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Utilizing a national benchmarking database for rehabilitation services to explore injury rehabilitation in Australia

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Utilizing a national benchmarking database for rehabilitation services to explore injury rehabilitation in Australia

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Outline

1. Australian Health Care system
2. Rehabilitation following injury
3. Rehabilitation outcomes
   - Australasian Rehabilitation Outcomes Centre
4. Rehabilitation funding
   - Sub-acute and Non-acute Patient Classification system
5. Injury Rehabilitation data

1. Australian Health Care System

The Australian Health Care System - in a nutshell

- Universal coverage (Medicare)
  - Medical provision
  - Hospital provision
  - Some allied health
  - Subsidized pharmaceuticals
- Universal coverage includes rehabilitation
- Separate State based schemes for support following catastrophic motor vehicle injury
- Mix of public and private provision (and private health insurance)

2. Rehabilitation following injury

What is rehabilitation following injury?

- Rehabilitation is about providing people with loss of function or ability due to injury with the highest level of independence possible. Dimensions include:
  - Physical
  - Psychological
  - Social
  - Economic
- It is achieved through a combined and coordinated use of medical, nursing and allied health services, and assistive devices when needed.
- It involves individual assessment, treatment, regular review, discharge planning, community reintegration and follow-up.

Principles of rehabilitation following injury

- Rehabilitation should start early.
  - Often while the person is in acute care
- Prevent secondary complications
  - Pressure areas
  - Contractures
  - Venous thromboembolic events
  - Disuse and atrophy
  - Deconditioning
  - Depression
  - Dependence
- Multidisciplinary
- Sufficient intensity
- Goal orientated

3. Rehabilitation outcomes

Australasian Rehabilitation Outcomes Centre - AROC

- Established 2002
- Objective is to collect standardized data for every rehabilitation episode of care in Australia (and New Zealand)
- Purpose is for National Benchmarking of outcomes
- Multiple stakeholders
  - Public and private providers
  - Government
  - Insurers
  - Professional bodies
- Over 90% of inpatient facilities currently submit data
- Biannual reports to member facilities

AROC Annual Reports

- **The AROC Annual Report: the state of rehabilitation in Australia 2005.** Frances Simmonds; Tara Stevermuer. *Australian Health Review;* Apr 2007; 31 Suppl 1:S31-S53

- **The AROC Annual Report: the state of rehabilitation in Australia 2006.** Frances Simmonds; Tara Stevermuer. *Australian Health Review;* To be published soon!!

AROC dataset includes:

- Demographics
- Impairment
- Functional Independence Measure (FIM)
  - Admission
  - Discharge
  - Change
  - Efficiency (change/Length of stay)
- Length of stay
- Date of acute onset
- Co-morbidities, complications, interruptions
- Discharge destination
- Impairments due to trauma (from 2007)
- Now 50,000 episodes per year

Functional Independence Measure (FIM)

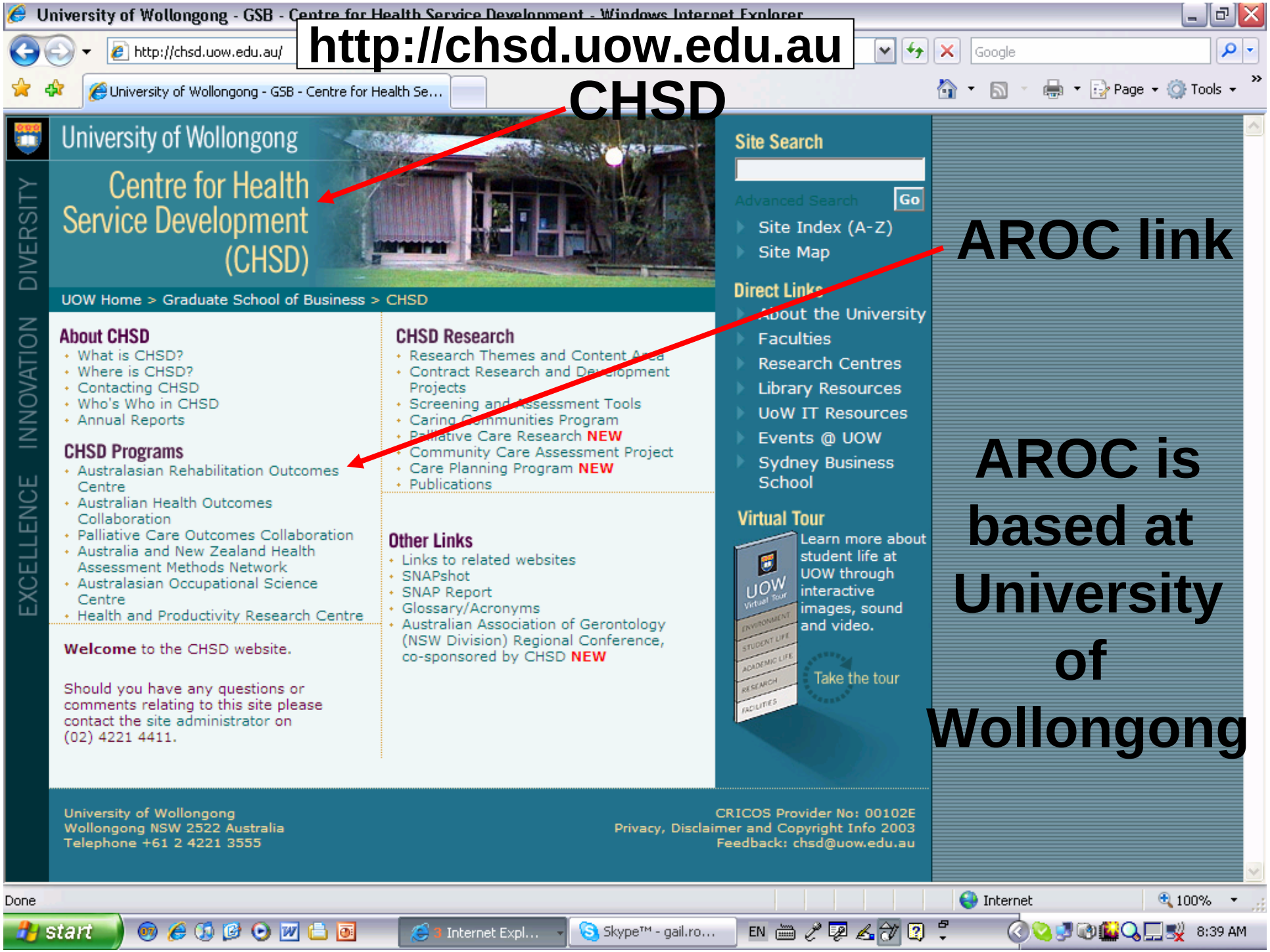
- 18 items (7 point ordinal scale)
  - 13 motor
  - 5 cognitive
- Individual's ability to carry out an activity independently, versus the need for assistance from another person or device.
- Score reflects actual, observed, performance.
- Must be collected within 72 hours of rehabilitation admission and within 72 hours before discharge.

Functional Independence Measure (FIM) items

MOTOR
Eating
Grooming
Bathing
Dressing Upper Body
Dressing Lower Body
Toileting
Bladder Management
Bowel Management
Transfers- Bed/Chair/Wheelchair
Transfer –Toilet
Transfers- Bath/shower
Walk/Wheelchair
Stairs

COGNITIVE
Comprehension
Expression
Social Interaction
Problem Solving
Memory

FIM SCORES
No Helper
7= Complete Independence
6= Modified Independence
Helper
5=Supervision or set up
4=Minimal Assistance
3= Moderate assistance
2=Maximal Assistance
1=Total Assistance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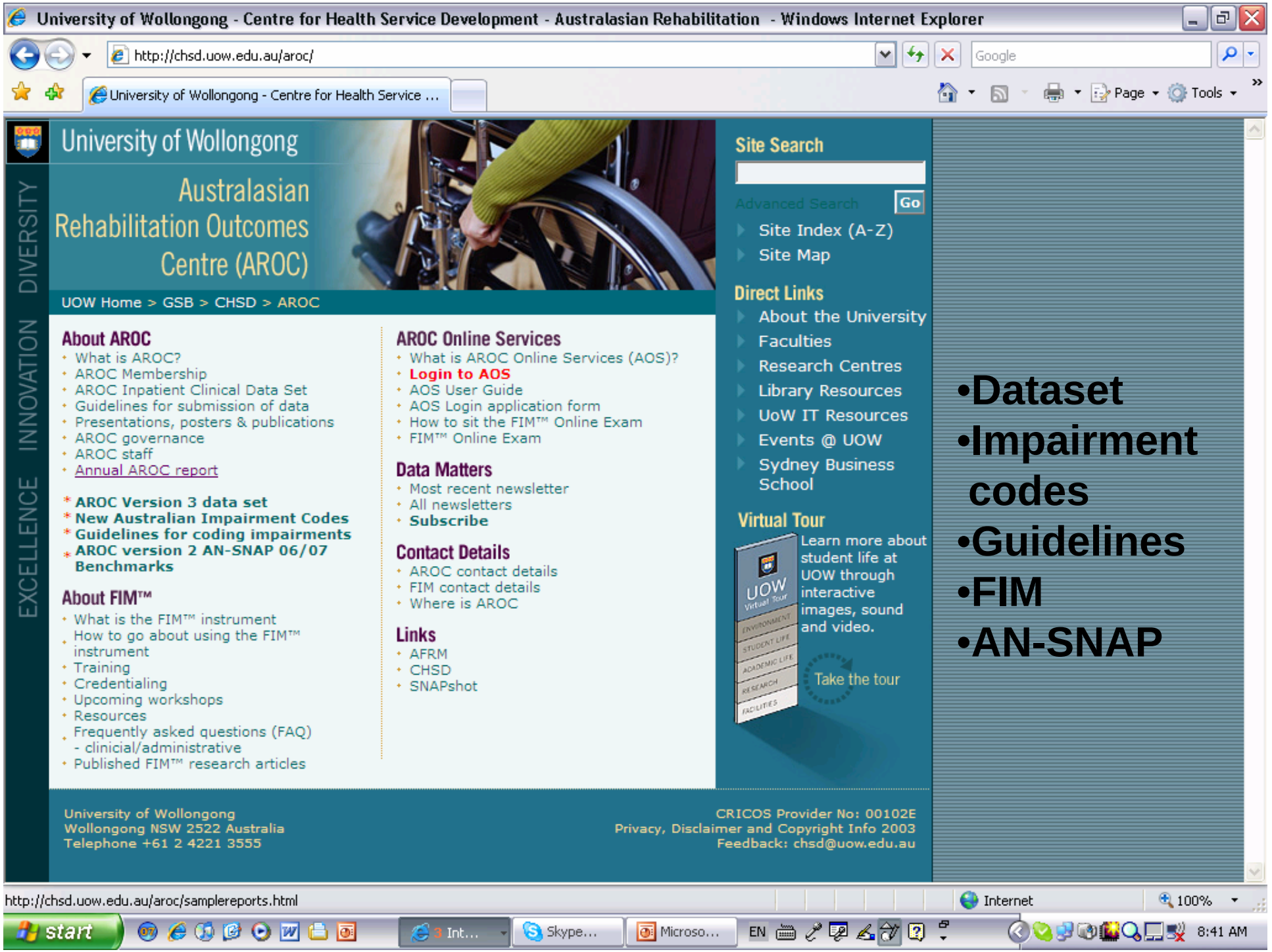
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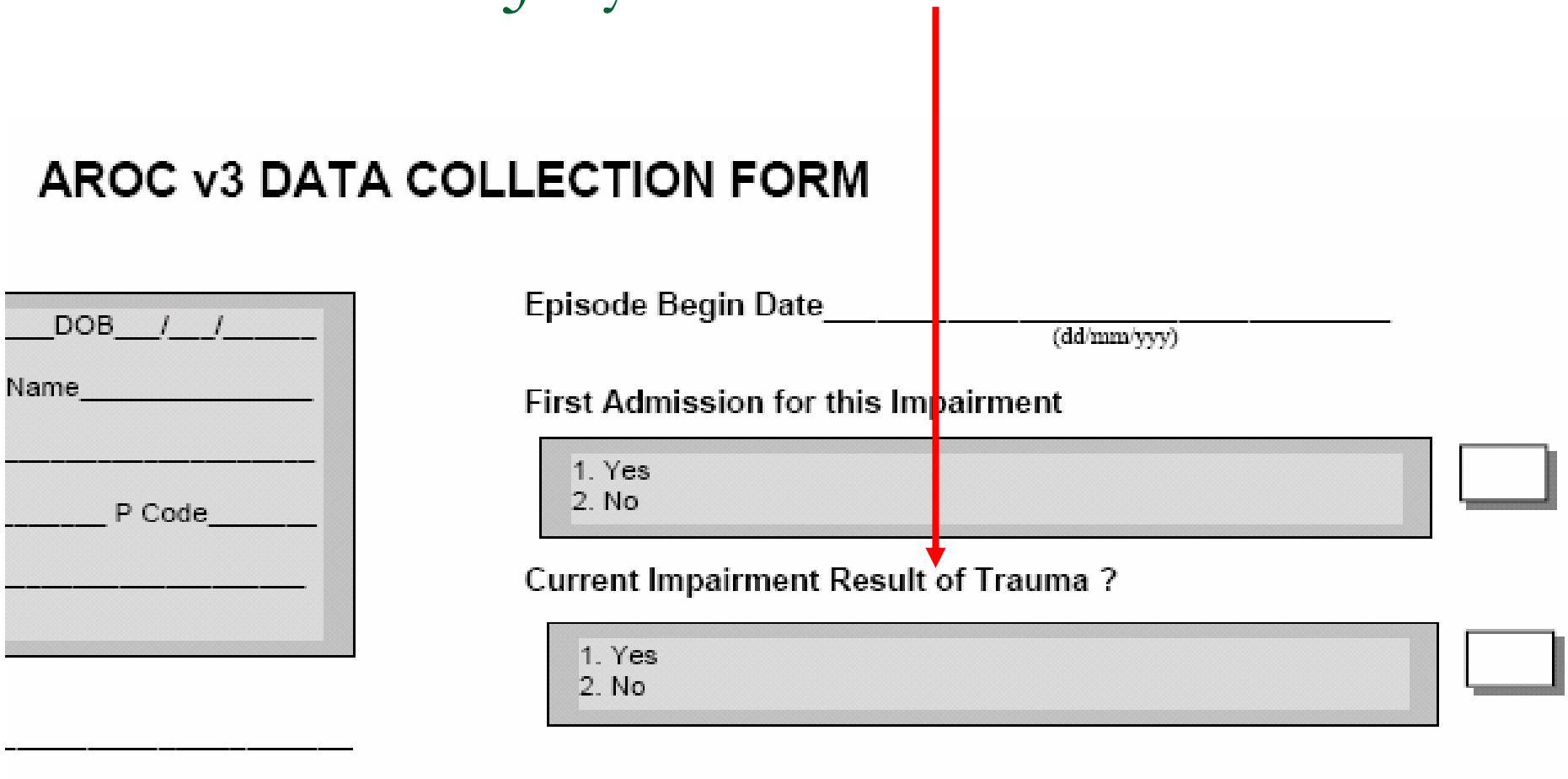
Injury-specific impairments in the 2002 – 2006 AROC dataset

- Traumatic brain injury
  - Open, closed, other
- Traumatic spinal cord dysfunction
  - Paraplegia (incomplete, complete)
  - Quadriplegia C1-4 (incomplete, complete)
  - Quadriplegia C5-8 (incomplete, complete)
- Fracture
  - Hip (unilateral, bilateral)
  - Femur
  - Pelvis
- Burns
- Major multiple trauma
  - Brain + Spinal cord injury
  - Brain + Multiple Fracture/Amputation
  - Spinal cord + Multiple Fracture/Amputation

AROC dataset from July 2007

- More information on trauma / injury
  - Specific question about trauma as the cause of impairment
  - Enhanced detail in fracture impairments

Trauma to be included in the AROC dataset from July 2007



AROC 2007 Enhanced detail in 'Fracture' impairment codes

ORTHOPAEDIC CONDITIONS

- **Fracture** (includes dislocation, excludes neurological involvement)
  - 8.111 Fracture of hip, unilateral (includes #NOF)
  - 8.112 Fracture of hip, bilateral (includes #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

4. Rehabilitation funding

AN-SNAP classification system

- *Australian Sub-acute and Non-acute Patient casemix classification system.*
  - Version 1 developed in 1996
  - Diagnosis is not the major determinant of cost in rehabilitation
  - Diagnosis Related Groups in the acute setting

- Five case types
  - Rehabilitation
  - Palliative Care
  - Psychogeriatric
  - Geriatric evaluation and management
  - Maintenance

- Rehabilitation classes are based on impairment, function and +/- age
  - Not based on aetiology of impairment such as injury

AN-SNAP funding model

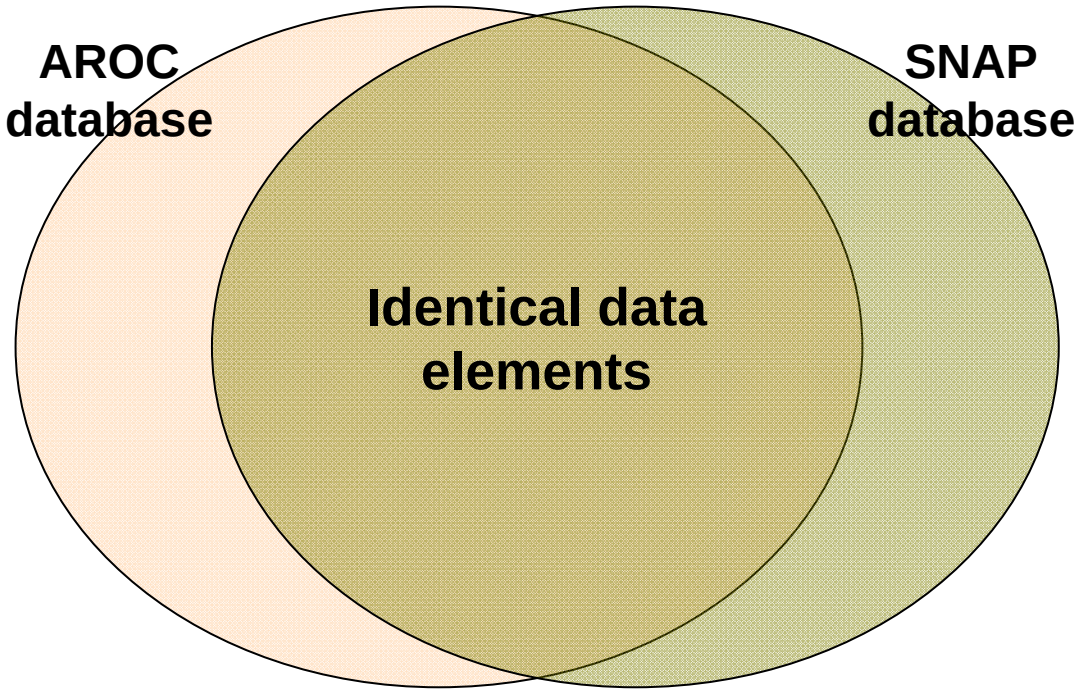
- Blended payment model
  - Episode payment
  - Per diem amount
  - Rules around short stay and long stay outliers
- Also based on cost weights
- Version 1 had 32 inpatient Rehabilitation Classes
- Version 2 released in 2007

Examples of AN-SNAP classes and cost weights

	AN-SNAP CLASS		COST WEIGHT
	S2-202	Brain,Neuro,Spine & MMT,FIM 13	6.6705
*	S2-227	Orthpaed Conds, Fractures, Mot 58-91	0.9326
*	S2-228	Orthpaed Conds, Fractures, Mot 48-57	1.4265
*	S2-229	Orthpaed Conds, Fractures, Mot 14-47, Cog19-35	1.7703
*	S2-230	Orthpaed Conds, Fractures, Mot 14-47, Cog 5-18	1.3765
*	S2-238	Major Multiple Trauma, FIMtotal 101-126	0.91
*	S2-239	Major Multiple Trauma, FIMtotal 74-100	1.3959
*	S2-240	Major Multiple Trauma, FIMtotal 44-73	1.7396
*	S2-241	Major Multiple Trauma, FIMtotal 19-43	5.761

How is the data collected?

- One database to collect AROC and SNAP data
- Many data elements identical
- Collected at each facility and uploaded (in NSW)



5. Injury rehabilitation data

AROC 2006 data

- Total episodes reported 48836
- **Injury represented a minimum of 6695 episodes (13.7%)**
- Limitations of the data system precluded the identification of injury as the cause of the impairment for:
  - Amputation
  - Pain syndromes
  - Orthopaedic - joint replacements
  - Orthopaedic - other
  - Debility
- New item will remedy this problem from 2007
- **Injury probably represents 15 – 20% plus of inpatient Australian rehabilitation episodes**
- Database of domiciliary rehabilitation remains in its infancy

Traumatic paraplegia

	Incomplete lesion	**Complete lesion**
Female	30%	14%
Male	70%	86%
Age (mean)	48	36
Adm FIM (mean)	80	76
Length of stay	47	65
FIM improvement	31	21
FIM Efficiency	0.7	0.3

Traumatic Quadriplegia C1-4

	Incomplete lesion	Complete lesion
Female	8%	0%
Male	92%	100%
Age (mean)	39	39
Adm FIM (mean)	77	56
Length of stay	52	59
FIM improvement	13	8
FIM Efficiency	0.2	0.1

Hip, femur and pelvic fractures

	Hip, femur, pelvic fractures
Female	72%
Male	28%
Age (mean)	79.5
Adm FIM (mean)	83
Length of stay	23
FIM improvement	18.5
FIM Efficiency	0.8

Why?

- Uniform rehabilitation data across the country
- Detailed clinical outcomes and complications
- Units can benchmark performance
- Platform for research
- Data linkage possible
  - Units own their own data
- Clinical data and costing data

- Time precludes exploring the actual data – see me if interested or consult the publications in Australian Health Review

Muchas gracias

Thank you