



# AROC Ambulatory National Report

January 2012 – December 2012



**Australasian Faculty  
of Rehabilitation  
Medicine**



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# Definition of ambulatory rehabilitation

- Starts with a multi-disciplinary assessment
- Is multi-disciplinary, but all therapies may not be delivered concurrently
- Is goal oriented - includes goal setting and review
- The program of care is time limited
- Is delivered in an ambulatory setting, either centre or community based
- Ambulatory rehabilitation may occur as:
  - The continuation of an inpatient episode of rehabilitation
  - A rehabilitation program provided solely in an ambulatory setting

# Data collection

- The AROC dataset includes items that relate specifically to evaluating the efficacy of ambulatory rehabilitation programs
- Data is collected to reflect the program of rehabilitation, thus an 'episode' is defined by the initial and final service contact
- The collection covers a range of diverse care models - centre based, same day admitted, coordinated outpatient, rehabilitation in the home, inreach/outreach, early discharge therapy, preventative management, etc
- The range of models is matched by equally diverse impairment groups; amputee, stroke, brain injury, orthopaedic, reconditioning
- The challenge in developing the data set was to include an outcome tool that could best address the diverse range of service models and impairment groups represented in ambulatory rehabilitation, with a minimum burden on resources
- The over-arching outcome tool included in the dataset is the Australian Modified Lawton's Instrumental Activities of Daily Living (IADL) scale
- It is thought that over time, other impairment or discipline specific outcomes tools will be added to the dataset to provide more outcome specificity by cohort.

# The Australian Modified Lawton's

- The Australian Modified Lawton's represents a sensitive measure of the outcome of ambulatory rehabilitation as it relates to instrumental tasks, such as a patient's ability to do their own shopping, cleaning, cooking, manage their finances, skills that demonstrate their independence in the wider context
- In general most participants in ambulatory care have already demonstrated a degree of functional independence, thus a straight ADL tool (such as the FIM), is not an appropriate outcome measure in this setting
- The Lawton's tool is quick and easy to administer, requires minimal training, and is not discipline or impairment specific
- The Lawton's is endorsed by AFRM as the over-arching ambulatory benchmarking outcome tool of choice
- It has demonstrated validity and reliability in measurement of outcomes  
*Green J, Eagar K, Owen A, Gordon R and Quinsey K (2006). Towards a Measure of Function for Home and Community Care Services in Australia: Part II – Evaluation of the Screening Tool and Assessment Instruments. Australian Journal of Primary Health 12(1), 82-90*
- The Lawton's is not suggested to replace any service or impairment specific outcome measures that services may already collect or are considering collecting, but to provide a platform from which to launch a national benchmarking program with the expectation of further development over time.

# Interpretation of results

- This descriptive report includes analysis of data collected and submitted by participating ambulatory rehabilitation services during the 2012 calendar year
- For the purposes of this report all analysis is at the episode level and is reported as national data
- Please note that while some data for this period was collected in Version 4, analysis for this report uses the Version 1 data items. Future reporting will use the Version 4 ambulatory data items
- As this report represents a small proportion of all ambulatory rehabilitation services and models of service delivery, care should be taken when interpreting the results
- It is anticipated that as the collection and reporting of the AROC ambulatory clinical dataset increases, more detailed comparisons will be able to be made.

# Definition of terms

## **Episode**

The program of ambulatory rehabilitation. A completed episode is one with a mode of episode end of discharge/case closure.

## **Elapsed time**

The elapsed time describes the number of days from commencement to end of an ambulatory rehabilitation program. It is calculated as the episode end date minus the start date

## **Days Seen**

Days seen is the number of days within an episode of ambulatory rehabilitation on which an occasion of service has been provided

## **Occasions of Service (OOS)**

An occasion of service is any therapy session and /or therapist contact within an episode. A patient may have several occasions of service on a 'day seen' and these may be delivered by the same or different staff type. Total occasions of service reflects the total number of therapy sessions provided to the patient during those visits. For example:

*Mr Jones attends the program on Monday, Wednesday and Friday. On Monday he sees the physio and also attends hydrotherapy. On Wednesday he has a group exercise session, sees the OT and the speech pathologist. On Friday he sees the physio and attends hydrotherapy again. This program continues for 6 weeks. At week 7 his program is reviewed and he only needs to attend group exercise therapy and hydrotherapy twice a week until the program concludes at week 12.*

- ***The total number of days seen in this instance is  $(3 \times 6) + (2 \times 6) = 30$***
- ***The total occasions of service in this instance is  $(7 \times 6) + (4 \times 6) = 66$***

# Definition of terms

## ***Therapy type***

Reflects the type of therapy the patient is receiving and is collected by staff type. Where a single staff type provides more than one therapy, e.g. hydrotherapy provided/supervised by a physiotherapist, the staff type selected should reflect the type of therapy session the patient is receiving.

## ***ADL***

Activities of daily living describe a person's level of functioning in basic physical activities such as bathing, dressing, transferring, toileting, continence, eating, and walking

## ***IADL***

Instrumental activities of daily living (also known as extended or domestic activities of daily living), describe tasks that enable a person to live independently in the community and include, but not are limited to, light housework, preparing meals, taking medications, shopping for groceries, using the telephone, and managing money

## ***Lawton's score***

The score recorded using the Australian Modified Lawton's Instrumental Activities of Daily Living (IADL) Scale at both the beginning and end of an ambulatory rehabilitation program

## ***Valid Lawton's score***

A valid Lawton's score requires all items within the scale to have a value assigned and be completed for both the episode begin and episode end assessments

## ***Lawton's change***

The calculated difference between the valid Lawton's score at the begin and the end of the ambulatory rehabilitation episode



# Data exclusions

- Demographic and episode start information describes all episodes where information was reported
- An episode is considered “complete” for the purpose of calculating outcome statistics in this report when mode of episode end is discharge/case closure
- Outcome measures are based on completed episodes, as defined above, and may be further reduced by missing data

# AROC Adult Version 4 dataset:

- V4 of the AROC dataset was introduced on 1 July 2012
- V4 is designed as a bank of data items combinations of which are used to describe 6 possible pathways of care (see the AROC website for more information about the different pathways)
- **Ambulatory programmes:** the item “Level of Support” (V1) has been replaced by two data items (V4) that unpack two concepts:
  - Carer status
  - Services received

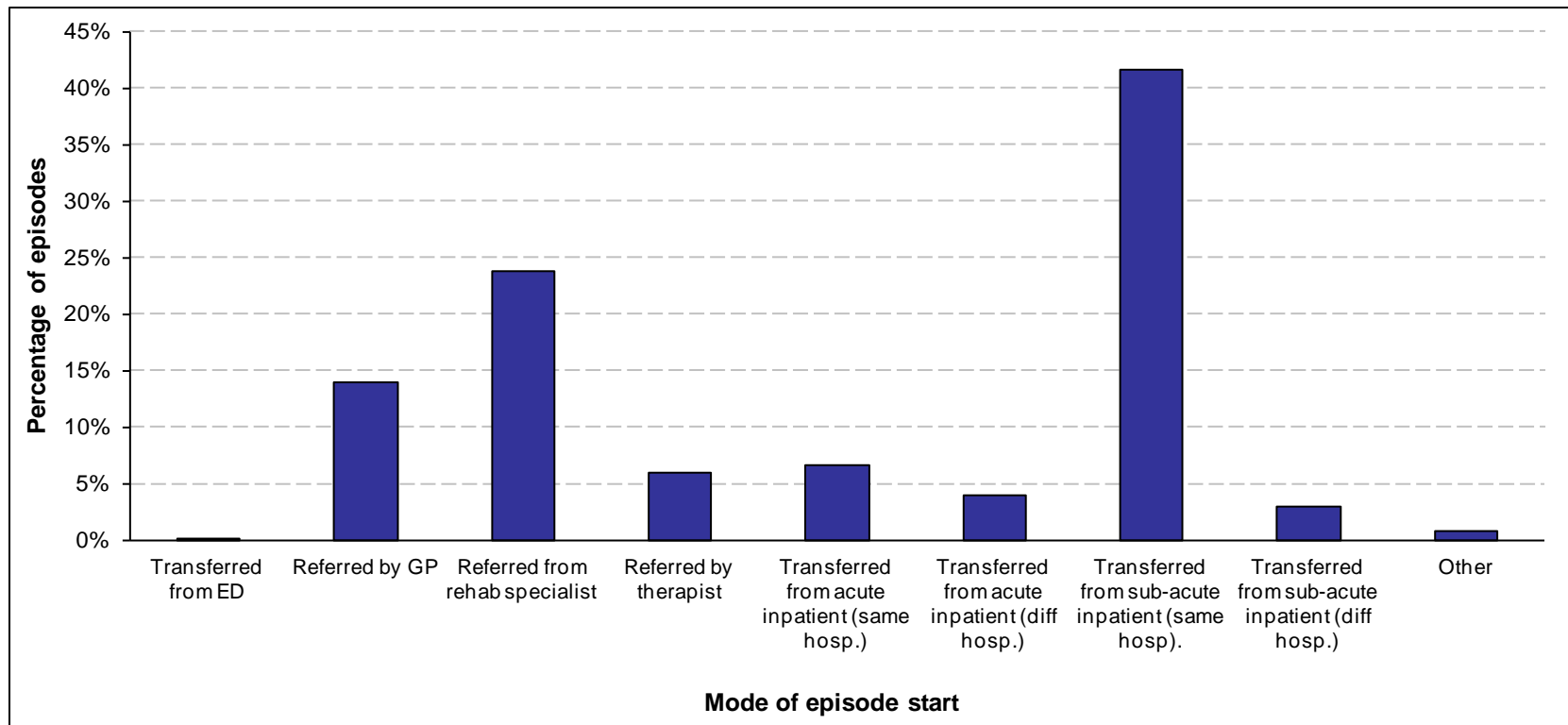
# Impact of changes to the AROC Adult Version 4 dataset on this report

- This report presents analysis using the Version 1 data items
- However, it is noted that as a direct result of changes to the dataset implemented by facilities at different times commencing from 1 July 2012 there is a large amount of Version 4 data relating to carer status and services received which is not able to be mapped back against the Version 1 item “Level of support”. This is denoted as “missing/not stated data” in the relevant tables
- Future reports will present analysis using the Version 4 data items

# Distribution of episodes and facilities

	Public	Private	Total
<b>Facilities</b>			
NSW	2	11	<b>13</b>
VIC	0	3	<b>3</b>
SA	2	1	<b>3</b>
ACT	0	1	<b>1</b>
QLD	1	5	<b>6</b>
<b>All Facilities</b>	<b>5</b>	<b>21</b>	<b>26</b>
<b>Episodes</b>			
NSW	241	2,679	<b>2,920</b>
VIC	0	1,530	<b>1,530</b>
SA	784	103	<b>887</b>
ACT	0	169	<b>169</b>
QLD	93	161	<b>254</b>
<b>All Episodes</b>	<b>1,118</b>	<b>4,642</b>	<b>5,760</b>

# Episode source



# Episode source

<b>Mode of Episode Begin</b>	<b>No.</b>	<b>%</b>
Transferred from ED	6	0.1
Referred by GP	784	14.0
Referred from rehab specialist	1,331	23.8
Referred by therapist	339	6.1
Transferred from acute inpatient (same hosp.)	375	6.7
Transferred from acute inpatient (diff hosp.)	222	4.0
Transferred from sub-acute inpatient (same hosp)	2,334	41.7
Transferred from sub-acute inpatient (diff hosp.)	165	2.9
Other	44	0.8
Missing	160	
<b>Total</b>	<b>5,760</b>	<b>100.0</b>

In the table above approximately 45% of the reported episodes began following inpatient subacute care, suggesting a continuation of rehabilitation from the inpatient setting. Approximately 44% were referred directly from the community, with a further 11% identified as referred from acute inpatient care.

# Episodes by impairment

<b>Impairment</b>	<b>No.</b>	<b>%</b>
Stroke	398	7.0
Brain	108	1.9
Neurological	253	4.5
Spinal Cord	30	0.5
Amputee	45	0.8
Arthritis	79	1.4
Pain	298	5.2
Orthopaedic Fracture	335	5.9
Post Orthopaedic Surgery	3,098	54.6
Orthopaedic Other	146	2.6
Orthopaedic Unspecified	25	0.4
Cardiac	53	0.9
Pulmonary	19	0.3
Burns	1	0.0
Congenital Deformities	2	0.0
Other Disabling Imp.	191	3.4
Multiple Trauma	6	0.1
Developmental Disabilities	1	0.0
Reconditioning	590	10.4
Missing	82	
<b>All impairments</b>	<b>5,760</b>	<b>100.0</b>

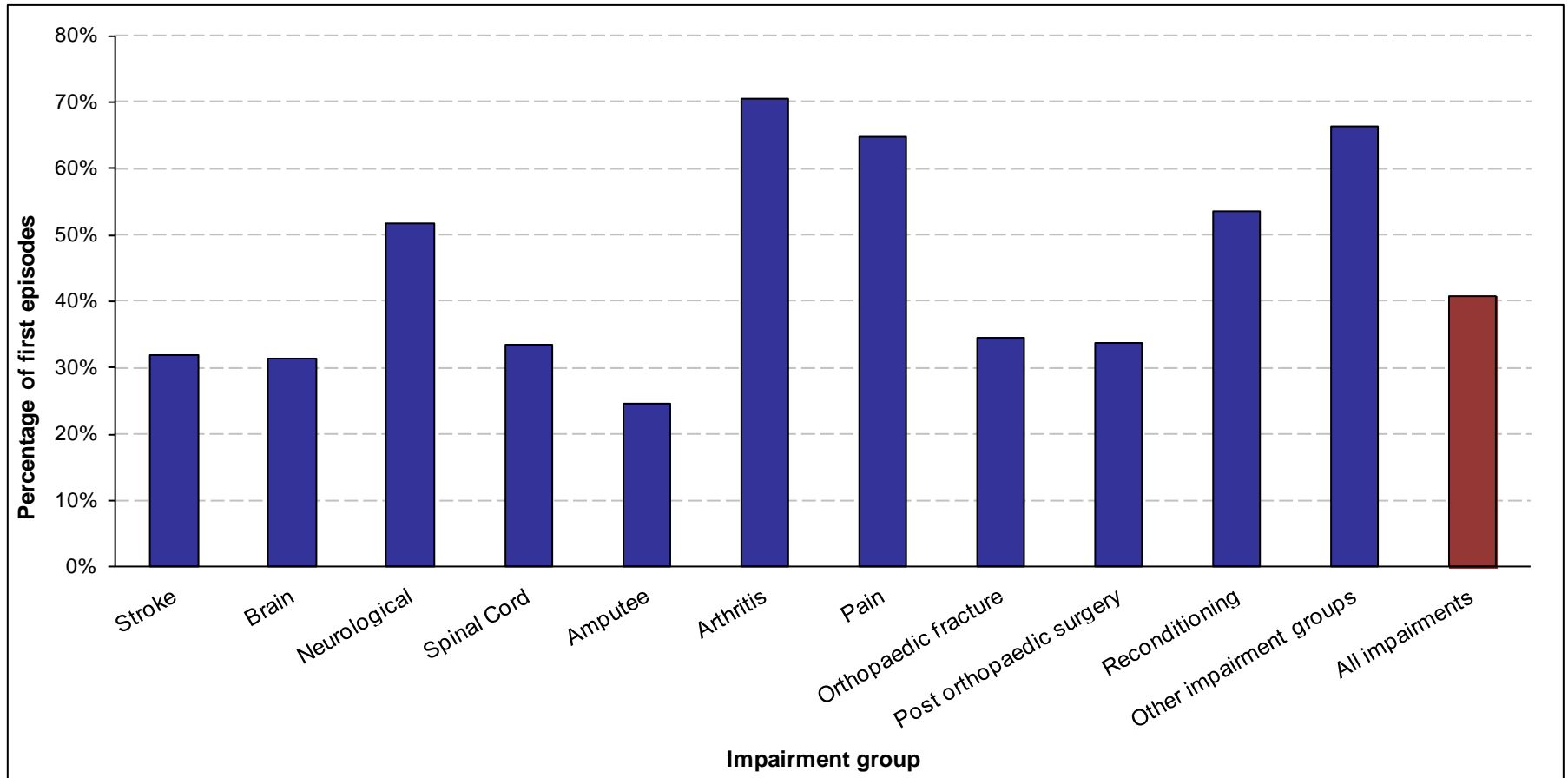
# Episode type by impairment

Impairment	Episode Type								
	Same day admitted program		Outpatient		Community Patient		Missing	All Episode Types	
	No.	%	No.	%	No.	%	No.	No.	%
Stroke	89	34.9	63	24.7	103	40.4	143	<b>398</b>	<b>100.0</b>
Brain	34	43.0	16	20.3	29	36.7	29	<b>108</b>	<b>100.0</b>
Neurological	53	36.8	56	38.9	35	24.3	109	<b>253</b>	<b>100.0</b>
Spinal Cord	8	40.0	9	45.0	3	15.0	10	<b>30</b>	<b>100.0</b>
Amputee	4	13.3	2	6.7	24	80.0	15	<b>45</b>	<b>100.0</b>
Arthritis	17	30.4	37	66.1	2	3.6	23	<b>79</b>	<b>100.0</b>
Pain	109	57.7	76	40.2	4	2.1	109	<b>298</b>	<b>100.0</b>
Orthopaedic Fracture	76	34.7	96	43.8	47	21.5	116	<b>335</b>	<b>100.0</b>
Post Orthopaedic Surge	1,466	73.3	487	24.3	48	2.4	1,097	<b>3,098</b>	<b>100.0</b>
Orthopaedic Other	48	62.3	27	35.1	2	2.6	69	<b>146</b>	<b>100.0</b>
Orthopaedic Unspecified	0	0.0	0	0.0	0	0.0	25	<b>25</b>	<b>100.0</b>
Cardiac	17	63.0	6	22.2	4	14.8	26	<b>53</b>	<b>100.0</b>
Pulmonary	2	28.6	3	42.9	2	28.6	12	<b>19</b>	<b>100.0</b>
Burns	0	0.0	0	0.0	1	100.0	0	<b>1</b>	<b>100.0</b>
Congenital Deformities	0	0.0	1	50.0	1	50.0	0	<b>2</b>	<b>100.0</b>
Other Disabling Imp.	108	83.7	10	7.8	11	8.5	62	<b>191</b>	<b>100.0</b>
Multiple Trauma	0	0.0	1	50.0	1	50.0	4	<b>6</b>	<b>100.0</b>
Developmental Disability	1	100.0	0	0.0	0	0.0	0	<b>1</b>	<b>100.0</b>
Reconditioning	287	68.7	51	12.2	80	19.1	172	<b>590</b>	<b>100.0</b>
Missing	1		1		14		66	<b>82</b>	
<b>All Impairments</b>	<b>2,320</b>	<b>63.2</b>	<b>942</b>	<b>25.6</b>	<b>411</b>	<b>11.2</b>	<b>2,087</b>	<b>5,760</b>	<b>100.0</b>

This table describes the distribution of impairments by ambulatory episode type. In the largest reported impairment group, post orthopaedic surgery, participating services deliver primarily Same Day Admitted programs.



# First episode of rehabilitation by impairment



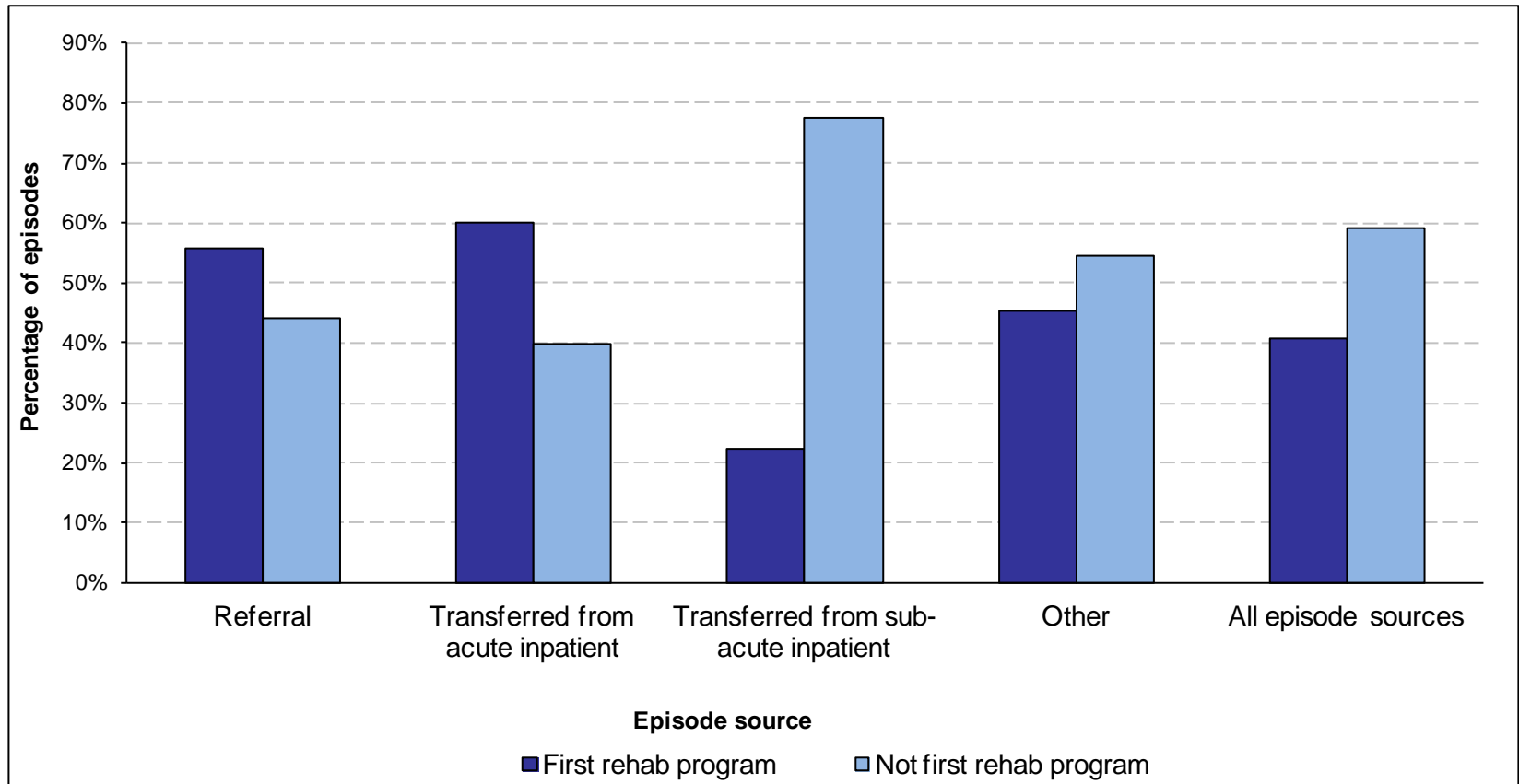
Note: "Other impairment groups" includes data for cardiac, pulmonary, burns and other impairments. Refer to Slides 15 and 16 for full impairment list.

# First episode of rehabilitation by impairment

<b>Impairment</b>	<b>%</b>
Stroke	31.9%
Brain	31.5%
Neurological	51.8%
Spinal Cord	33.3%
Amputee	24.4%
Arthritis	70.5%
Pain	64.6%
Orthopaedic fracture	34.5%
Post orthopaedic surgery	33.8%
Reconditioning	53.5%
Other impairment groups	66.2%
<b>All impairments</b>	<b>40.8%</b>

Of the impairment groups with largest number of reported episodes, approximately 41% indicate the ambulatory episode as the first rehabilitation for that impairment. The following slides describe those episodes identified as first rehabilitation against their reported episode source.

# First episode of rehabilitation by episode source

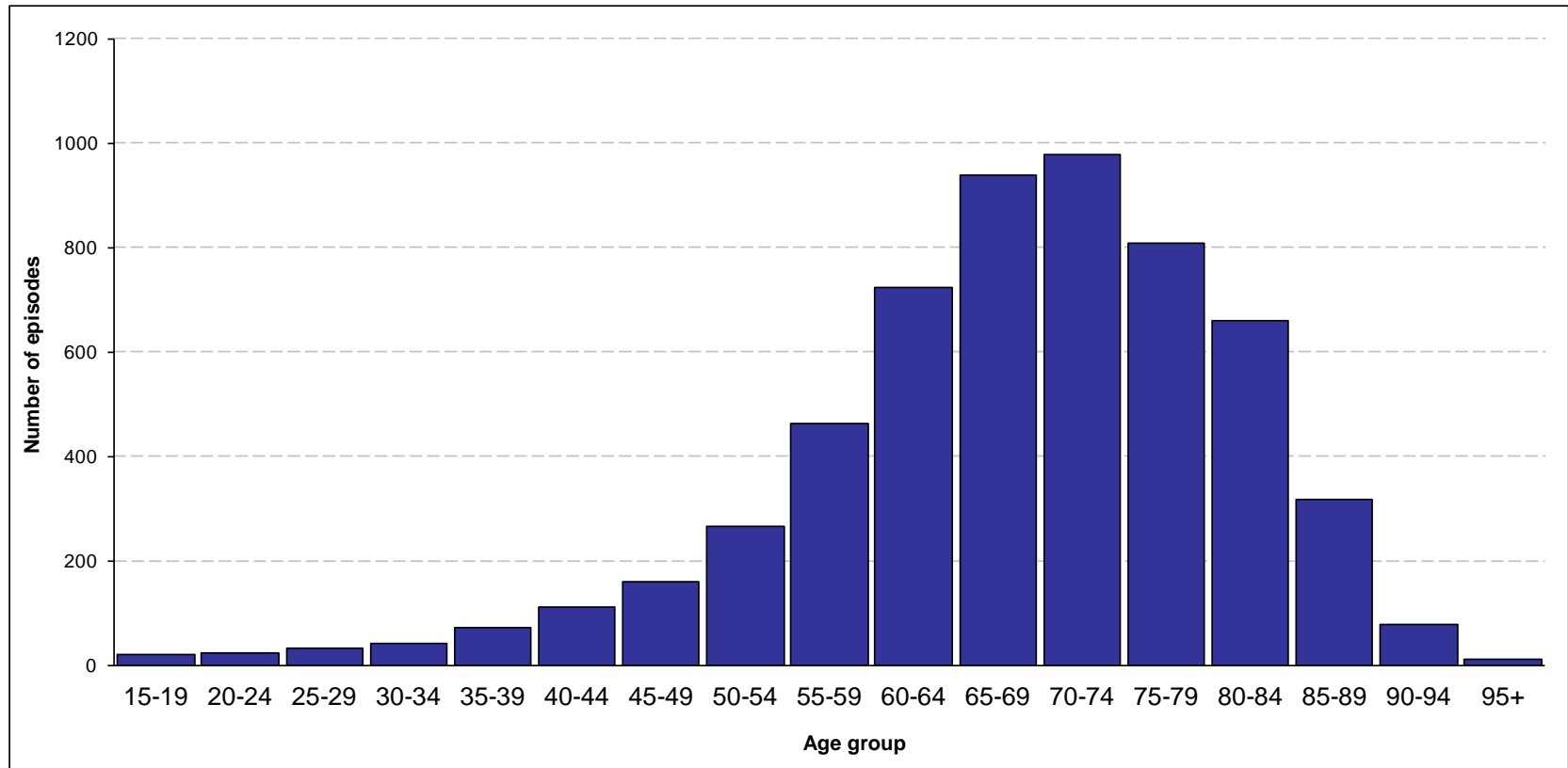


# First episode of rehabilitation by episode source

First rehab program	Episode source										
	Referral		Transferred from acute inpatient		Transferred from sub-acute		Other		Missing	Total	
	No.	%	No.	%	No.	%	No.	%	No.	No.	%
Yes	1,371	59.4	359	15.5	560	24.2	20	0.9	19	2,329	100.0
No	1,089	33.1	238	7.2	1,939	58.9	24	0.7	91	3,381	100.0
Missing	0		0		0		0		50	50	
<b>All episodes</b>	<b>2,460</b>	<b>43.9</b>	<b>597</b>	<b>10.7</b>	<b>2,499</b>	<b>44.6</b>	<b>44</b>	<b>0.8</b>	<b>160</b>	<b>5,760</b>	<b>100.0</b>

Approximately 41% of reported episodes were identified as being first programs of rehabilitation for the impairment. Of those, about 24% described patients whose ambulatory episodes began following an episode of sub acute inpatient care.

# Episodes by age group



# Episodes by age group

<u>Age Group</u>	<u>No.</u>	<u>% Cumulative %</u>	
15-19	22	0.4%	0.4%
20-24	23	0.4%	0.8%
25-29	35	0.6%	1.4%
30-34	44	0.8%	2.2%
35-39	73	1.3%	3.4%
40-44	112	2.0%	5.4%
45-49	162	2.8%	8.2%
50-54	268	4.7%	12.9%
55-59	464	8.1%	21.0%
60-64	724	12.7%	33.7%
65-69	940	16.4%	50.1%
70-74	980	17.1%	67.2%
75-79	808	14.1%	81.3%
80-84	660	11.5%	92.9%
85-89	319	5.6%	98.4%
90-94	78	1.4%	99.8%
95+	11	0.2%	100.0%
Missing	37		
<b>All Ages</b>	<b>5,760</b>	<b>100.0%</b>	

# Age by gender and impairment

Impairment	Male			Female			All episodes		
	No.	Mean	(95% CI)	No.	Mean	(95% CI)	No.	Mean	(95% CI)
Stroke	250	68.6	(67.1 - 70)	148	69.2	(66.9 - 71.6)	398	68.8	(67.5 - 70.1)
Brain	65	55.3	(51 - 59.6)	43	58.0	(52.5 - 63.5)	108	56.4	(53 - 59.8)
Neurological	123	64.2	(61.3 - 67)	130	58.5	(55.8 - 61.3)	253	61.3	(59.3 - 63.3)
Spinal Cord	13	56.5	(43.9 - 69.1)	17	57.5	(48.5 - 66.5)	30	57.1	(49.8 - 64.4)
Amputee	36	66.0	(62 - 70)	9	63.4	(58.3 - 68.6)	45	65.4	(62.1 - 68.8)
Arthritis	27	75.8	(71.9 - 79.7)	52	73.4	(70.5 - 76.3)	79	74.2	(71.9 - 76.5)
Pain	95	63.9	(60.9 - 66.9)	203	63.9	(61.4 - 66.3)	298	63.9	(61.9 - 65.8)
Orthopaedic fracture	109	65.1	(61.7 - 68.5)	226	73.8	(72 - 75.6)	335	71.0	(69.3 - 72.7)
Post orthopaedic surgery	1,200	68.4	(67.8 - 68.9)	1,898	68.7	(68.2 - 69.1)	3,098	68.6	(68.2 - 68.9)
Reconditioning	251	70.8	(68.8 - 72.8)	339	72.2	(70.6 - 73.7)	590	71.6	(70.4 - 72.8)
Other impairment groups	152	67.0	(64.4 - 69.7)	292	65.2	(63.6 - 66.8)	444	65.8	(64.4 - 67.2)
Missing	42			40			82		
<b>All impairments</b>	<b>2,363</b>	<b>67.6</b>	<b>(67.1 - 68.1)</b>	<b>3,397</b>	<b>68.3</b>	<b>(67.8 - 68.7)</b>	<b>5,760</b>	<b>68.0</b>	<b>(67.7 - 68.3)</b>

# Indigenous status

<b>Indigenous Status</b>	<b>No.</b>	<b>%</b>
Aboriginal but not TSI	20	0.4%
TSI but not Aboriginal	10	0.2%
Both	4	0.1%
Neither	5,472	99.4%
Missing/Not stated	254	
<b>All episodes</b>	<b>5,760</b>	<b>100.0%</b>



# Employment status

<b>Employment Status</b>	<b>No.</b>	<b>%</b>
Employed	1,029	22.3%
Not Employed	620	13.4%
Not in Labour Force	2,970	64.3%
Missing/Not Stated	1,141	
<b>All episodes</b>	<b>5,760</b>	<b>100.0%</b>

# Usual accommodation and level of support prior to episode

<b>Accommodation and level of support</b>	<b>No.</b>	<b>%</b>
Private residence	5,604	99.1%
<i>Alone with no support</i>	539	14.8%
<i>Others with no support</i>	1,206	33.1%
<i>Alone with support</i>	338	9.3%
<i>Others with support</i>	1,464	40.1%
<i>External support</i>	100	2.7%
<i>Missing/Not Stated*</i>	1,957	
Residential Aged Care (Low Level Care)	25	0.4%
Residential Aged Care (High Level Care)	6	0.1%
Community Group Home	7	0.1%
Boarding House	4	0.1%
Transitional	2	0.0%
Other	6	0.1%
Missing	106	
<b>All episodes</b>	<b>5,760</b>	<b>100.0%</b>

This table shows that of the episodes reported approximately 99% of patients attending ambulatory rehabilitation lived in private accommodation prior to their impairment, with about 52% indicating they received some type of support.

\*Missing/not stated data: the large volume has resulted from the changes to the data items in the Version 4 data collection. This data item has been replaced by two items. Refer to Slides 10 and 11 for further detail.

# Accommodation during episode

<b>Accommodation</b>	<b>No.</b>	<b>%</b>
Pre Impairment accommodation	5,454	97.2%
Interim accommodation (geographical issue)	54	1.0%
Interim accommodation (increased support)	55	1.0%
Other	49	0.9%
Missing	148	
<b>All episodes</b>	<b>5,760</b>	<b>100.0%</b>

Of the episodes reported, there were only a small number of patients who indicated a change of residence during the period of ambulatory rehabilitation for either increased support needs or access issues, less than 3%.

# Change in level of support during episode

Private residence on admission only

No change in accommodation

Level of support prior	Level of support during						All episodes
	Alone with no support	Others with no support	Alone with support	Others with support	External support	Missing / Not stated	
Alone with no support	308	12	108	103	2	6	539
Others with no support	10	503	5	657	22	9	1,206
Alone with support	5	2	310	16	2	3	338
Others with support	5	12	6	1,413	14	14	1,464
External support	0	0	1	8	89	2	100
Missing/Not stated*	1	3	0	6	2	1,945	1,957
<b>All episodes</b>	<b>329</b>	<b>532</b>	<b>430</b>	<b>2,203</b>	<b>131</b>	<b>1,979</b>	<b>5,604</b>
Alone with no support	57.8%	2.3%	20.3%	19.3%	0.4%		100.0%
Others with no support	0.8%	42.0%	0.4%	54.9%	1.8%		100.0%
Alone with support	1.5%	0.6%	92.5%	4.8%	0.6%		100.0%
Others with support	0.3%	0.8%	0.4%	97.4%	1.0%		100.0%
External support	0.0%	0.0%	1.0%	8.2%	90.8%		100.0%
<b>All episodes</b>	<b>9.1%</b>	<b>14.7%</b>	<b>11.9%</b>	<b>60.8%</b>	<b>3.6%</b>		<b>100.0%</b>


This table shows the change in level of support for patients living in private residence prior to admission to the ambulatory rehabilitation program. For all patients who lived without support prior, 50% required increased support during the episode. The table also shows that for patients already receiving support prior to commencing ambulatory rehabilitation there was little change in their support needs and in some cases is reported as having decreased.

\*Missing/not stated data: the large volume has resulted from the changes to the data items in the Version 4 data collection. This data item has been replaced by two items. Refer to Slides 10 and 11 for further detail.

# Accommodation and level of support at episode end

<b>Accommodation and level of support</b>	<b>No.</b>	<b>%</b>
Private residence	5,206	98.3%
<i>Alone with no support</i>	412	11.5%
<i>Others with no support</i>	1,074	30.0%
<i>Alone with support</i>	403	11.3%
<i>Others with support</i>	1,586	44.3%
<i>External support</i>	103	2.9%
<i>Missing/Not Stated*</i>	1,628	
Residential Aged Care (Low Level Care)	28	0.5%
Residential Aged Care (High Level Care)	13	0.2%
Community Group Home	6	0.1%
Boarding House	2	0.0%
Transitional	5	0.1%
Other	36	0.7%
Missing	464	
<b>All episodes</b>	<b>5,760</b>	<b>100.0%</b>

# Change in accommodation/level of support between episode begin/end

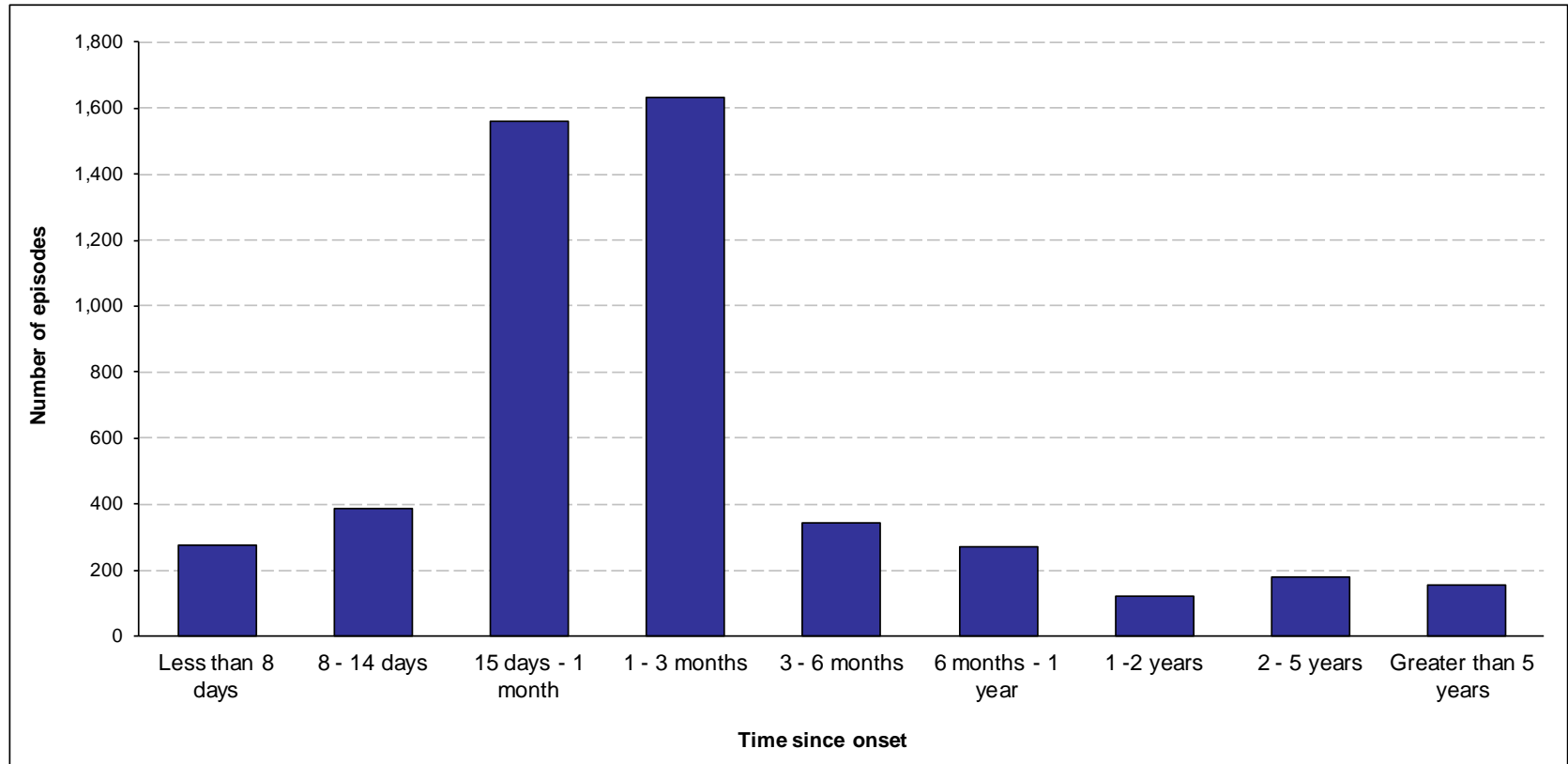


Private residence on admission only

Support Prior	Discharge destination									
	Private Residence				External support	Other	Missing/ Not stated	Non-Private residence	Missing/ Not stated	All episodes
	Alone with no support	Others with no support	Alone with support	Others with support						
Alone with no support	354	34	94	40	2	2	4	5	4	539
Others with no support	21	870	10	272	13	0	4	7	9	1,206
Alone with support	23	4	280	7	2	2	0	18	2	338
Others with support	6	156	10	1,243	13	2	0	22	12	1,464
External support	5	5	4	13	71	0	0	2	0	100
Other	0	0	0	0	0	1	0	0	0	1
Missing/Not stated	0	2	2	7	1	0	1,612	5	327	1,956
<b>All episodes</b>	<b>409</b>	<b>1,071</b>	<b>400</b>	<b>1,582</b>	<b>102</b>	<b>7</b>	<b>1,620</b>	<b>59</b>	<b>354</b>	<b>5,604</b>
Alone with no support	66.2%	6.4%	17.6%	7.5%	0.4%	0.4%	0.7%	0.9%		100.0%
Others with no support	1.8%	72.7%	0.8%	22.7%	1.1%	0.0%	0.3%	0.6%		100.0%
Alone with support	6.8%	1.2%	83.3%	2.1%	0.6%	0.6%	0.0%	5.4%		100.0%
Others with support	0.4%	10.7%	0.7%	85.6%	0.9%	0.1%	0.0%	1.5%		100.0%
External support	5.0%	5.0%	4.0%	13.0%	71.0%	0.0%	0.0%	2.0%		100.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%		100.0%
Missing/Not stated										
<b>All episodes</b>	<b>7.8%</b>	<b>20.4%</b>	<b>7.6%</b>	<b>30.1%</b>	<b>1.9%</b>	<b>0.1%</b>	<b>30.9%</b>	<b>1.1%</b>		<b>100.0%</b>

The change in level of support and accommodation at episode end is consistent with what was reported during the episode. Less than 2% of episodes ended with a change of residence. For all patients who lived without support prior, approximately 16% required increased support at the end of the episode. Some patients who required support prior to the episode needed less support following ambulatory rehabilitation.

# Time since onset of impairment



# Time since onset

<b>Onset Time</b>	<b>No.</b>	<b>%</b>
Less than 8 days	273	5.6%
8 - 14 days	388	7.9%
15 days - 1 month	1,560	31.7%
1 - 3 months	1,632	33.2%
3 - 6 months	345	7.0%
6 months - 1 year	270	5.5%
1 -2 years	119	2.4%
2 - 5 years	177	3.6%
Greater than 5 years	153	3.1%
Missing/unknown	843	
<b>Total</b>	<b>5,760</b>	<b>100.0%</b>

Around 80% of all episodes in this dataset commenced an ambulatory rehabilitation program within 3 months of impairment onset. 65% were within the 15 days to 3 month range.

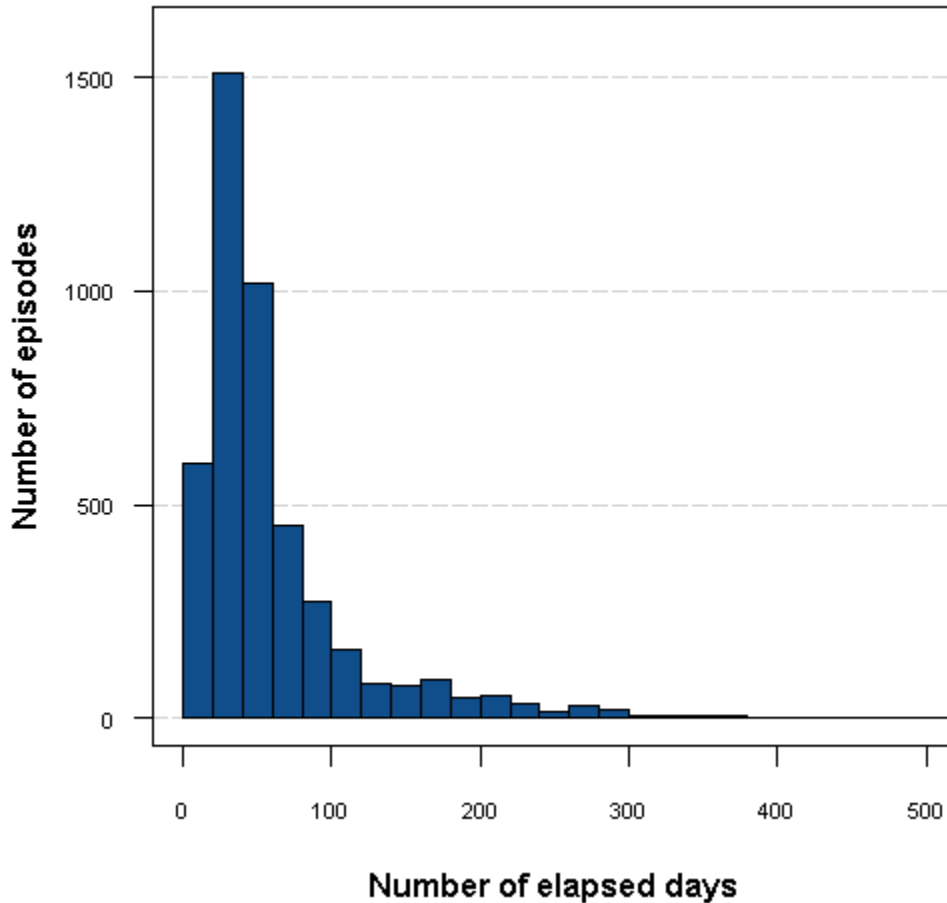


# Completed episodes by impairment

<b>Impairment</b>	<b>Total Episodes</b>	<b>Complete</b>	<b>Incomplete</b>	<b>% Complete</b>
Stroke	398	348	50	87.4%
Brain	108	96	12	88.9%
Neurological	253	221	32	87.4%
Spinal Cord	30	27	3	90.0%
Amputee	45	33	12	73.3%
Arthritis	79	71	8	89.9%
Pain	298	268	30	89.9%
Orthopaedic Fracture	335	294	41	87.8%
Post Orthopaedic Surgery	3,098	2,809	289	90.7%
Orthopaedic Other	146	120	26	82.2%
Orthopaedic Unspecified	25	20	5	80.0%
Cardiac	53	46	7	86.8%
Pulmonary	19	17	2	89.5%
Burns	1	1	0	100.0%
Congenital Deformities	2	2	0	100.0%
Other Disabling Imp.	191	182	9	95.3%
Multiple Trauma	6	6	0	100.0%
Developmental Disabilities	1	1	0	100.0%
Reconditioning	590	523	67	88.6%
Missing	82	64	18	78.0%
<b>All impairments</b>	<b>5,760</b>	<b>5,149</b>	<b>611</b>	<b>89.4%</b>

A completed episode is one with a mode of episode end of discharge/case closure.

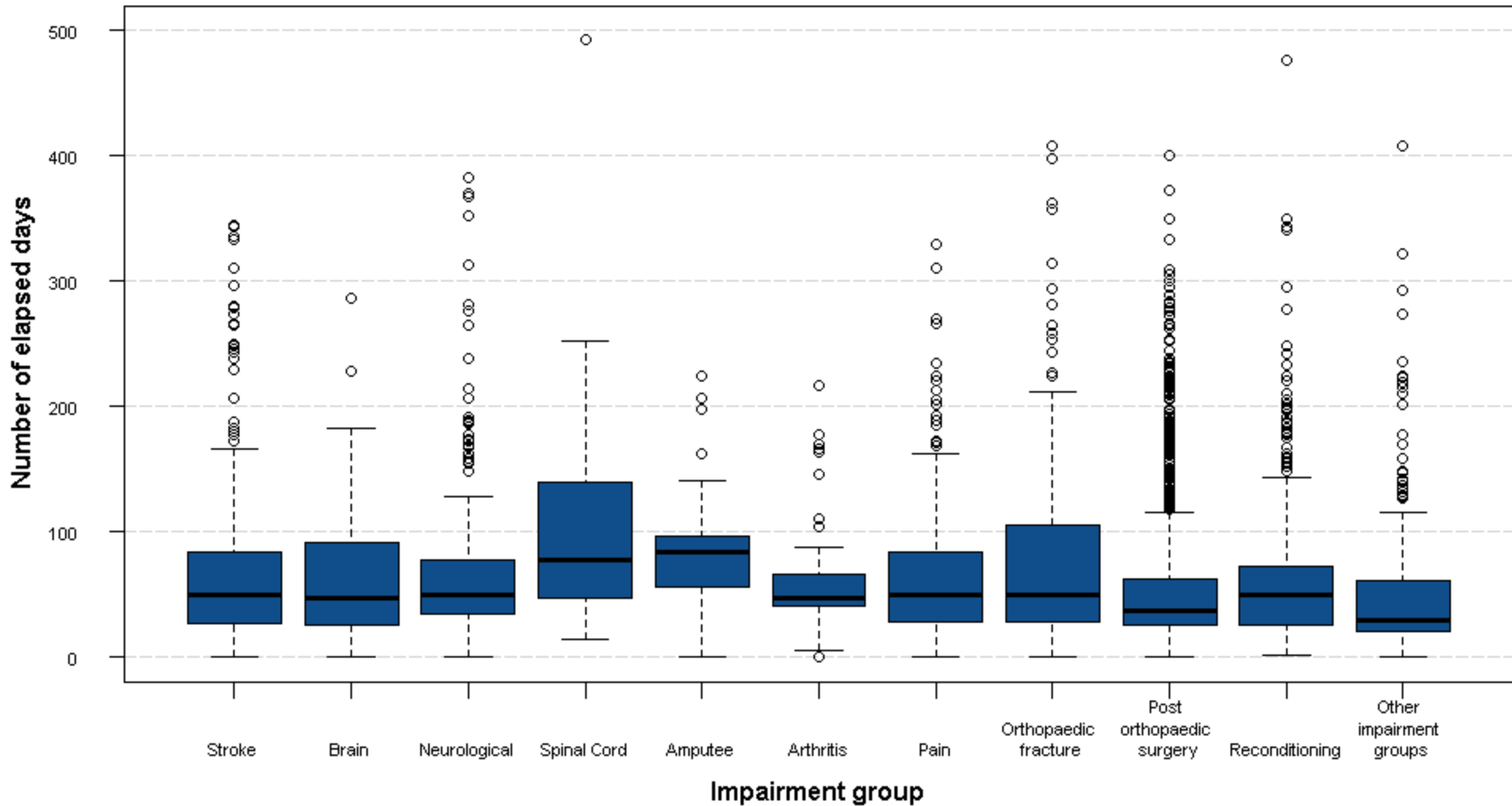
# Elapsed days



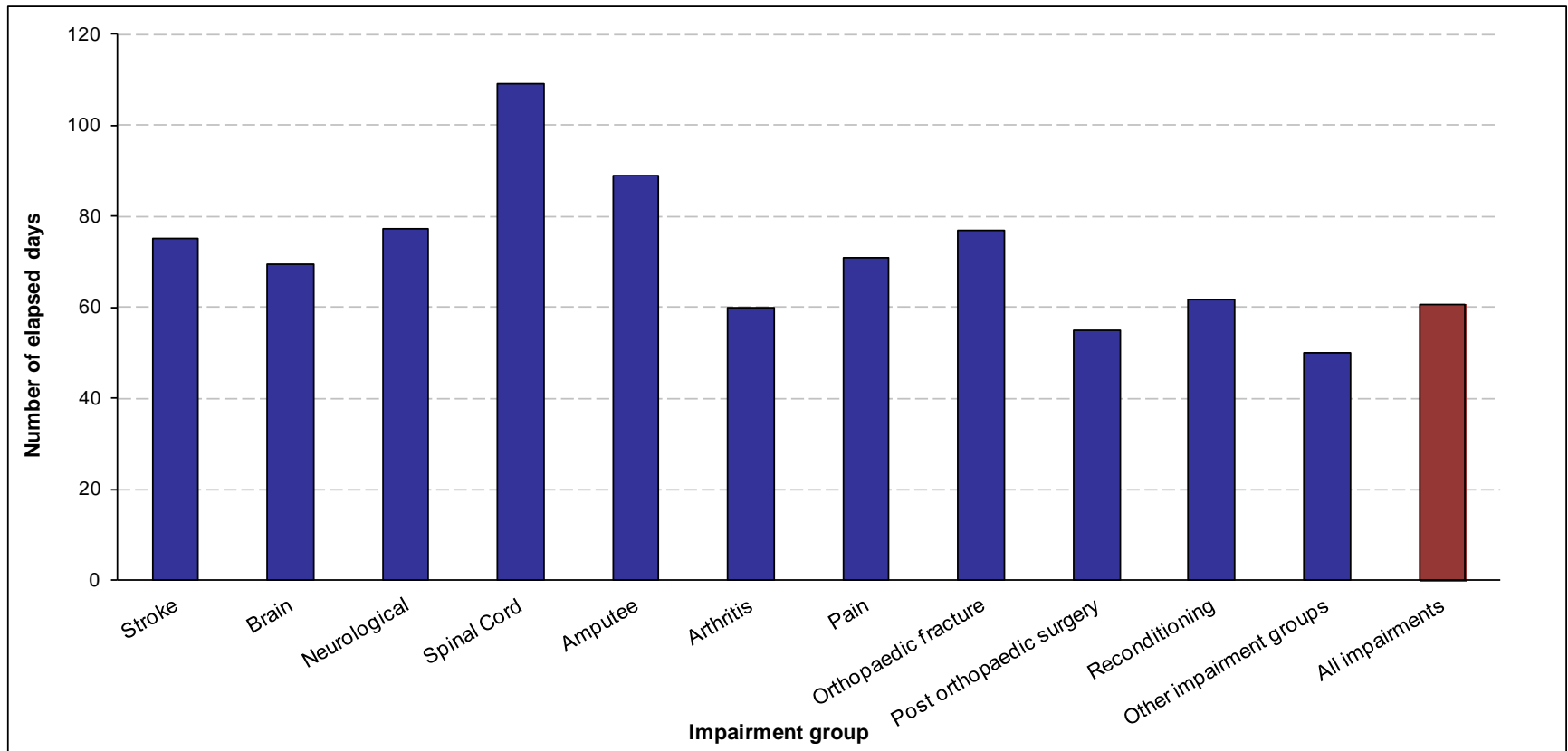
Impairment	Valid episodes	Mean days elapsed	(95% CI)
Stroke	319	75.0	(65.5 - 84.4)
Brain	86	69.4	(53.5 - 85.2)
Neurological	189	77.4	(64.1 - 90.7)
Spinal Cord	24	109.2	(67.7 - 150.6)
Amputee	29	89.1	(69.3 - 108.9)
Arthritis	64	60.1	(49.5 - 70.6)
Pain	228	70.7	(60.4 - 81.1)
Orthopaedic fracture	261	76.8	(68.2 - 85.5)
Post orthopaedic surgery	2,429	54.9	(52.8 - 57)
Reconditioning	483	61.6	(56.6 - 66.5)
Other impairment groups	321	49.9	(43.9 - 55.8)
Missing	59		
<b>All impairments</b>	<b>4,492</b>	<b>60.8</b>	<b>(58.9 - 62.6)</b>

Elapsed days means the total number of days from program start to finish.

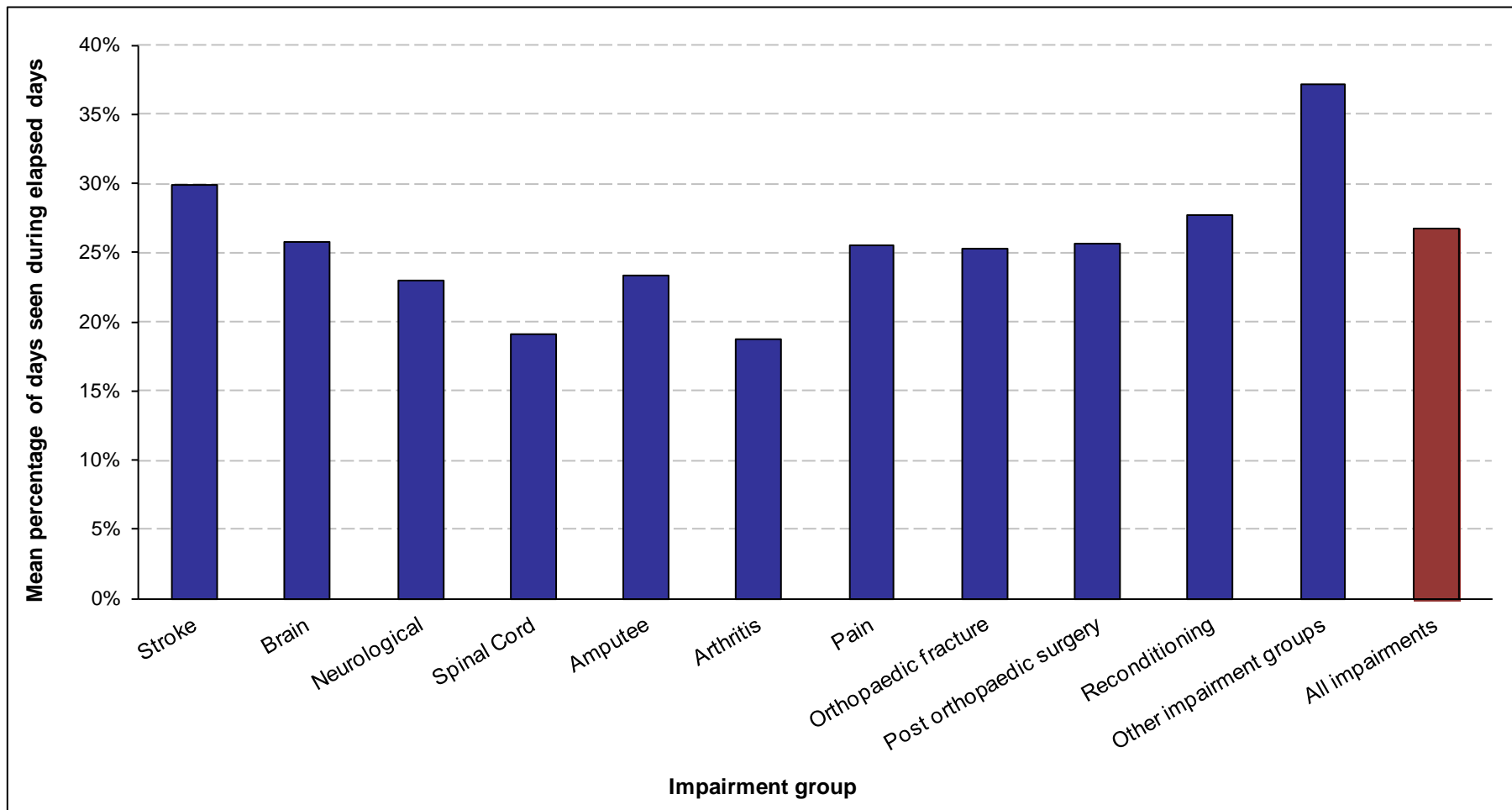
# Elapsed days by impairment



# Average elapsed days by impairment



# Days seen as a proportion of elapsed days by impairment group



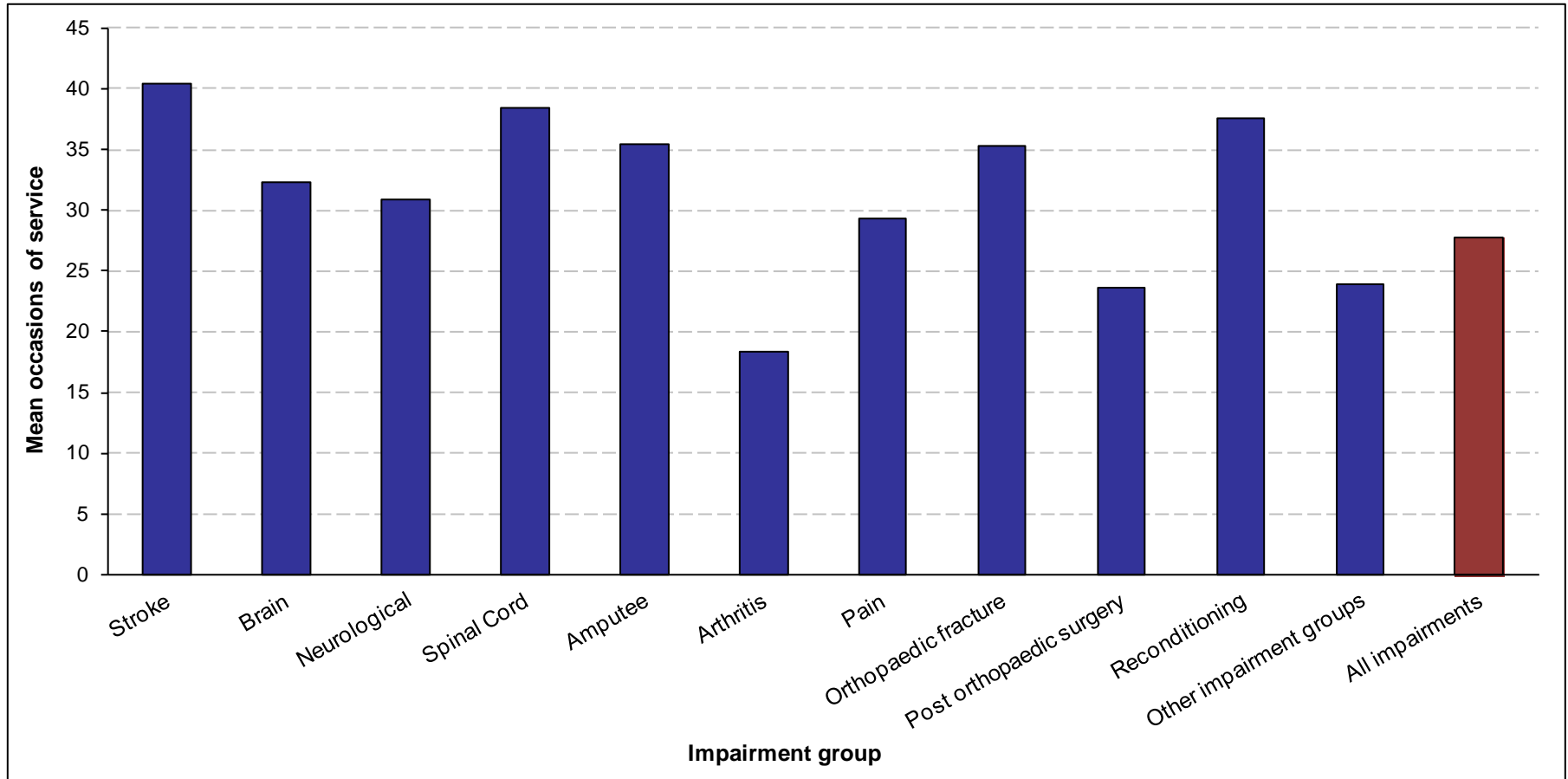
Note: "Other impairment groups" includes data for cardiac, pulmonary, burns and other impairments. Refer to Slides 15 and 16 for full impairment list.

# Days seen as a proportion of elapsed days by impairment group

<b>Impairment</b>	<b>Mean % of days seen during</b>
Stroke	29.9%
Brain	25.8%
Neurological	23.0%
Spinal Cord	19.2%
Amputee	23.4%
Arthritis	18.8%
Pain	25.5%
Orthopaedic fracture	25.4%
Post orthopaedic surgery	25.6%
Reconditioning	27.7%
Other impairment groups	37.2%
<b>All impairments</b>	<b>26.7%</b>

This table describes as a percentage, average days seen during average episode elapsed days, by impairment group. For example, from the data received, patients in the stroke and reconditioning groups are on average seen more frequently during an episode than those in the pain group.

# Total average occasions of service (OOS) by impairment



Note: "Other impairment groups" includes data for cardiac, pulmonary, burns and other impairments. Refer to Slides 15 and 16 for full impairment list.

# Total average occasions of service (OOS) by impairment

<b>Impairment</b>	<b>Mean OOS</b>	<b>(95% CI)</b>
Stroke	40.4	(36.3 - 44.6)
Brain	32.3	(25.6 - 38.9)
Neurological	30.9	(26.9 - 34.9)
Spinal Cord	38.4	(25.4 - 51.3)
Amputee	35.4	(23.3 - 47.5)
Arthritis	18.3	(15.5 - 21.1)
Pain	29.3	(25.3 - 33.2)
Orthopaedic fracture	35.3	(30.5 - 40.1)
Post orthopaedic surgery	23.7	(22.7 - 24.6)
Reconditioning	37.5	(34.9 - 40.2)
Other impairment groups	23.9	(21.8 - 26)
<b>All impairments</b>	<b>27.7</b>	<b>(26.9 - 28.5)</b>

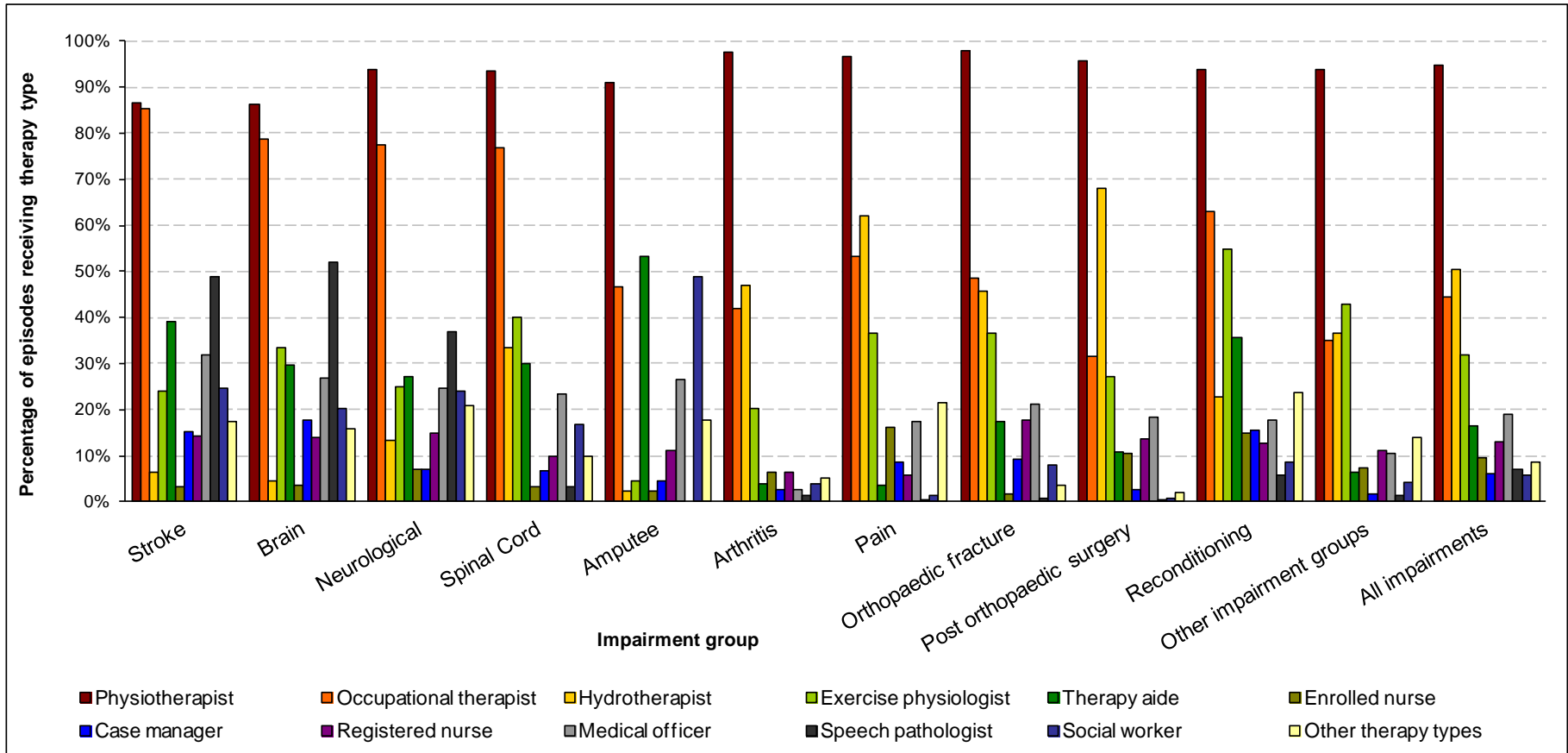


# Average OOS per day by impairment and episode type

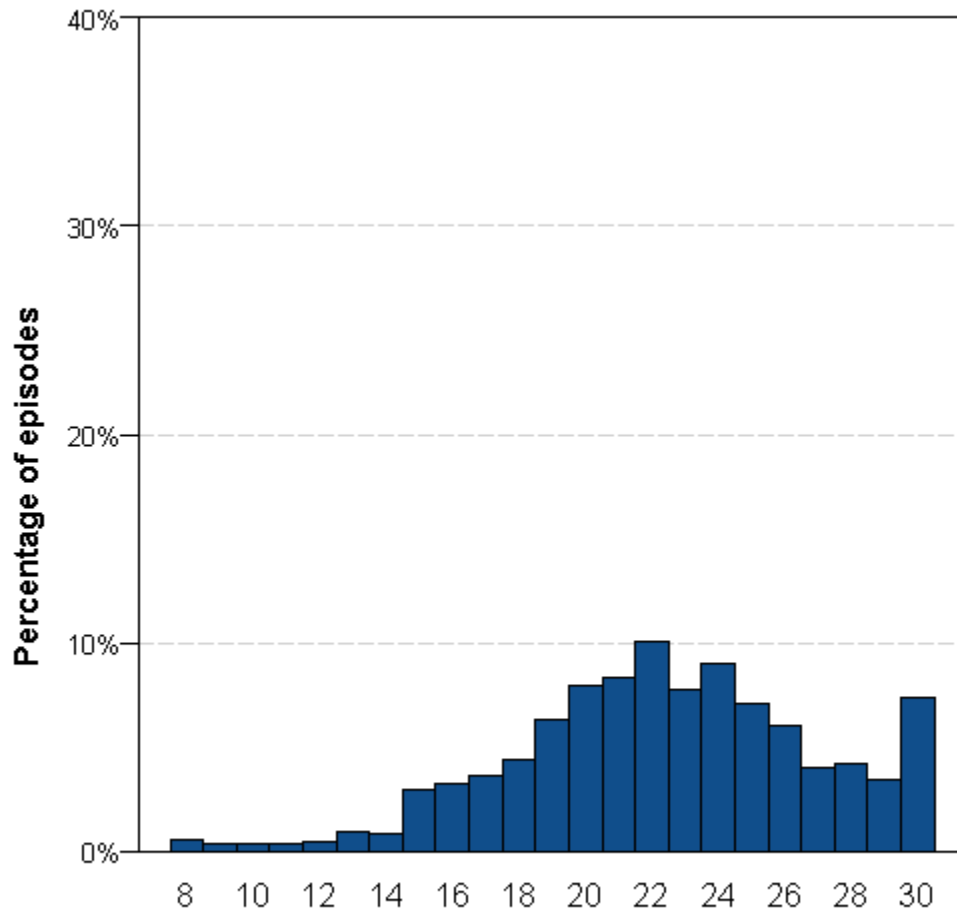
Impairment Group	Episode Type			
	Same Day Admitted	Outpatient	Community Patient	All Episodes
Stroke	3.40	1.64	3.28	3.00
Brain	3.33	1.77	3.00	2.91
Neurological	3.85	1.77	2.29	2.75
Spinal Cord	3.14	2.58	1.97	2.72
Amputee	3.19	1.30	1.51	1.65
Arthritis	2.49	1.86	NA	2.04
Pain	2.66	2.54	NA	2.57
Orthopaedic fracture	2.51	2.55	2.71	2.57
Post orthopaedic surgery	2.36	2.17	2.65	2.32
Reconditioning	3.59	1.92	3.44	3.36
Other impairment groups	2.27	1.98	1.16	2.13
<b>All Impairments</b>	<b>2.62</b>	<b>2.15</b>	<b>2.78</b>	<b>2.52</b>

It appears that community patients, on average, receive slightly more OOS per day than same day admitted patients who receive more than outpatients.

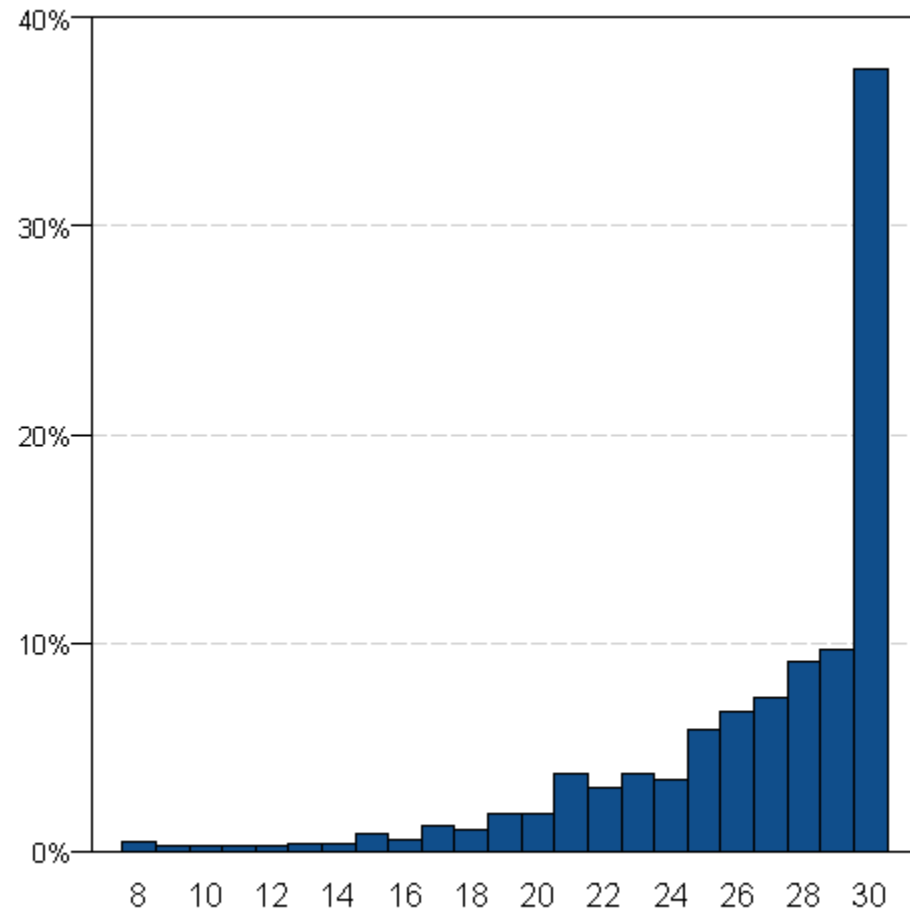
# Therapy type by impairment



# Distribution of beginning and end total Lawton's score

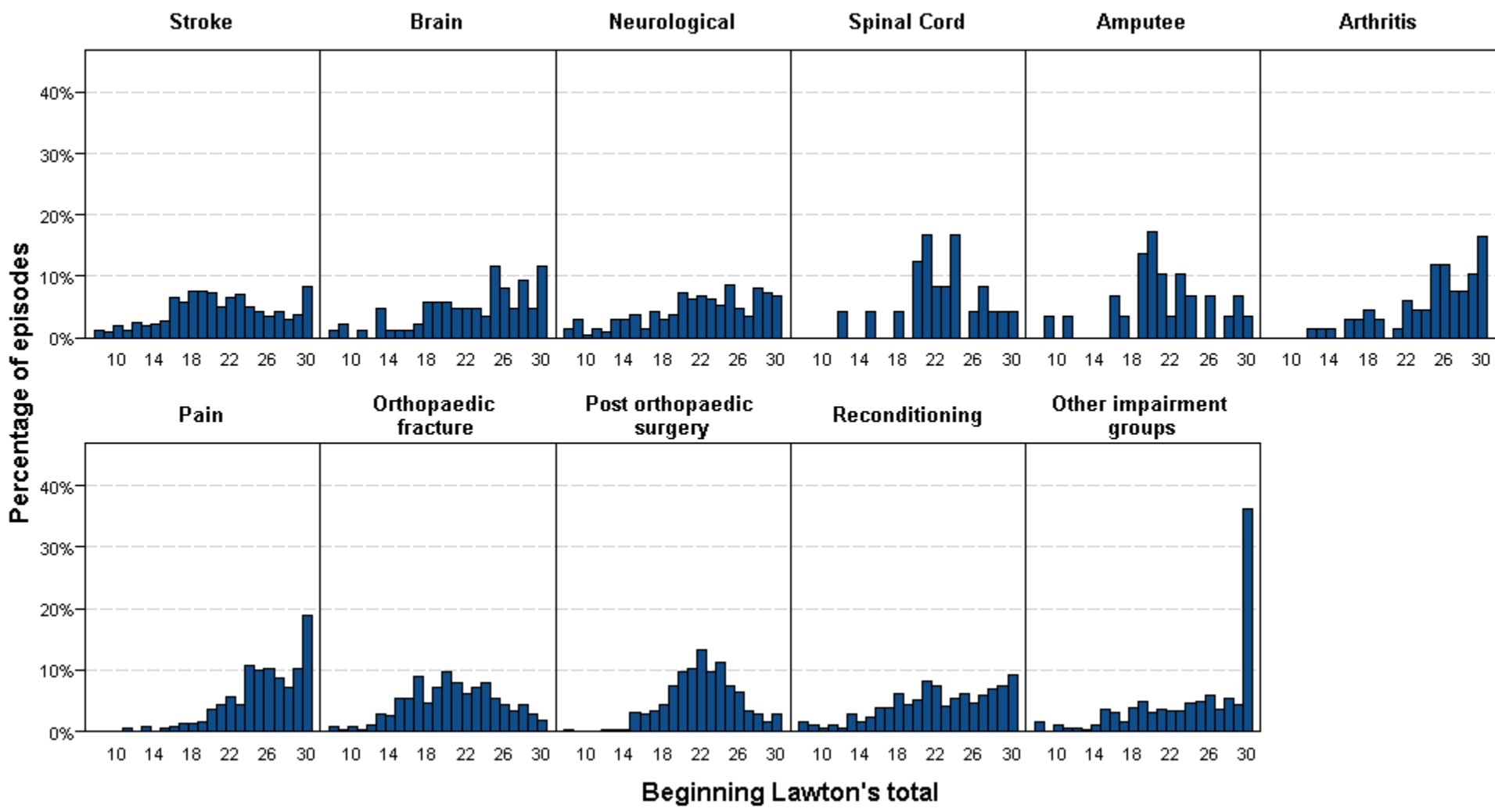


**Beginning Lawton's total**

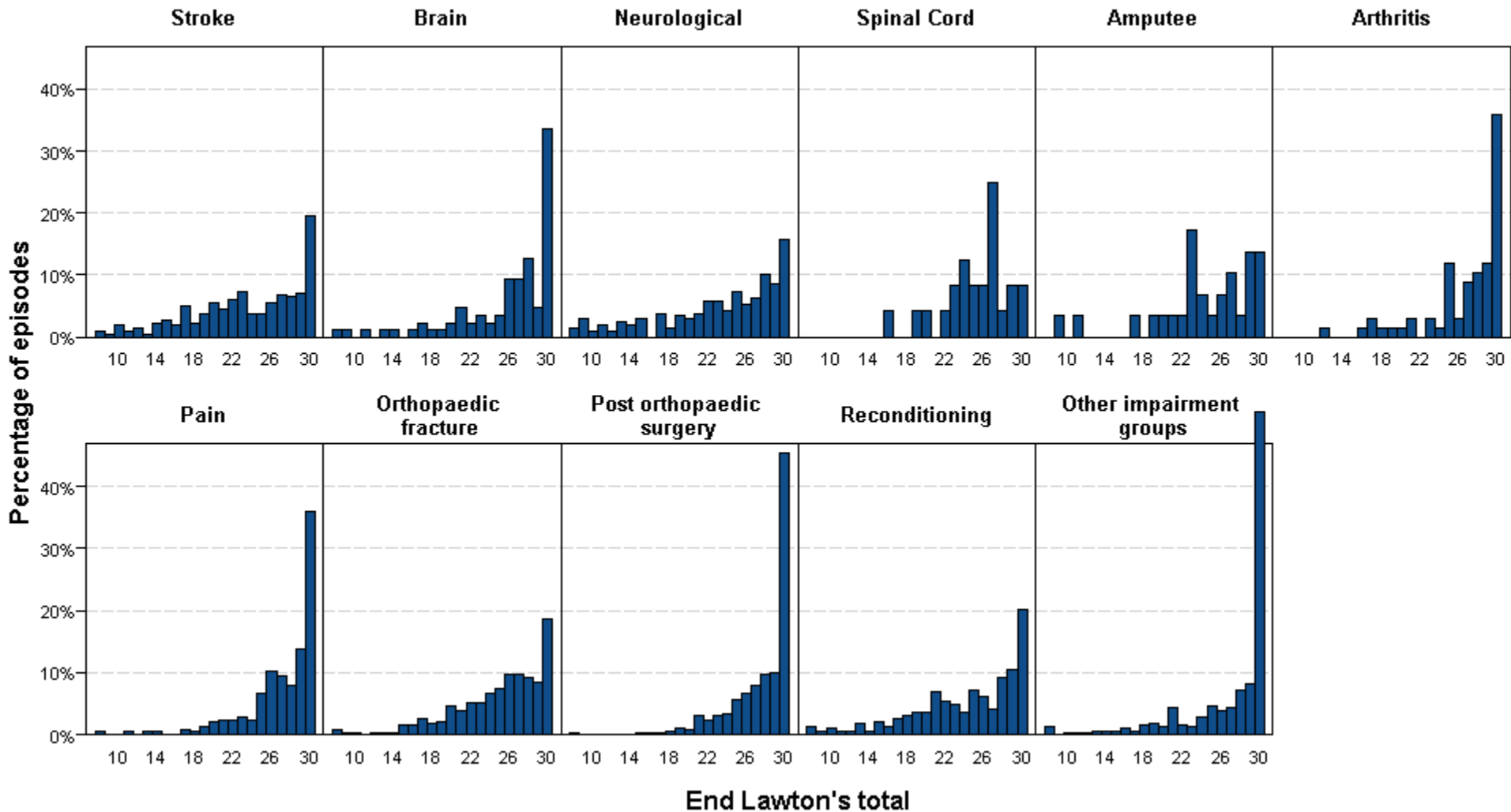


**End Lawton's total**

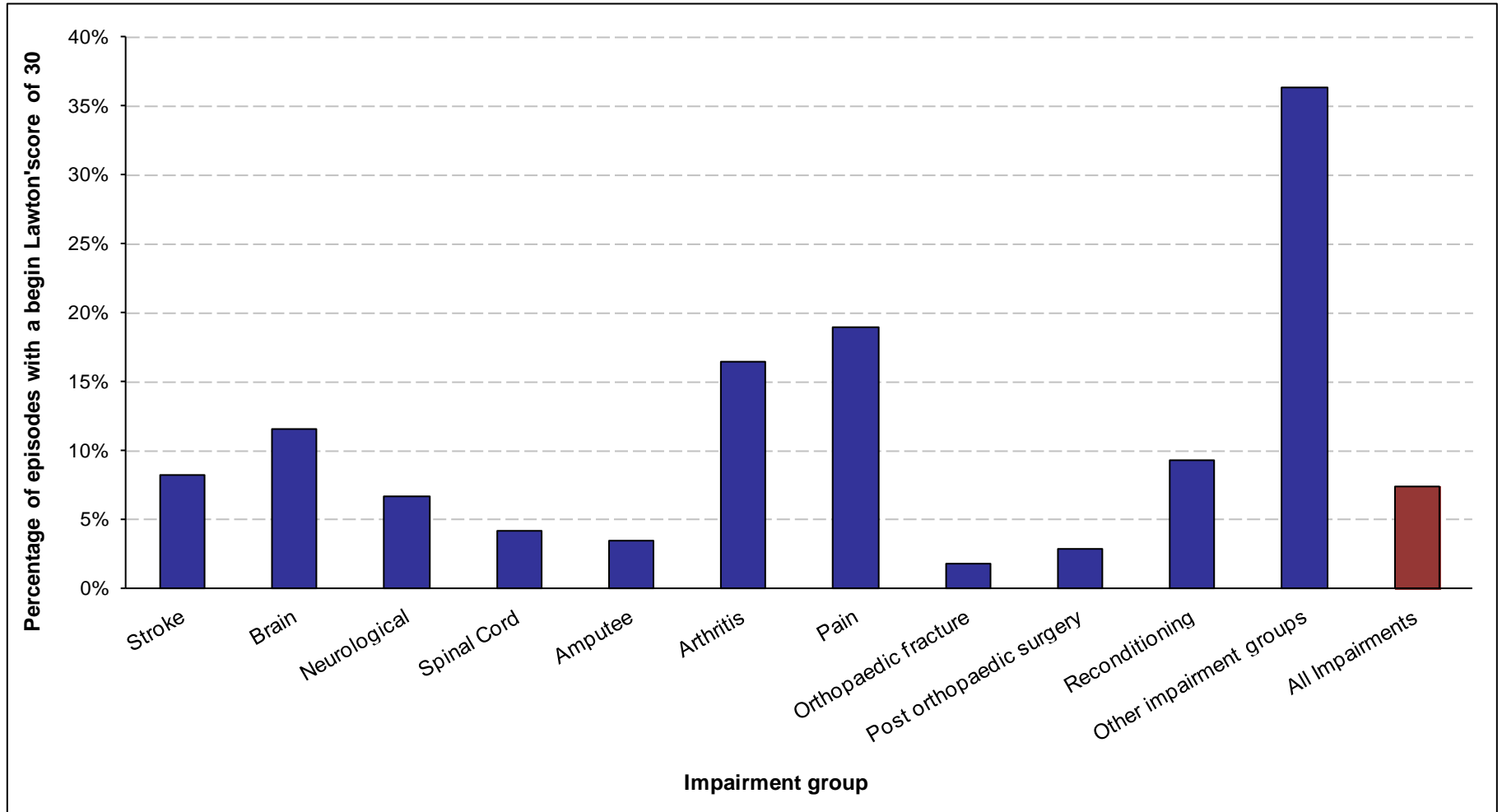
# Beginning total Lawton's score by impairment



# End total Lawton's score by impairment

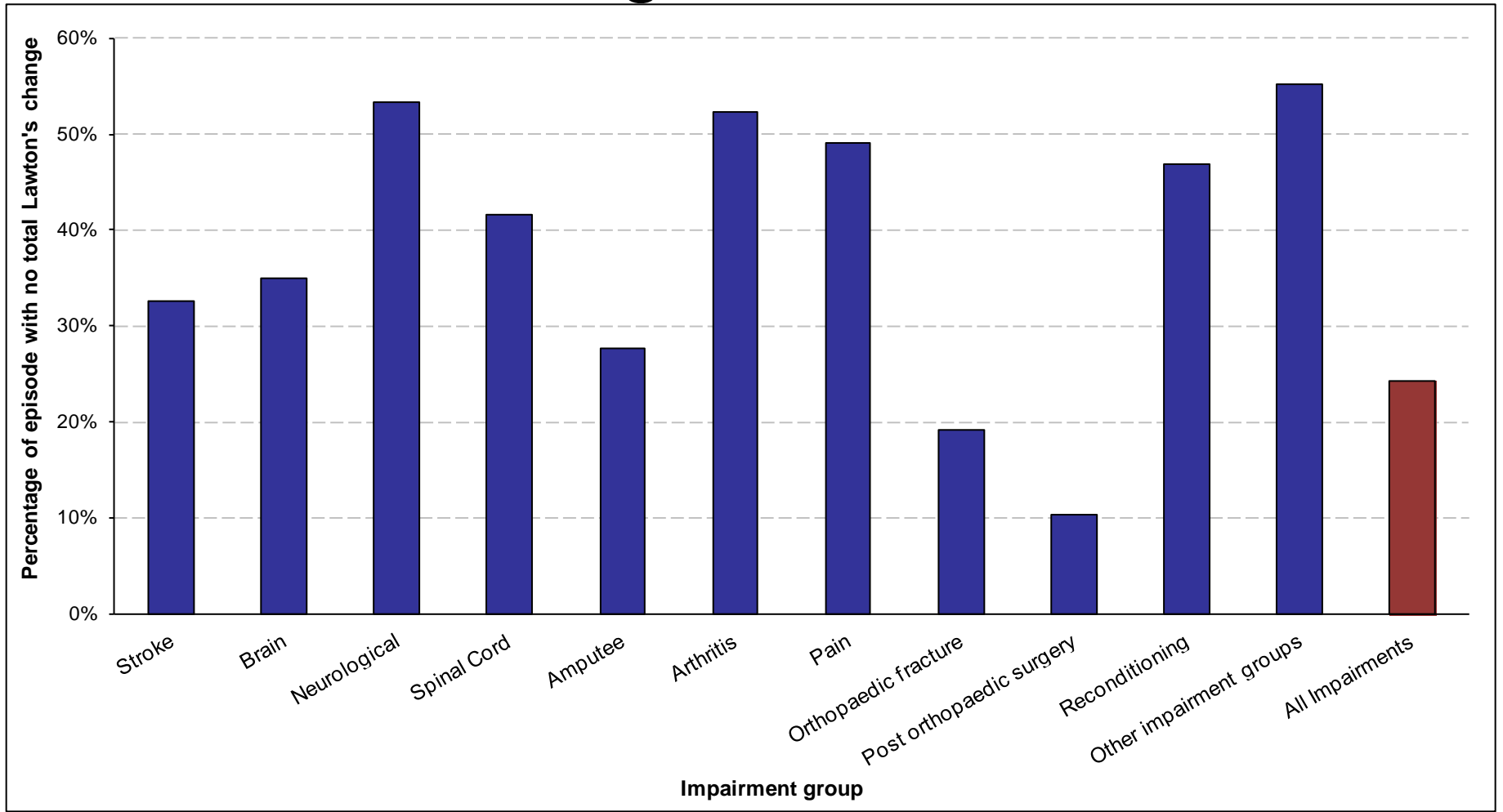


# Proportion of episodes beginning with maximum Lawton's score of 30



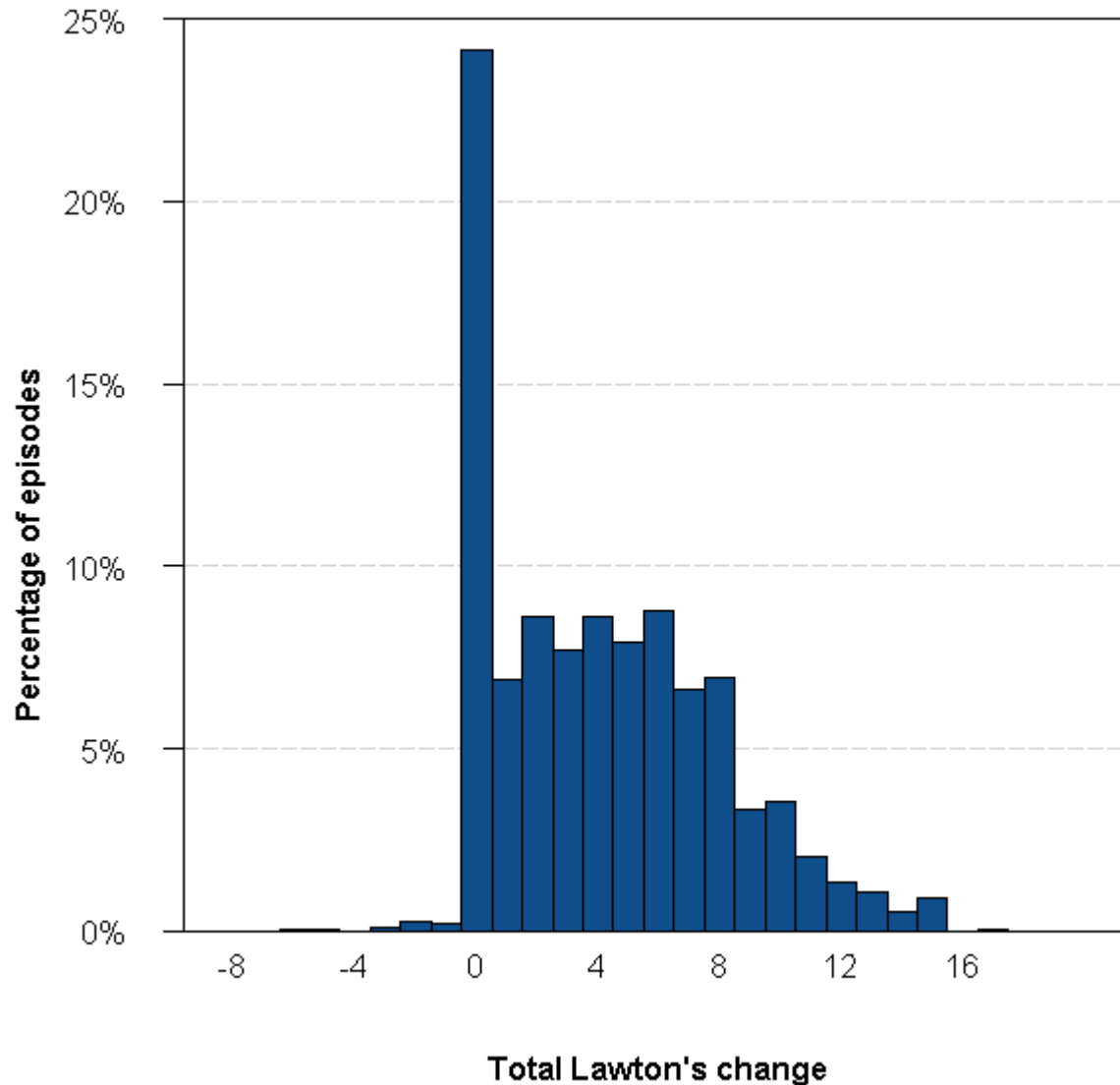
Note: "Other impairment groups" includes data for cardiac, pulmonary, burns and other impairments. Refer to Slides 15 and 16 for full impairment list.

# Proportion of episodes with no Lawton's change



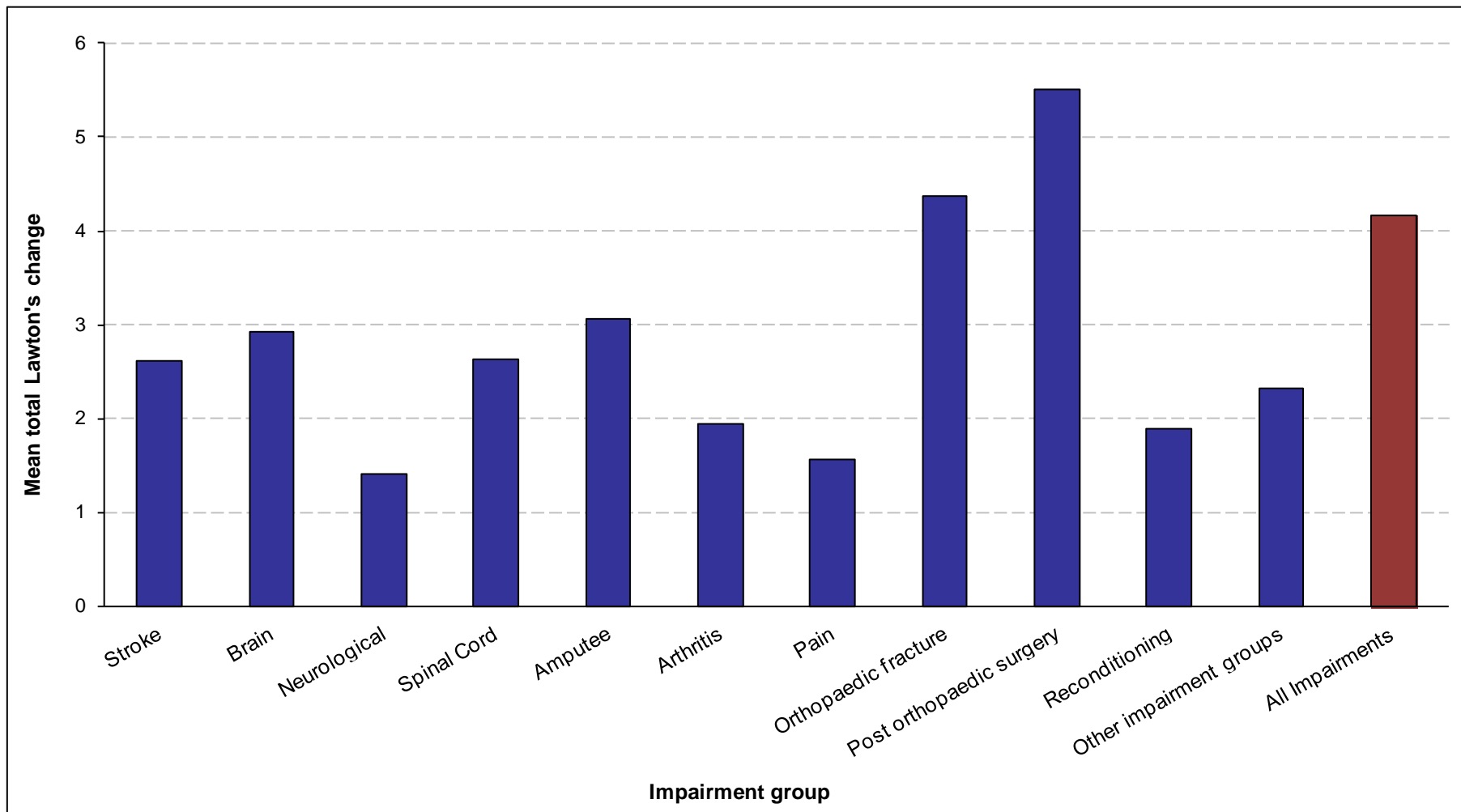
Note: "Other impairment groups" includes data for cardiac, pulmonary, burns and other impairments. Refer to Slides 15 and 16 for full impairment list.

# Distribution of Lawton's score change

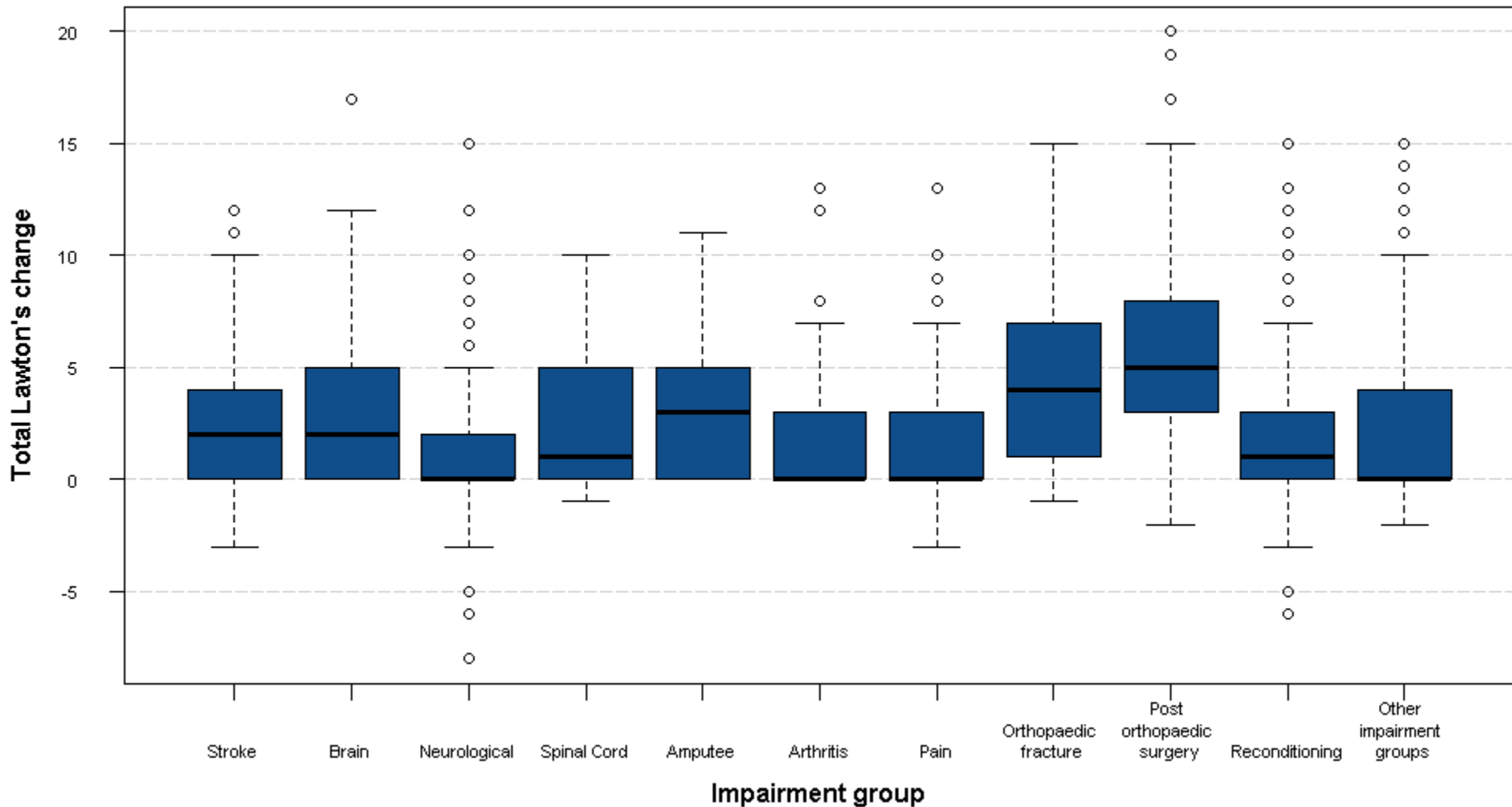




# Mean Lawton's score change by impairment



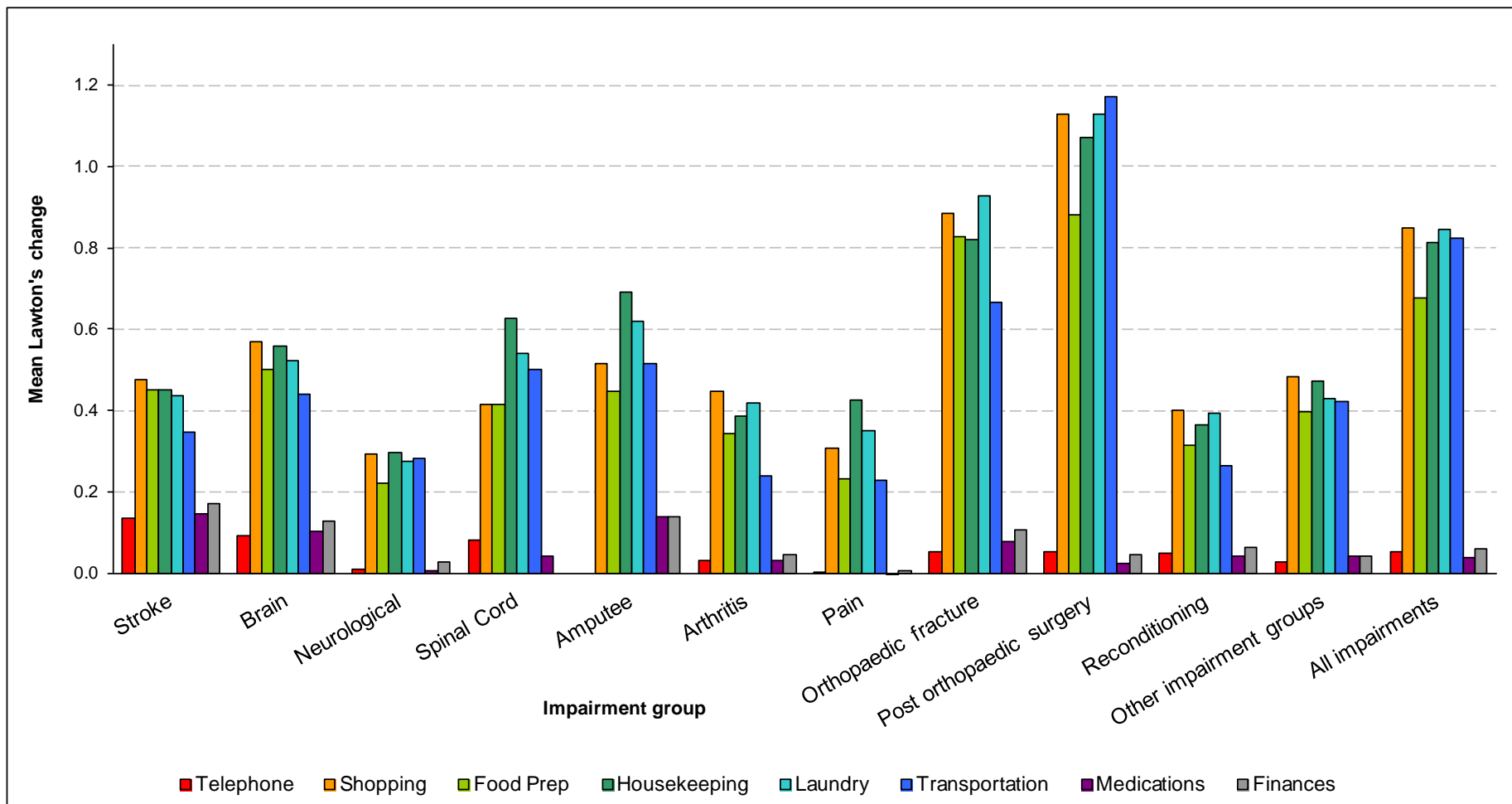
# Lawton's score change by impairment



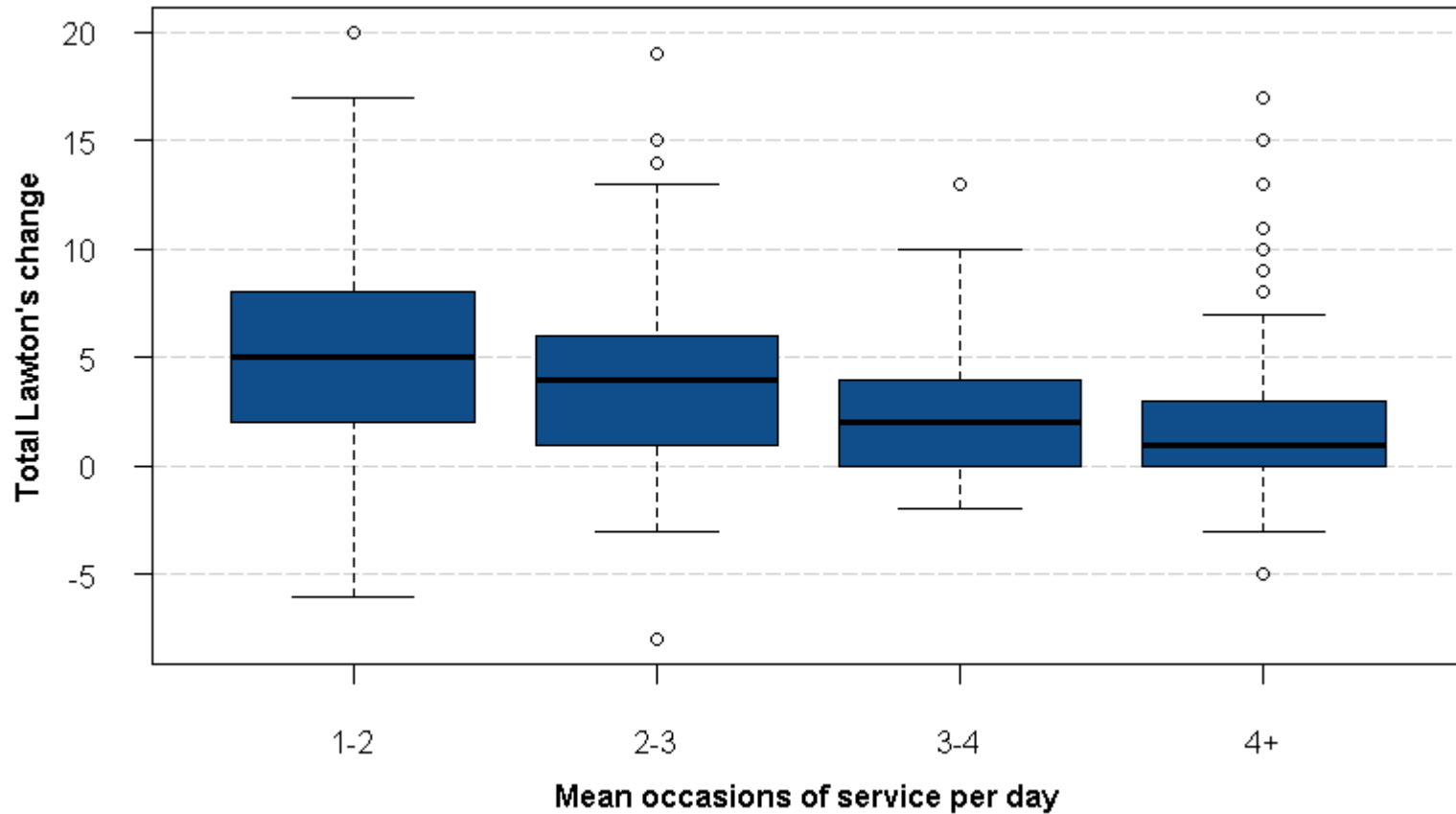
# Mean Lawton's score change by impairment

Impairment group	Mean total Lawton's score change	(95% CI)
Stroke	2.6	(2.3 - 2.9)
Brain	2.9	(2.2 - 3.7)
Neurological	1.4	(1 - 1.8)
Spinal Cord	2.6	(1.3 - 3.9)
Amputee	3.1	(2 - 4.2)
Arthritis	1.9	(1.3 - 2.6)
Pain	1.6	(1.2 - 1.9)
Orthopaedic fracture	4.4	(3.9 - 4.8)
Post orthopaedic surgery	5.5	(5.4 - 5.6)
Reconditioning	1.9	(1.6 - 2.2)
Other impairment groups	2.3	(1.9 - 2.7)
<b>All Impairments</b>	<b>4.2</b>	<b>(4 - 4.3)</b>

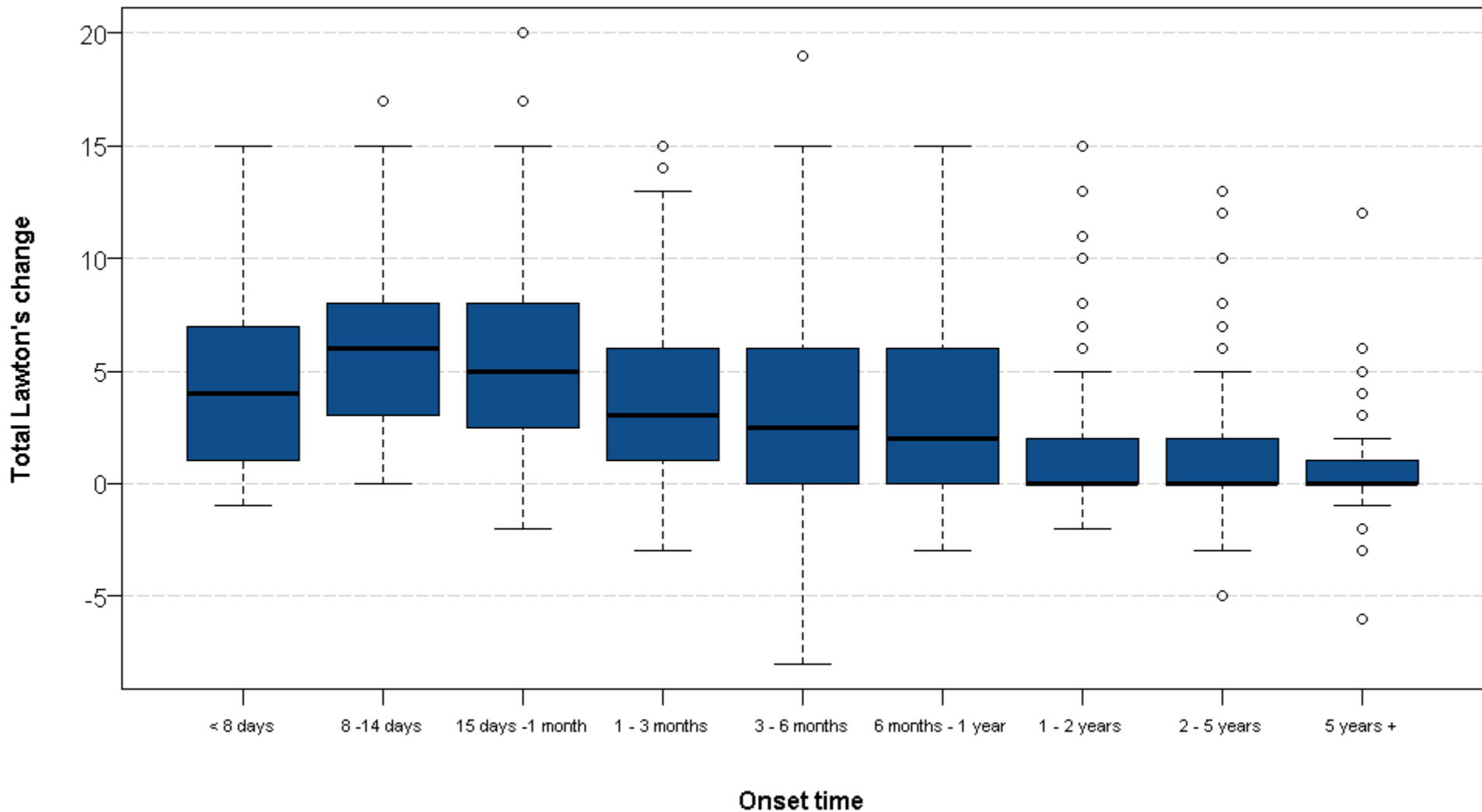
# Change in Lawton's item score by impairment



# Magnitude of Lawton's score change by occasions of service per day



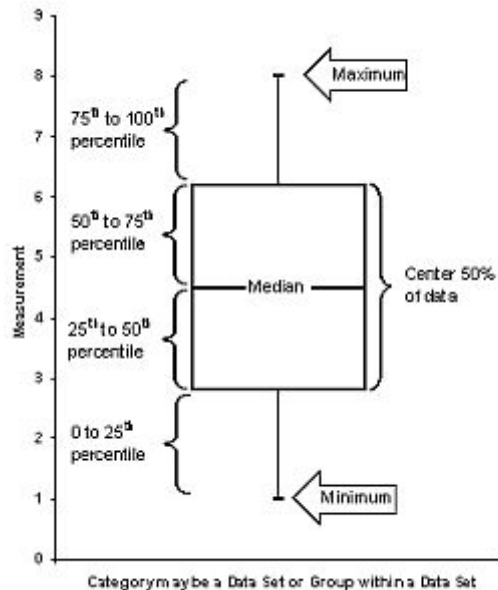
# Lawton's score change by onset time



# Appendix A: Interpreting box plots

## Box Plots

Box plots, or box-and-whisker plots, provide insight into the distribution of observations within a data set by dividing it into four sections. The box indicates the spread of the central 50% of the data; the median is denoted by a horizontal line through the box. The portion of the box above the median line denotes the 50th-75th percentile range. Likewise, the portion of the box below the median denotes the 25th-50th percentile range. If all data lie within 1.5 times the interquartile range (75th percentile minus the 25th percentile) from either end of the central box, the whiskers represent the full range of the data. If not, the whiskers extend to 1.5 times the interquartile range and more extreme data are plotted as points.



# Appendix B– AROC impairment codes V2

## STROKE

- 1.1 Left body involvement (right brain)
- 1.2 Right body involvement (left brain)
- 1.3 Bilateral involvement
- 1.4 No paresis
- 1.9 Other stroke

## BRAIN DYSFUNCTION

### *Non-Traumatic:*

- 2.11 Sub-arachnoid haemorrhage
- 2.12 Anoxic brain damage
- 2.13 Other non-traumatic brain dysfunction

### *Traumatic:*

- 2.21 Open injury
- 2.22 Closed injury

## NEUROLOGICAL CONDITIONS

- 3.1 Multiple sclerosis
- 3.2 Parkinsonism
- 3.3 Polyneuropathy
- 3.4 Guillian-Barre
- 3.5 Cerebral palsy
- 3.8 Neuromuscular disorders  
(include motor neurone disease)
- 3.9 Other neurologic disorders

## SPINAL CORD DYSFUNCTION

### *Non-Traumatic:*

- 4.111 Paraplegia, incomplete
- 4.112 Paraplegia, complete
- 4.1211 Quadriplegia incomplete C1-4
- 4.1212 Quadriplegia incomplete C5-8
- 4.1221 Quadriplegia complete C1-4
- 4.1222 Quadriplegia complete C5-8
- 4.13 Other non-traumatic SCI

### *Traumatic:*

- 4.211 Paraplegia, incomplete
- 4.212 Paraplegia, complete
- 4.2211 Quadriplegia incomplete C1-4
- 4.2212 Quadriplegia incomplete C5-8
- 4.2221 Quadriplegia complete C1-4
- 4.2222 Quadriplegia complete C5-8
- 4.23 Other traumatic SCI

## AMPUTATION OF LIMB

- 5.1 Single upper amputation above the elbow
- 5.2 Single upper amputation below the elbow
- 5.3 Single lower amputation above the knee  
(includes through the knee)
- 5.4 Single lower amputation below the knee
- 5.5 Double lower amputation above the knee  
(includes through the knee)
- 5.6 Double lower amputation above/below the knee
- 5.7 Double lower amputation below the knee
- 5.8 Partial foot amputation (includes single/double)
- 5.9 Other Amputation

## ARTHRITIS

- 6.1 Rheumatoid Arthritis
- 6.2 Osteoarthritis
- 6.9 Other Arthritis



# AROC impairment codes V2....continued

## PAIN SYNDROMES

- 7.1 Neck pain
- 7.2 Back pain
- 7.3 Extremity pain
- 7.4 Headache (includes migraine)
- 7.5 Multi-site pain
- 7.9 Other pain (includes abdominal/chest wall)

## ORTHOPAEDIC CONDITIONS

*Fracture: (includes dislocation, excludes neurological involvement)*

- 8.111 Fracture of hip, unilateral (include #NOF)
- 8.112 Fracture of hip, bilateral (include #NOF)
- 8.12 Fracture of shaft of femur (excludes femur involving knee joint)
- 8.13 Fracture of pelvis
- 8.141 Fracture of knee (includes patella, femur involving knee joint, tibia or fibula involving knee joint)
- 8.142 Fracture of lower leg, ankle, foot
- 8.15 Fracture of upper limb (includes hand, fingers, wrist, forearm, arm shoulder)
- 8.16 Fracture of spine (excludes where the major disorder is pain)
- 8.17 Fracture of multiple sites (multiple bones of same lower limb, both lower limbs, lower with upper limb, lower limb with rib or sternum. Excludes with brain injury or with spinal cord injury)
- 8.19 Other orthopaedic fracture (includes jaw, face, rib, orbit or sites not elsewhere classified)

## ORTHOPAEDIC CONDITIONS cont'd

*Post orthopaedic surgery:*

- 8.211 Unilateral hip replacement
- 8.212 Bilateral hip replacement
- 8.221 Unilateral knee replacement
- 8.222 Bilateral knee replacement
- 8.231 Knee & hip replacement same side
- 8.232 Knee & hip replacement different sides
- 8.24 Shoulder replacement or repair
- 8.25 Post spinal surgery (includes nerve root injury, laminectomy, spinal fusion, discectomy. Excludes spinal cord injury or caudaequina)
- 8.26 Other orthopaedic surgery

# AROC impairment codes V2....continued

## CARDIAC

- 9.1 Following recent onset of new cardiac impairment (AMI, heart transplant, cardiac surgery)
- 9.2 Chronic cardiac insufficiency
- 9.3 Heart & heart/lung transplant

## PULMONARY

- 10.1 Chronic obstructive pulmonary disease
- 10.2 Lung transplant
- 10.9 Other pulmonary

## BURNS

- 11 Burns

## CONGENITAL DEFORMITIES

- 12.1 Spina Bifida
- 12.9 Other congenital deformities

## OTHER DISABLING IMPAIRMENTS

- 13.1 Lymphoedema
- 13.2 Other disabling impairments  
(cases that cannot be classified into a specific group.  
This classification should rarely be used)

## MAJOR MULTIPLE TRAUMA

- 14.1 Brain + spinal cord injury
- 14.2 Brain + multiple fracture/amputation
- 14.3 Spinal cord + multiple fracture/amputation
- 14.9 Other multiple trauma

## DEVELOPMENTAL DISABILITIES

- (includes patients who have significant intellectual disabilities, excludes cerebral palsy)
- 15.1 Developmental Disabilities

## RE-CONDITIONING/RESTORATIVE

- (excludes primary cardiac insufficiency & primary pulmonary insufficiency)
- 16.1 Re-conditioning following surgery
- 16.2 Re-conditioning following medical illness
- 16.3 Cancer rehab (where patient is de-conditioned as a result of their cancer or treatment for their cancer)

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  - Members of the Scientific and Clinical Advisory Committee of the Australasian Rehabilitation Outcomes Centre.
  - The many staff from the rehabilitation facilities who have spent a great deal of time and care to collect, collate and correct the data, without whose considerable effort these reports would not be possible.
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