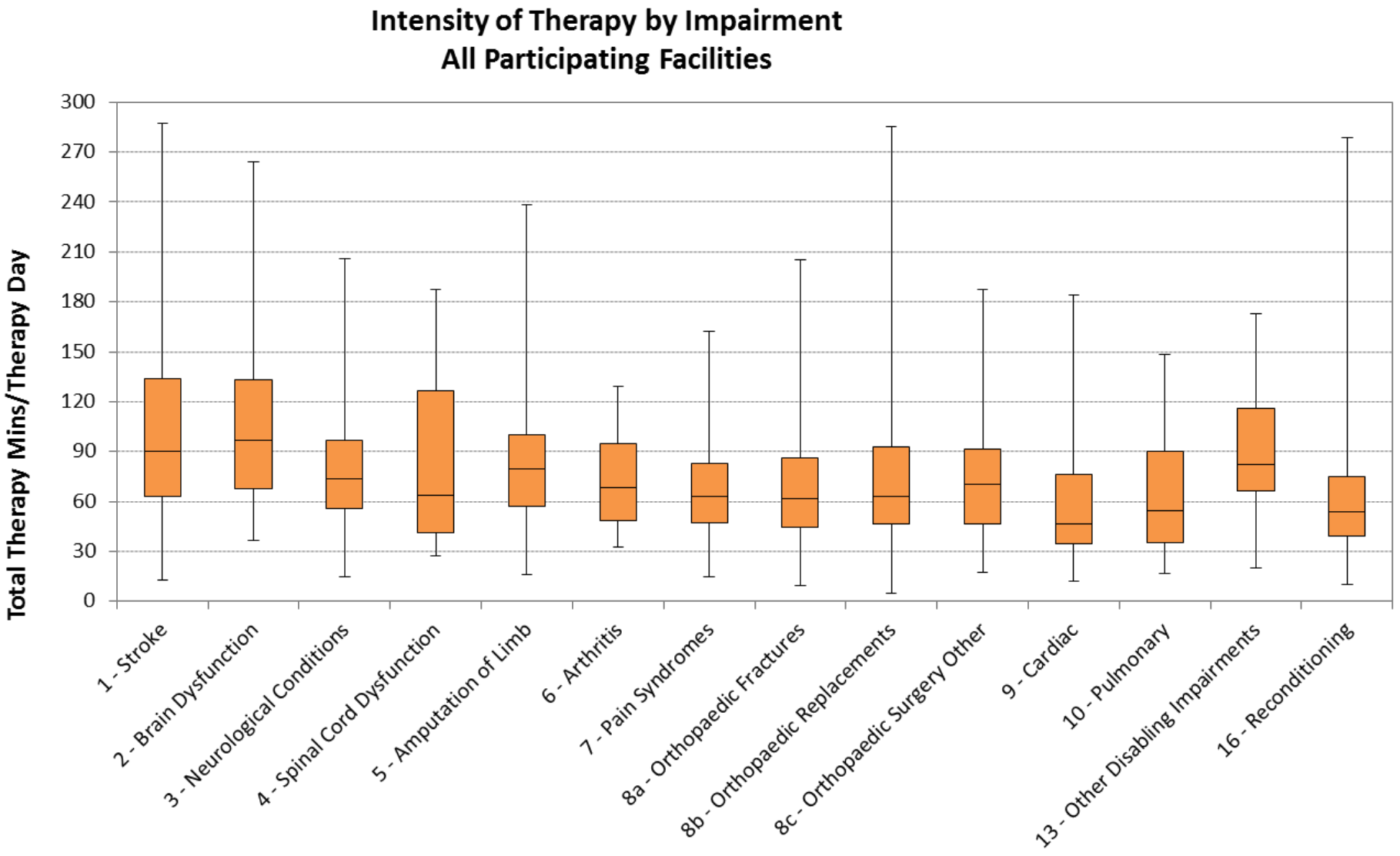
Therapy Minutes by Therapy Type: all participating facilities



Individual and group therapy
Distribution of therapy minutes: all participants



Therapy minutes/therapy day



Therapy minutes/therapy day

Descriptive Statistics (Therapy Mins/ Treatment Day)	Count	Median	Mean	Stand Dev	Range
Stroke	263	90	103	56	275
Orthopaedic fractures	329	62	69	35	196
Orthopaedic replacements	402	63	75	41	280
Orthopaedic surgery - other	112	69	72	33	170
Reconditioning	395	54	63	35	269
Pain syndromes	103	63	68	30	147

FIM change and intensity of therapy

- analyses are based on therapy minutes for physiotherapy, occupational therapy, exercise therapy, speech therapy, hydrotherapy, psychology and neuropsychology
- correlation between FIM change and IOT explored
- all statistical tests were applied at a statistical significance level of 5%

Stroke: FIM and IOT correlations

- weak positive correlations total n:
  - FIM motor score change: r = 0.251, p = 0.000, n=226
  - FIM cognitive score change: r = 0.286, p = 0.000, n=226
- stronger positive correlation admission subset FIM motor score < 47*
  - FIM motor: r = 0.447, p = 0.000, n=72
  - FIM cognitive: r = 0.333, p=0.004, n=72

*AN-SNAP classes 3-208: FIM motor 14-46, >=75
3-209: FIM motor 14-46, < 75

Other impairments: FIM and IOT correlations

- weak to modest positive correlations between FIM **cognitive** score changes and IOT

Impairment group	n	r	p
pulmonary conditions	57	0.469	0.000
brain dysfunction	51	0.359	0.010
other orthopaedic surgery	110	0.336	0.000
neurological conditions	65	0.272	0.003
orthopaedic fractures	293	0.180	0.002
reconditioning	331	0.146	0.008
orthopaedic replacements	378	0.145	0.005

LOS and intensity of therapy

- no correlation identified for any impairment in this study

Discharge destination and intensity of therapy

Final Accommodation	< 120 mins therapy/ treatment day	=>120 mins therapy/ treatment day
Private residence	92.2%	94.1%
Residential aged care, low level care	2.4%	1.3%
Residential aged care, high level care	2.2%	0.8%
Community group home	0.0%	0.8%
Boarding house	0.1%	0.0%
Transitional living unit	0.5%	0.4%
Other	2.0%	1.7%
Unknown	0.4%	0.8%

Discharge destination and IOT: Distribution of discharge

- All valid episodes: more likely to return to private residence if they received a minimum of 120 minutes of therapy per treatment day

Conclusion

- This observational study provides a snapshot of the current status of the intensity of therapy received by inpatients in subacute rehabilitation facilities in Australia
- One potential explanation for the lack of correlation between intensity of therapy and outcomes across many impairment groups may be that the threshold of intensity required to affect outcomes is substantially greater than observed in this study

Questions

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