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## **A national model for measuring and benchmarking rehabilitation outcomes: the Australian story**

Frances D. Simmonds

*University of Wollongong, [frances@uow.edu.au](mailto:frances@uow.edu.au)*

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# **A national model for measuring and benchmarking rehabilitation outcomes: the Australian story**

## **Abstract**

Powerpoint presentation presented at the 6th Beijing International Forum on Rehabilitation

## **Keywords**

rehabilitation, benchmarking, measuring, model, national, story, outcomes, australian

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# **A National Model for Measuring and Benchmarking Rehabilitation Outcomes: the Australian Story**

Frances Simmonds, AROC Director

**A**      **Australasian**  
**R**      **Rehabilitation**  
**O**      **Outcomes**  
**C**      **Centre**

A National Clinical Rehabilitation  
Registry

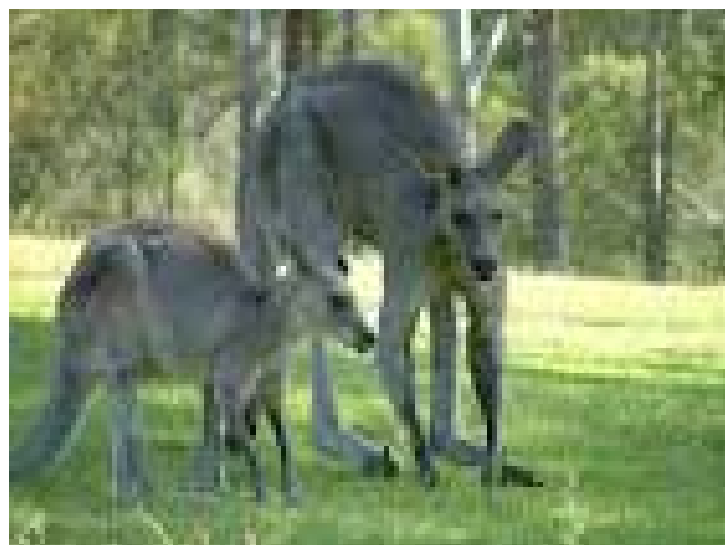
But first a bit about Australia



# Australia



- A young country:
  - New South Wales became a (penal) colony in 1788, followed progressively by the other Australian States.
  - Australia didn't become a country until 1901
- A sparse country
  - 22.7 million people, 7,682,300 square kilometres
    - China 1.4 billion people, 9,640,821 square kilometres
  - 3 people per square kilometre (China = 140)
- A rich country:
  - GDP per person: \$38,800 (2009 est.)
- A healthy country:
  - Life expectancy at birth: 81.8 years
    - male: 79.4 years, female: 84.4 years





# Wollongong

- Part of the Greater Sydney region
- Population of about 300,000
- 90 minutes by car or train from Sydney



# A bit about Wollongong



# Australian Health Services Research Centre (AHSRI)



- Based at Innovation Campus, University of Wollongong
- Established 1993
- Self-funded health services R&D centre
- 100+ R&D projects - mix of national, state and local projects
- 40 staff:
  - Most with practical experience working as clinicians and managers in the health sector
  - Multi-disciplinary - psychology, statistics, economics, public health, management, health planning, informatics, education, pharmacy and several others

# Rehabilitation Medicine



- Development as a medical specialty mostly in response to the needs of those injured in wartime, particularly following the Second World War
  - Development in Australia very rapid from the 1950s onwards
    - now one rehabilitation physician per 70,000 people
  - Has a role in:
    - Disability prevention
    - Community-based models that substitute for inpatient care or prevent the need for hospital care
    - Chronic disease management
    - Preventing or delaying long term residential care

# 4 target groups for rehabilitation



- Patients who cannot go home from hospital without a return of, or improvement in, function.
- Patients discharged after an acute admission requiring continuing care as an outpatient.
- People living with congenital or acquired disability or chronic illness with the goal of preventing the need for hospitalisation.
- People who are ageing and experiencing the functional losses associated with multiple chronic diseases.

# Rehabilitation population



- About 20% of Australians have a disability and 6% of the population has a profound or severe activity limitation.
- An increasing percentage of older people live alone - the ability to live in the community is often more dependent on functional independence than on medical factors

# Specialist rehabilitation services



- The number of specialist rehabilitation services in Australia has grown rapidly over the last 20 years.
- Key features of a Specialist Rehabilitation Medicine Service
  1. Rehabilitation physician directs each patient's care
  2. Clear admission criteria
  3. Rehabilitation program is goal directed
  4. Multi-disciplinary
  5. Time limited
  6. Assessment of function

“Acute care saves  
lives....

Rehabilitation makes the  
saved life worth living.”

**The Australian National Rehabilitation Strategy  
Working Party**



# History of AROC



- No specific way of classifying rehabilitation outside of acute system
- Diagnostic Related Groups (DRG's) have 3 rehab codes; not specific
- Only one ICD-10 code for rehab, gives limited insight into rehabilitation

# AN-SNAP classification study



- The Australian National Sub-Acute and Non-Acute Case-mix Classification (AN-SNAP) developed by AHSRI, University of Wollongong in 1997
- Involved 99 Australian and 5 NZ rehab units
- Collected detailed clinical, service utilisation and cost profile on over 30,000 sub-acute and non-acute episodes of care over a 3 month period
- Identified the drivers in rehabilitation
  - Sub-acute care - enhancement of quality of life and/or functional status
  - Non-acute care - maintenance of current health status if possible

# History of AROC

- Rehabilitation doctors very involved in AN-SNAP project
- Wanted to use classification to begin to compare outcomes between different services
- Facilitated meeting of rehab sector stakeholders with objective of developing a national benchmarking system
- Outcome was business plan for development of AROC

# AROC born in 2002



- 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 Australian Health Services Research Institute (AHSRI) at the University of Wollongong is the data manager and responsible for AROC's day to day operations

# Purpose & Aims of AROC



- To provide a national benchmarking system to facilitate the improvement of clinical rehabilitation outcomes for patients
- To produce information on the efficacy of interventions through the systematic collection of outcomes information in both the inpatient and ambulatory settings
- To report on functional outcomes
  - Six monthly benchmarking reports for each member facility
  - Annual in-patient report summarising the Australian data
  - Inaugural ambulatory report

# AROC has 5 roles



1. **Management of data** -AROC is the national data bureau that receives and manages data on rehabilitation services in Australia and New Zealand
2. **National benchmarking centre** providing for rehabilitation services
3. **National certification** for the Functional Independence Measure (FIM)
4. **Education and training and research** for the FIM and other rehabilitation outcome measures
5. **Research and development** - AROC develops research and development proposals and seeks external funding for its research agenda

# AROC Coverage in Australia

- There are approximately 180 inpatient rehabilitation units in Australia
- More than 170 submitted data to AROC in the 2010 calendar year
- In 2010 data describing more than 64,000 episodes was submitted to AROC
- More than 500,000 episodes of data have been submitted to AROC since it was established

# Why measure outcomes ?

- For research and clinical learning
  - What works in which patients
- To support communication
  - Between clinicians
    - Common language
  - Between clinicians and patient
- Important in clinical practice
  - To convince purchasers
    - treatment is effective and value for money



# What is benchmarking ?

- **Benchmarking** is the process of comparing one's own performance and processes to those of peer providers and/or to industry best practice ...

# How does your team operate ?



# Benchmarking Reports

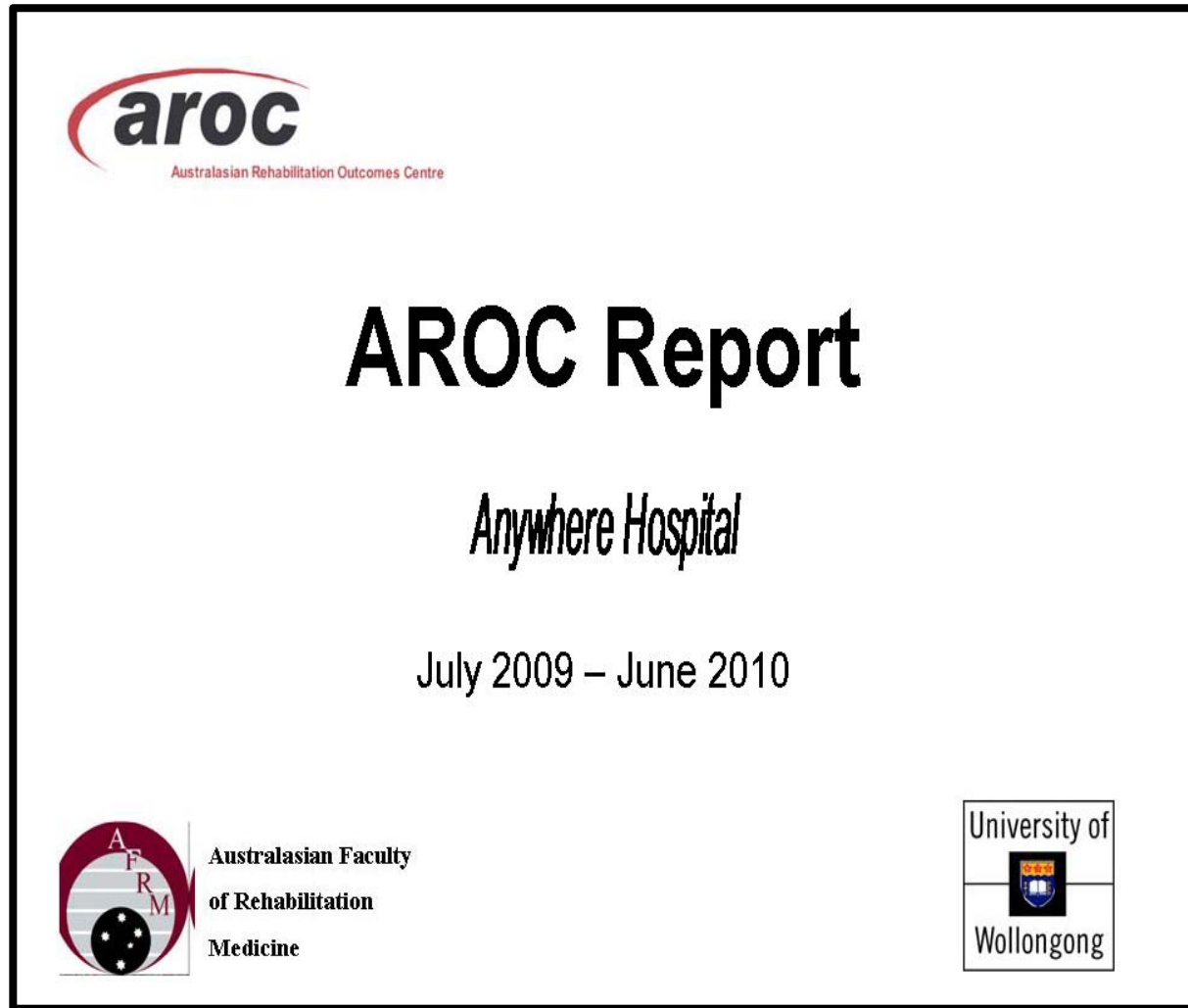


- AROC provides analysis of each individual member's data, and also compares that data to:
  - themselves over time
  - analysis of peer providers
  - the national data
  - industry developed impairment specific target outcomes
- Facility LOS and FIM change adjusted for casemix to compare with sector data

# Benchmarking reports

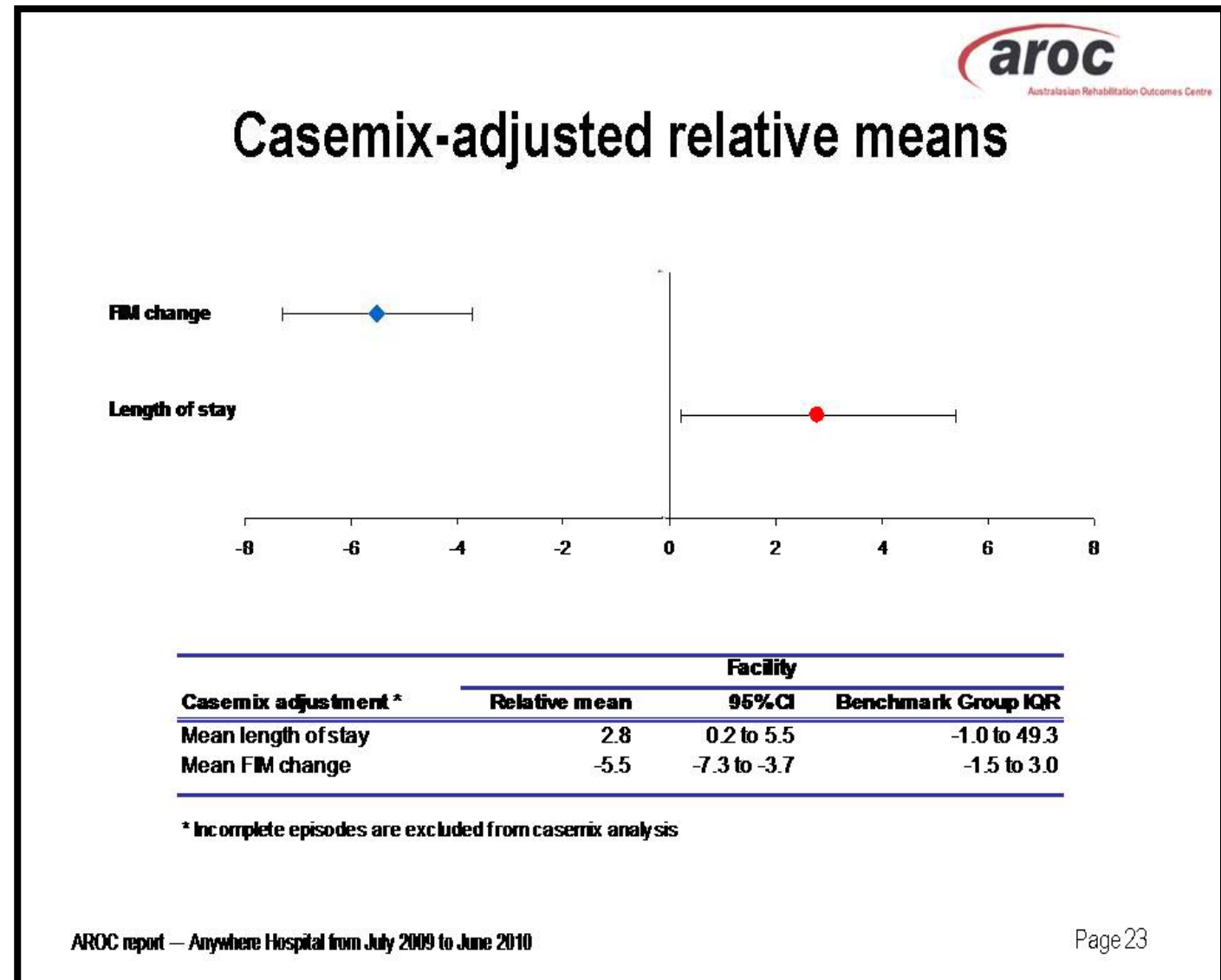


- AROC Benchmarking Reports are distributed to facility members electronically twice yearly



# At a glance ...

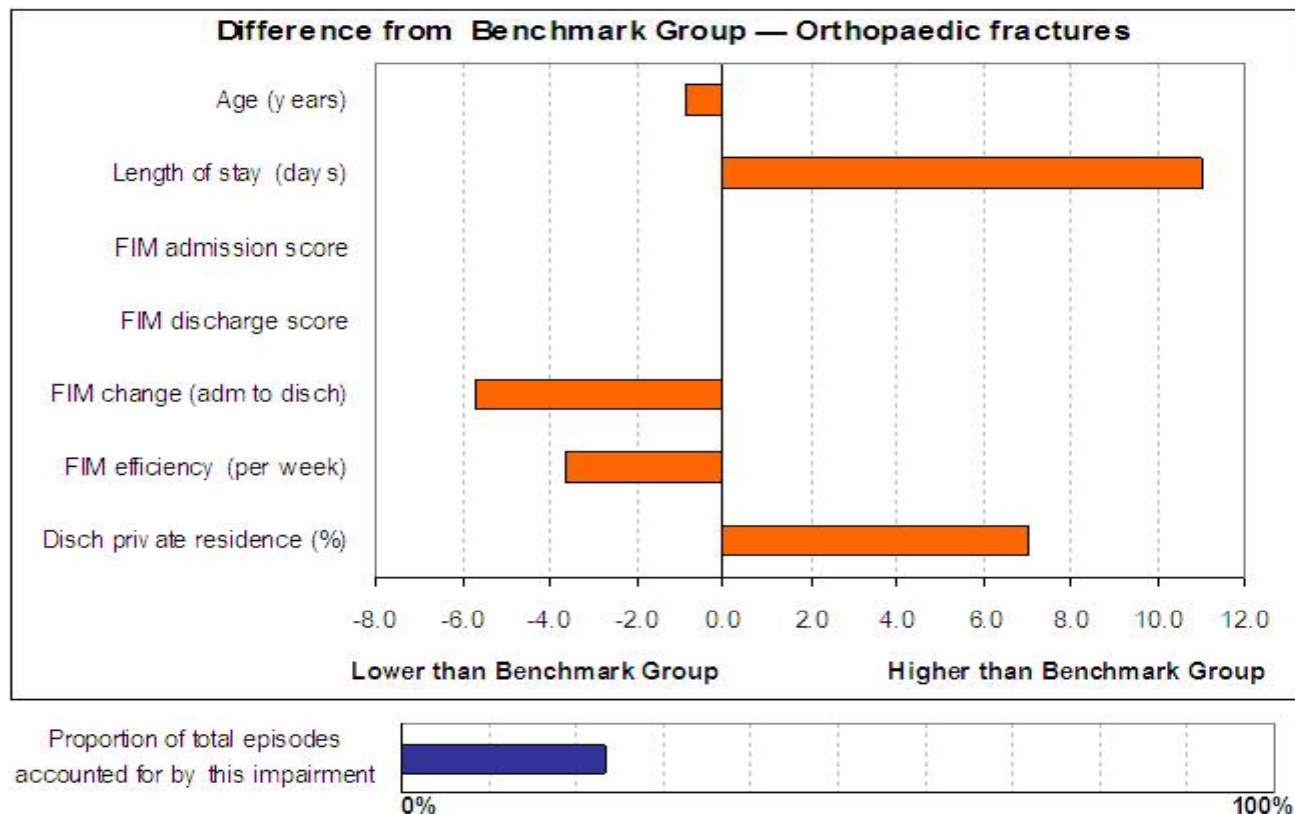
- Provided as a quick reference for how provider is doing overall



# Each facility report has detail about top three “buckets” of patients

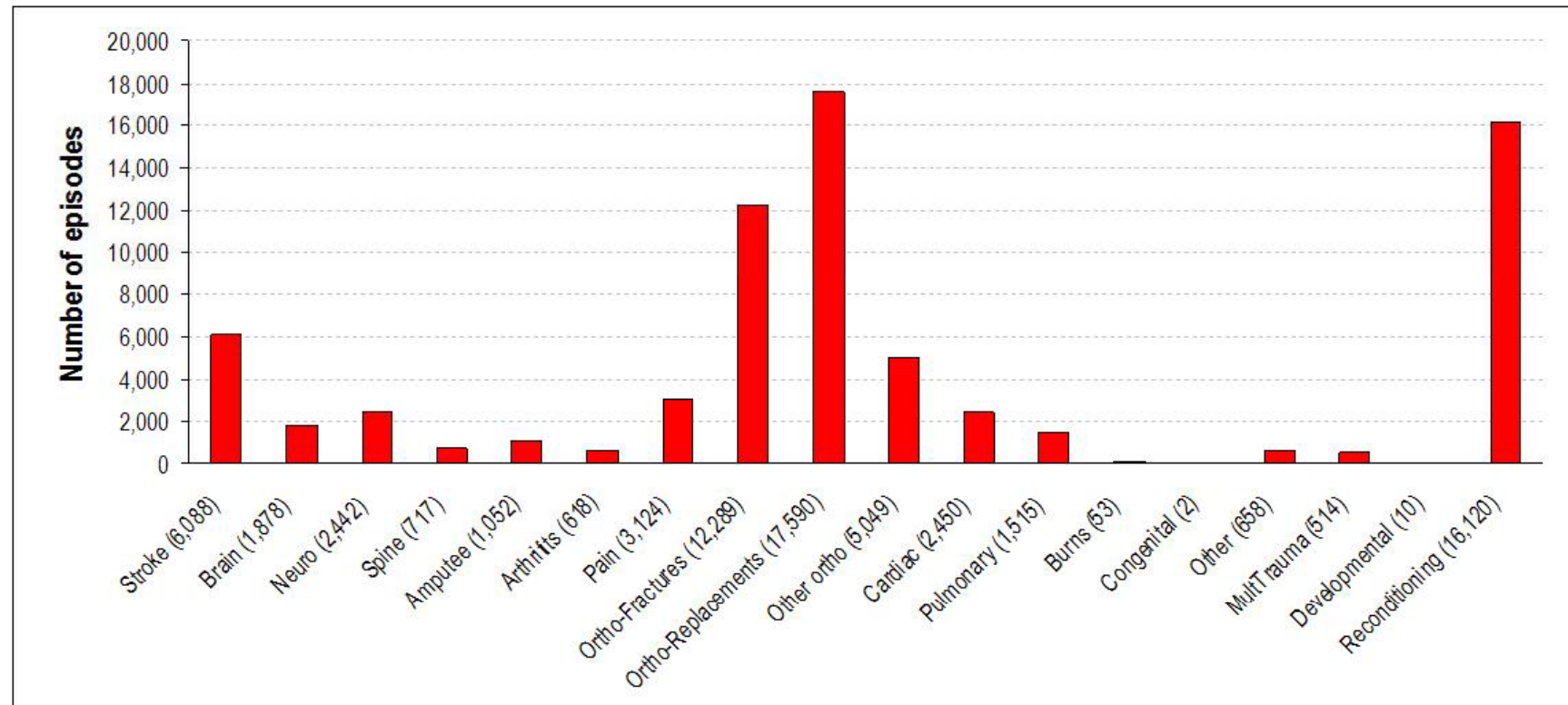


## Outcome measures — Orthopaedic fractures



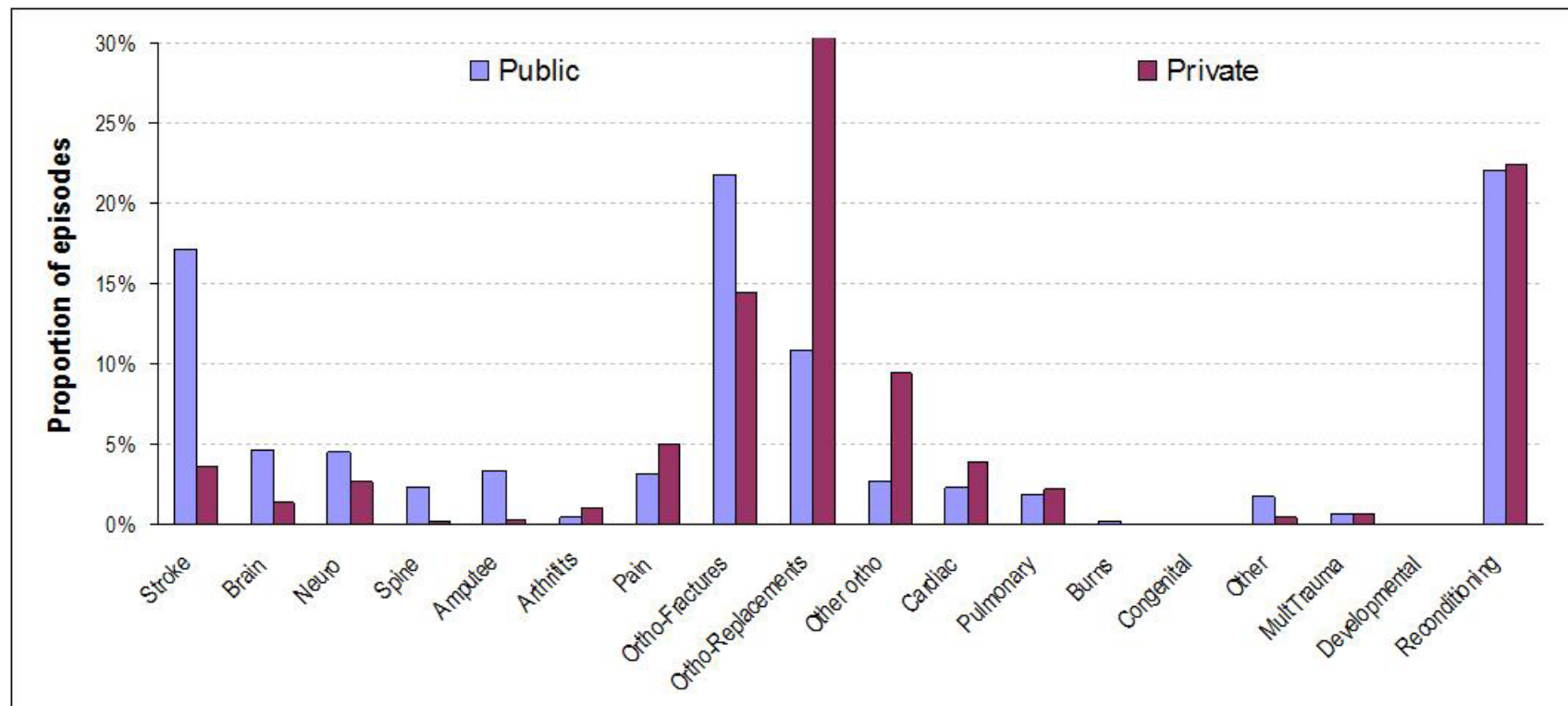
Some data .....

# Episodes by impairment group, 2010





# Episodes by impairment group, by sector, 2010



# National data by impairment, 2010

	National data benchmarks					
		Length of stay		FIM change		FIM gain
Impairment group	No.	Mean (95%CI)		Mean (95%CI)		per week
Stroke	5,288	30.8	(30.0–31.5)	22.8	(22.4–23.3)	5.2
Brain	1,647	91.7	(0.0–210.6)	23.6	(22.6–24.5)	1.8
Neurological	2,168	20.8	(20.0–21.6)	15.7	(15.1–16.3)	5.3
Spinal cord	581	60.1	(54.4–65.8)	22.5	(21.1–23.9)	2.6
Amputee	815	37.6	(35.6–39.5)	15.9	(15.0–16.7)	3.0
Arthritis	578	14.2	(13.5–14.9)	12.6	(11.8–13.3)	6.2
Pain	2,883	50.1	(0.0–118.0)	14.0	(13.6–14.4)	2.0
Ortho - fractures	10,822	22.8	(22.6–23.1)	20.2	(20.0–20.4)	6.2
Ortho - replacements	16,887	24.5	(8.0–40.9)	16.1	(15.9–16.2)	4.6
Ortho - others	4,718	34.9	(0.0–76.5)	16.7	(16.4–17.0)	3.3
Cardiac	2,145	14.1	(13.8–14.5)	16.9	(16.4–17.4)	8.4
Pulmonary	1,304	14.6	(14.2–15.1)	16.1	(15.5–16.6)	7.7
Burns	41	31.6	(23.0–40.2)	23.2	(18.7–27.8)	5.1
Congenital deformity	12	36.0	(21.2–50.8)	20.4	(10.3–30.5)	4.0
Other disabling imp.	556	20.4	(19.2–21.6)	16.5	(15.5–17.6)	5.7
Multiple trauma	446	43.5	(39.0–47.9)	32.5	(30.5–34.5)	5.2
Developmental disabilities	8	16.6	(10.6–22.7)	14.8	(5.4–24.1)	6.2
Re-conditioning	13,811	25.1	(10.9–39.3)	16.5	(16.3–16.7)	4.6
Missing or excluded	8,562					
<b>All episodes</b>	<b>73,272</b>	<b>28.3</b>	<b>(20.9–35.7)</b>	<b>17.7</b>	<b>(17.6–17.8)</b>	<b>4.4</b>

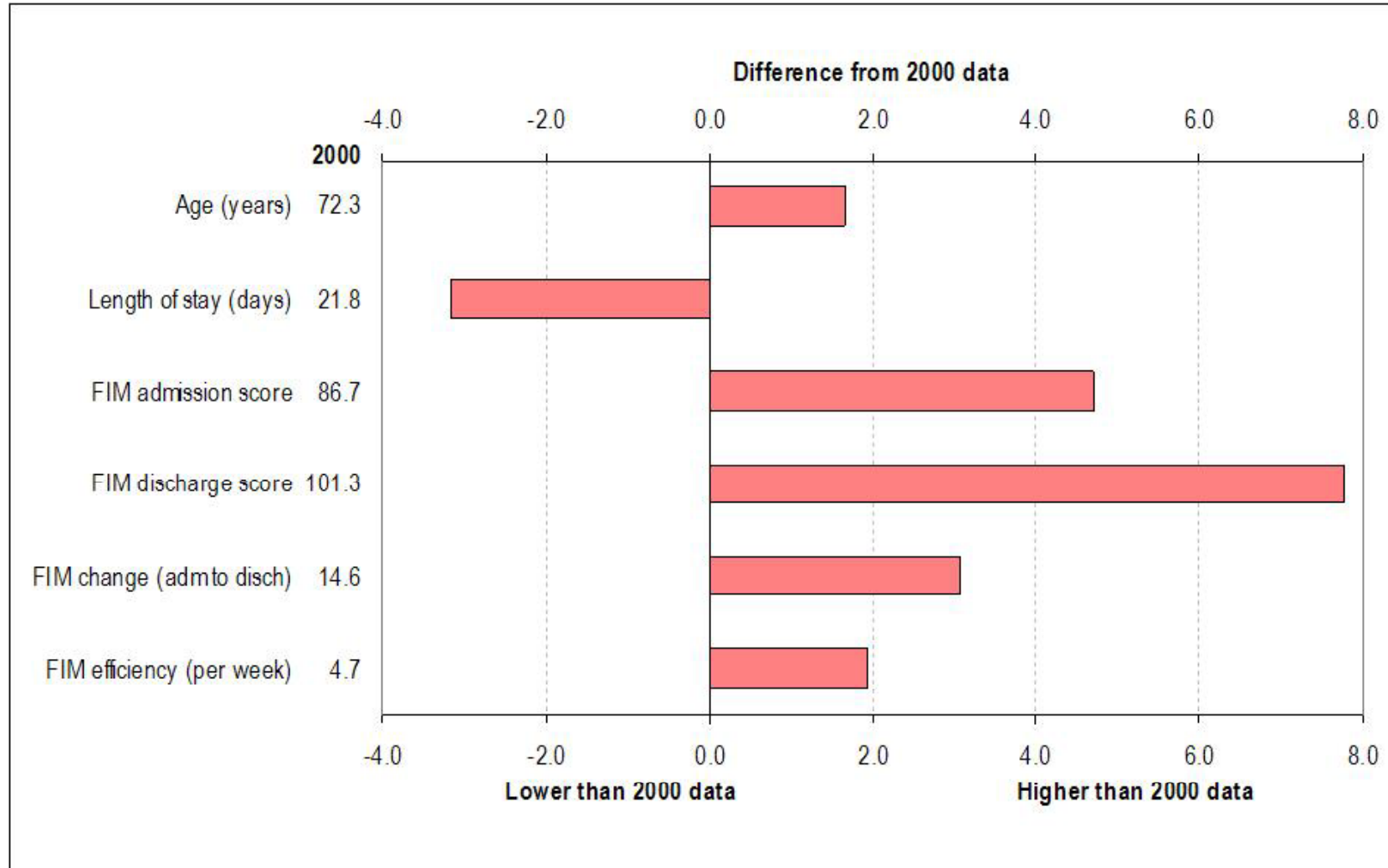
NOTE: Where the number of completed episodes (separations) < 5 details are not given for reasons of privacy and accuracy.

# Outcomes in Rehabilitation

- The Functional Independence Measure (FIM) is the most commonly used tool for the assessment of function in rehabilitation
- Function of a patient is assessed at admission and at discharge
- The difference between these two scores is called the FIM change and measures the degree of functional improvement achieved by the rehabilitation program
- FIM Change can then be divided by LOS to give FIM efficiency
- Discharge destination is another important outcome – ideally a patient should be able to return to their previous form of accommodation, most often home

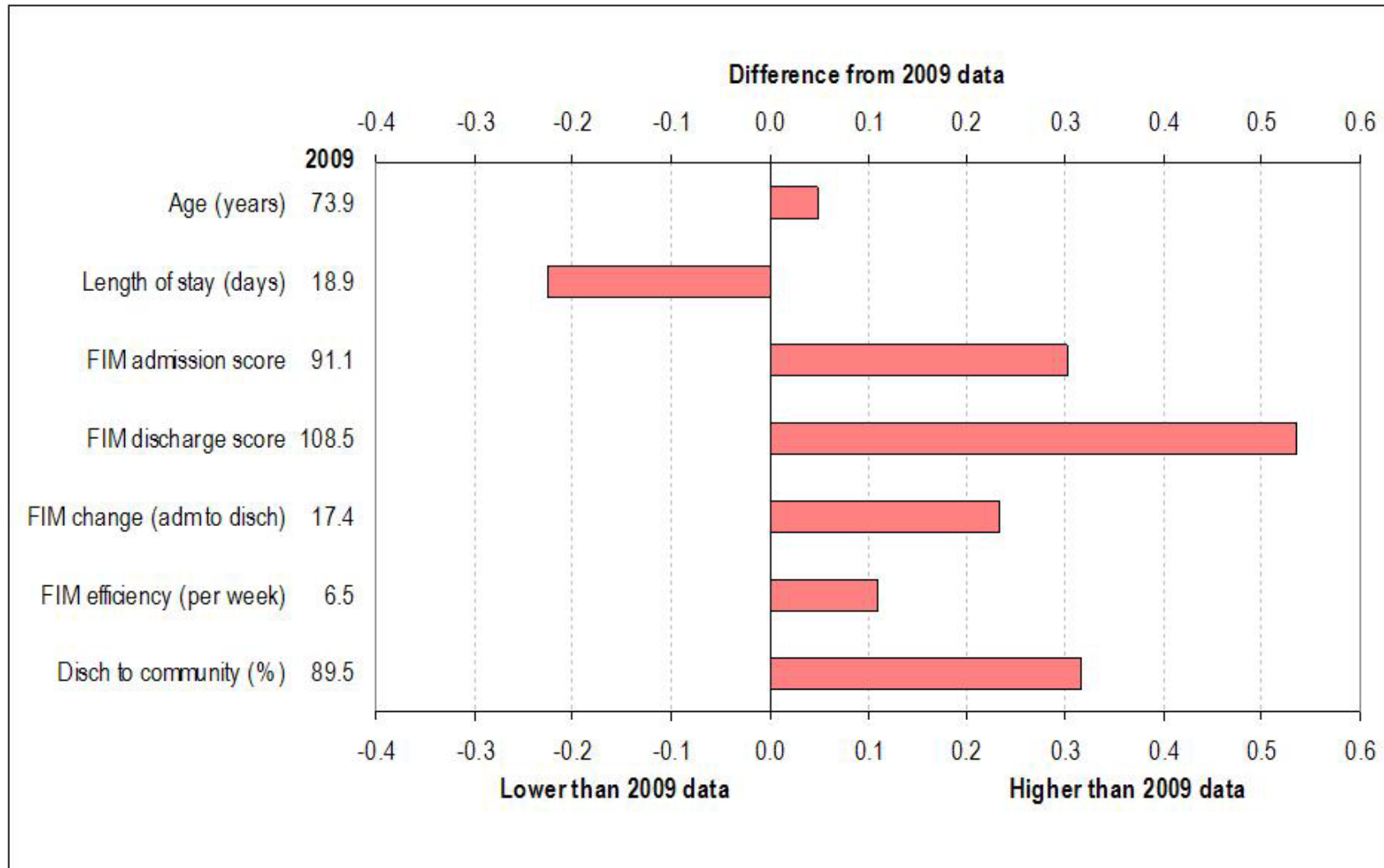
# Overall Rehabilitation Outcomes

## Summary - change in measures 2000-2010

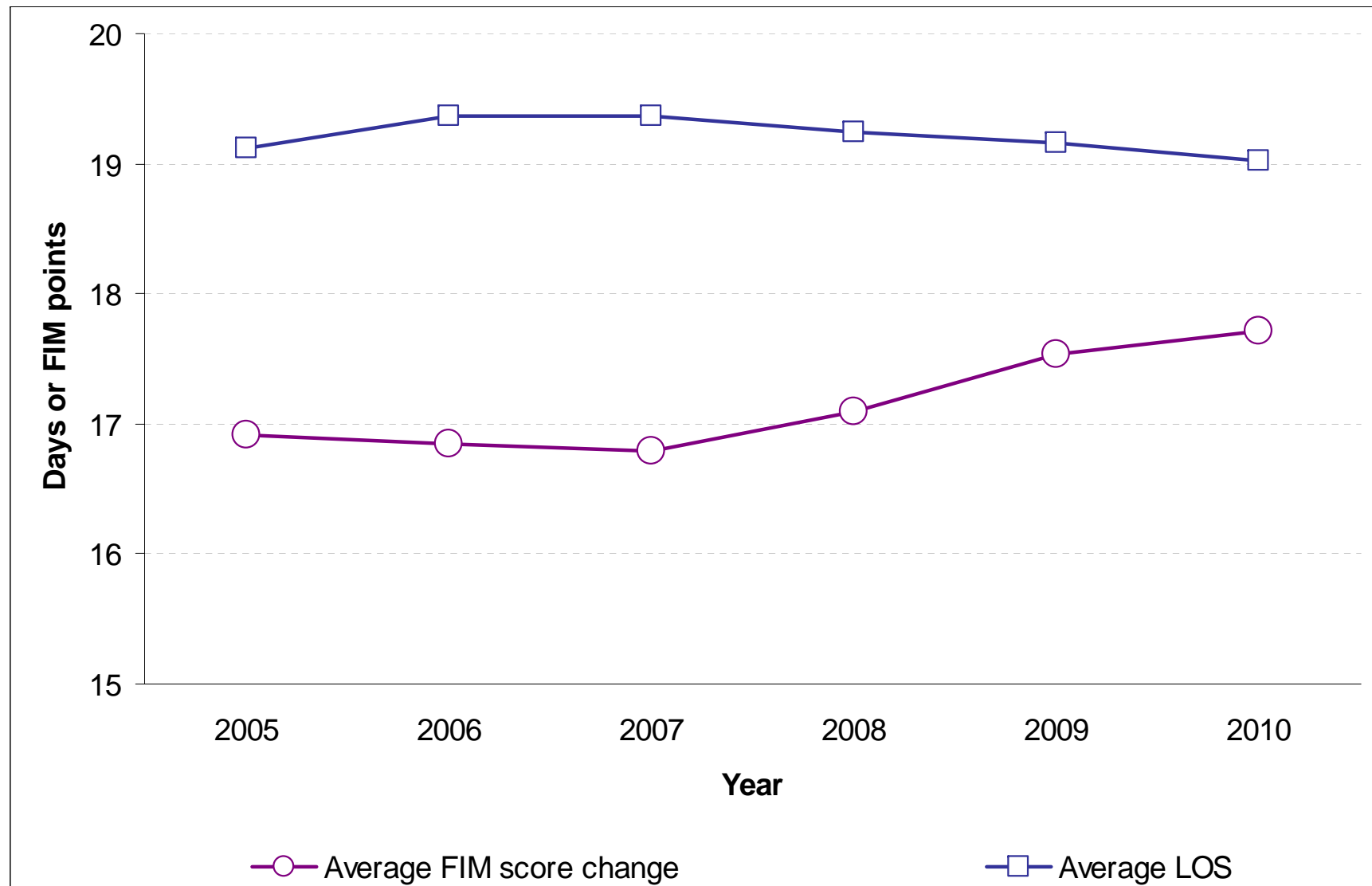


# Overall Rehabilitation Outcomes Summary

## - change in measures 2009-2010



# ALOS & FIM change over time

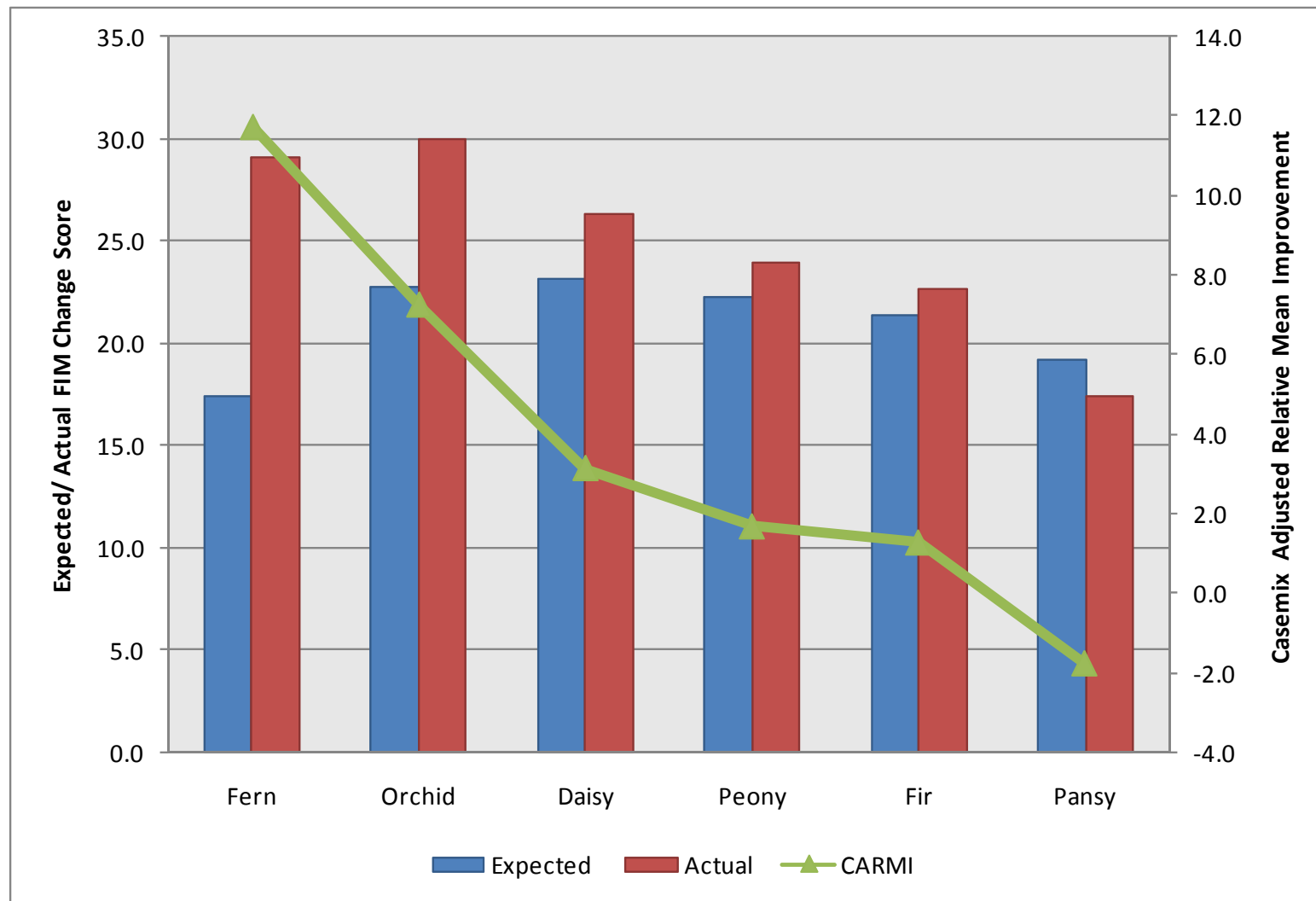


# Impairment Specific Outcome Targets



- Benchmarking workshop & development of impairment specific outcome targets driven by desire to:
  - evolve benchmarking beyond comparison of actual to aspiration for an (evidence based) target
  - focus benchmarking at the impairment level
  - identify and collect impairment specific adjunct datasets ... which may include additional outcome measures especially relevant to a given impairment

# Casemix Adjusted Facility Comparison: Example





# AROC Stroke Targets

No.	Stroke Target		AN-SNAP Class					
			S2-204	S2-205	S2-206	S2-207	S2-208	S2-209
1	Time Since Onset to Rehabilitation	50% of all stroke episodes to be admitted to rehabilitation within 7 days, 75% to be admitted within 19 days.						
2	Length of Stay	50% of all stroke episodes to achieve a length of stay of...	14 days or less	22 days or less	20 days or less	28 days or less	29 days or less	38 days or less
3	Average FIM Change	50% of all stroke episodes to achieve a FIM change score of...	14 points or more	18 points or more	25 points or more	29 points or more	27 points or more	37 points or more
4	Discharge Destination	Percentage of all stroke episodes to be discharged to accommodation that allows for same or greater independence...	80%	70%	76%	52%	40%	55%

# Stroke Targets FY 2009/2010

## Aus & NZ Actual vs. Target



### Target 1: Time Since Onset to Rehabilitation

AN-SNAP Class	Target	Australia	New Zealand
S2-204	50% within 7 days	40.9%	<b>67.6%</b>
	75% within 19 days	<b>79.3%</b>	<b>93.3%</b>
S2-205	50% within 7 days	36%	<b>50.0%</b>
	75% within 19 days	66.0%	<b>81.8%</b>
S2-206	50% within 7 days	36.4%	<b>57.7%</b>
	75% within 19 days	<b>78.3%</b>	<b>90.2%</b>
S2-207	50% within 7 days	25.4%	<b>62.5%</b>
	75% within 19 days	<b>76.3%</b>	<b>100.0%</b>
S2-208	50% within 7 days	27.9%	<b>70.4%</b>
	75% within 19 days	69.2%	<b>96.3%</b>
S2-209	50% within 7 days	23.3%	44.7%
	75% within 19 days	58.8%	73.6%

# Stroke Targets FY 2009/2010

## Aus & NZ Actual vs. Target



Target 2: 50% of all Stroke episodes to achieve a length of stay of...

AN-SNAP Class	Target	Australia	New Zealand
S2-204	14 days or less	54.4%	66.5%
S2-205	22 days or less	51.1%	63.6%
S2-206	20 days or less	44.3%	52.5%
S2-207	28 days or less	62.6%	62.5%
S2-208	29 days or less	43.3%	62.7%
S2-209	38 days or less	36.5%	48.5%

# Stroke Targets FY 2009/2010

## Aus & NZ Actual vs. Target



**Target 3: 50% of all Stroke episodes to achieve a FIM Change score of...**

<b>AN-SNAP Class</b>	<b>Target</b>	<b>Australia</b>	<b>New Zealand</b>
S2-204	14 points or more	41.7%	32.6%
S2-205	18 points or more	45%	40.9%
S2-206	25 points or more	45.6%	<b>53.7%</b>
S2-207	29 points or more	43.6%	37.5%
S2-208	27 points or more	42.7%	47.2%
S2-209	37 points or more	46.3%	<b>53.2%</b>



## AROC AUSTRALASIAN REHABILITATION OUTCOMES CENTRE

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# AROC Contact Details

**Australasian Rehabilitation Outcomes Centre**

Australian Health Services Research Institute

iC Enterprise 1, Innovation Campus

University of Wollongong NSW 2522

Phone: 02-4221-4411

Email: [aroc@uow.edu.au](mailto:aroc@uow.edu.au)

Web: [ahsri.uow.edu.au/aroc](http://ahsri.uow.edu.au/aroc)