Outcomes of rehabilitation for reconditioning: falls, frailty, care service requirements - what does the national data tell us?

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Abstract
Presentation Outline

• What is AROC?

• AROC data collection

• AROC reconditioning impairment specific data:

• Question -> does the data show any association between level of frailty, falls or weight loss and outcomes (LOS, function, services required)?

Keywords
aroc, frailty, care, service, outcomes, requirements, tell, rehabilitation, reconditioning, does, falls, national, data, us

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Outcomes of rehabilitation for reconditioning: falls, frailty, care service requirements - what does the national data tell us?

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Presentation Outline

• What is AROC?
• AROC data collection
• AROC reconditioning impairment specific data:
• Question -> does the data show any association between level of frailty, falls or weight loss and outcomes (LOS, function, services required)?
What is AROC?

Australasian Rehabilitation Outcomes Centre

- National rehabilitation clinical registry
  - Established 2002
  - Australian and New Zealand

- Almost 100% coverage inpatient rehab units (219 units in Aus, 41 in NZ)

- Receives data describing more than 100,000 episodes of rehab per year

- Database now holds nearly 1 million records – a rich source of data
What does AROC do?

- Established and manages national benchmarking system whose objective is to improve clinical rehabilitation outcomes for patients
- Produces information on the efficacy of interventions through the systematic collection of outcomes information in both the inpatient and ambulatory settings
- Provides annual reports that summarise the Australasian data
AROC Dataset

• De-identified dataset ... part of routine clinical data collection
• Core data items:
  ➢ Demographic items eg age, gender
  ➢ Process items
  ➢ Outcomes eg LOS, FIM, discharge destination
• Impairment specific data items
Reconditioning specific data items

- Rockwood Frailty Score (pre-morbid)
- Ability to participate in therapy from Day 1?
- Fallen in past 12 months?
- Lost > 10% of body weight in past 12 months?
Data

- Financial Year 2013/2014 (AUS)
- All reconditioning episodes, age 65+
- AROC reconditioning codes:
  - 16.1 Reconditioning following surgery
  - 16.2 Reconditioning following medical illness
  - 16.3 Cancer rehabilitation
Reconditioning: proportion of AROC episodes FY2010-2014

Proportion of episodes

Financial year

2010 (n=13,520) 2011 (n=15,456) 2012 (n=17,235) 2013 (n=20,253) 2014 (n=22,815)
Reconditioning episodes by code: FY2010-2014

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Number of Episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 (n=13,520)</td>
<td></td>
</tr>
<tr>
<td>2011 (n=15,456)</td>
<td></td>
</tr>
<tr>
<td>2012 (n=17,235)</td>
<td></td>
</tr>
<tr>
<td>2013 (n=20,253)</td>
<td></td>
</tr>
<tr>
<td>2014 (n=22,815)</td>
<td></td>
</tr>
</tbody>
</table>
Average age by gender and impairment code FY2104

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.1</td>
<td>2,712</td>
<td>3,368</td>
</tr>
<tr>
<td>16.2</td>
<td>6,496</td>
<td>9,393</td>
</tr>
<tr>
<td>16.3</td>
<td>418</td>
<td>425</td>
</tr>
</tbody>
</table>

Average age (years)

(Male=2,712) (Female=3,368)
(Male=6,496) (Female=9,393)
(Male=418) (Female=425)
Weight loss, falls, ability to participate from Day 1?

- Weight Loss (n=2,822)
- Fallen (n=8,132)
- Participate (n=15,920)
Weight loss, falls, unable to participate

- None: 7,024 (37.8%)
- Fallen: 6,291 (33.8%)
- Weight loss: 1,157 (6.2%)
- Unable to participate: 2,166 (11.7%)
The CSHA Clinical Frailty Scale

1. Very Fit – robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age

2. Well – without active disease, but less fit than people in category 1

3. Well, with treated comorbid disease – disease symptoms are well controlled compared with those in category 4

4. Apparently vulnerable – although not frankly dependent, these people commonly complain of being “slowed up” or have disease symptoms

5. Mildly frail – with limited dependence on others for instrumental activities of daily living

6. Moderately frail – help is needed with both instrumental and non-instrumental activities of daily living

7. Severely frail – completely dependent on others for the activities of daily living

8. Terminally ill

Impairment code by frailty

Proportion of episodes within impairment

16.1 (n=6,081)
16.2 (n=15,891)
16.3 (n=843)

Very fit
Well, without active disease
Well, with treated comorbid disease
Apparently vulnerable
Mildly frail
Moderately frail
Severely frail
Terminally ill
Falls by frailty

Proportion of episodes that have fallen

<table>
<thead>
<tr>
<th>Frailty</th>
<th>Number of Episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very fit (n=26)</td>
<td></td>
</tr>
<tr>
<td>Well, without active disease (n=364)</td>
<td></td>
</tr>
<tr>
<td>Well, with treated comorbid disease (n=1,258)</td>
<td></td>
</tr>
<tr>
<td>Apparently vulnerable (n=1,069)</td>
<td></td>
</tr>
<tr>
<td>Mildly frail (n=2,014)</td>
<td></td>
</tr>
<tr>
<td>Moderately frail (n=2,254)</td>
<td></td>
</tr>
<tr>
<td>Severely frail (n=565)</td>
<td></td>
</tr>
<tr>
<td>Terminally ill (n=48)</td>
<td></td>
</tr>
</tbody>
</table>
Able to participate from Day 1 by frailty and impairment code

Proportion of episodes that participated from day 1

- Very fit (n=107)
- Well, without active disease (n=1,314)
- Well, with treated comorbid disease (n=3,565)
- Apparently vulnerable (n=1,983)
- Mildly frail (n=3,695)
- Moderately frail (n=3,480)
- Severely frail (n=639)
- Terminally ill (n=78)
AROC Dataset

- Functional Independence Measure (FIM)
  - 18 items (minimum data set)
  - 13 physical and 5 cognitive items
  - Ordinal scale 1 – 7
    - 1 = Total Assistance
    - 7 = Total Independence
- Summed score of 18 - 126
Average admission FIM by frailty

Average FIM score by frailty:
- Very fit (n=106)
- Well, without active disease (n=1,269)
- Well, with treated comorbid disease (n=3,387)
- Apparently vulnerable (n=1,810)
- Mildly frail (n=3,437)
- Moderately frail (n=3,113)
- Severely frail (n=549)
- Terminally ill (n=58)
Average discharge FIM by frailty

**Average FIM score**

- **Very fit** (n=106)
- **Well, without active disease** (n=1,269)
- **Well, with treated comorbid disease** (n=3,387)
- **Apparently vulnerable** (n=1,810)
- **Mildly frail** (n=3,437)
- **Moderately frail** (n=3,113)
- **Severely frail** (n=549)
- **Terminally ill** (n=58)

**Frailty**

- Admission Total
- Change

**Graph:**
- Vertical bars representing the average FIM scores for each frailty category.
Average admission FIM by falls, weight loss & inability to participate from Day 1

- **Fallen**
  - Yes: 43.1%
  - No: 56.9%
  - Yes (7,000), No (9,238)

- **Weight Loss**
  - Yes: 14.1%
  - No: 85.9%
  - Yes (2,265), No (13,786)

- **Participation**
  - Yes: 13.3%
  - No: 86.7%
  - Yes (2,164), No (14,048)
Average discharge FIM by falls, weight loss & inability to participate from Day 1

- **Fallen**
  - Yes: 43.1% (n=7,000)
  - No: 56.9% (n=9,238)

- **Weight Loss**
  - Yes: 14.1% (n=2,265)
  - No: 85.9% (n=13,786)

- **Participation**
  - Yes: 13.3% (n=2,164)
  - No: 86.7% (n=14,048)
Average LOS by frailty

Frailty

Average LOS (days)

Very fit (n=106)
Well, without active disease (n=1,269)
Well, with treated comorbid disease (n=3,387)
 Apparently vulnerable (n=1,810)
Mildly frail (n=3,437)
Moderately frail (n=3,113)
Severely frail (n=549)
Terminally ill (n=58)
Average LOS by falls, weight loss & inability to participate from Day 1

- **Fallen**
  - Yes: 43.1% (7,000)
  - No: 56.9% (9,238)

- **Weight Loss**
  - Yes: 14.1% (2,265)
  - No: 85.9% (13,786)

- **Participation**
  - Yes: 13.3% (2,164)
  - No: 86.7% (14,048)
Services prior by frailty

Proportion of episodes

Frailty

- Very fit (n=107)
- Well, without active disease (n=1,314)
- Well, with treated comorbid disease (n=3,565)
- Apparently vulnerable (n=1,983)
- Mildly frail (n=3,695)
- Moderately frail (n=3,480)
- Severely frail (n=639)
- Terminally ill (n=78)
Services post by frailty

Proportion of episodes

Frailty

Very fit (n=107)
Well, without active disease (n=1,314)
Well, with treated comorbid disease (n=3,565)
Apparently vulnerable (n=1,983)
Mildly frail (n=3,695)
Moderately frail (n=3,480)
Severely frail (n=639)
Terminally ill (n=78)
Services prior by falls, weight loss & participation

- **Fallen-Yes** (n=8,132)
- **Fallen-No** (n=10,544)
- **Weight Loss-Yes** (n=2,822)
- **Weight Loss-No** (n=15,641)
- **Participation-Not able** (n=2,729)
- **Participation-Able** (n=15,920)
Services post by falls, weight loss & participation

Proportion of episodes

Fallen-Yes (n=7,011)  Fallen-No (n=9,253)  Weight Loss-Yes (n=2,270)  Weight Loss-No (n=13,806)  Participation-Not able (n=2,172)  Participation-Able (n=14,066)
Service type

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Number of episodes</th>
<th>Services Prior</th>
<th>Services Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic assistance</td>
<td>7,000</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td>1,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Nursing care</td>
<td>2,000</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Allied health care</td>
<td>3,000</td>
<td>3,000</td>
<td></td>
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<tr>
<td>Personal care</td>
<td>4,000</td>
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<tr>
<td>Meals</td>
<td>5,000</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>Provision of goods &amp; equipment</td>
<td>6,000</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Transport services</td>
<td>7,000</td>
<td>7,000</td>
<td></td>
</tr>
<tr>
<td>Case management</td>
<td>8,000</td>
<td>8,000</td>
<td></td>
</tr>
</tbody>
</table>
Summary FIM, ALOS

weight loss, falls, unable to participate

Diagram:
- None
  - FIM adm=91
  - FIM change=16
  - ALOS=15
- Fallen
  - FIM adm=83
  - FIM change=16
  - ALOS=18
  - FIM adm=66
  - FIM change=15
  - ALOS=24
- Weight loss
  - FIM adm=87
  - FIM change=17
  - ALOS=18
  - FIM adm=79
  - FIM change=16
  - ALOS=20
- Unable to participate
  - FIM adm=93
  - FIM change=15
  - ALOS=17
  - FIM adm=69
  - FIM change=14
  - ALOS=21
  - FIM adm=69
  - FIM change=14
  - ALOS=21
Summary

• Reconditioning impairment specific data items are part of the routine AROC data collection

• The FY 2013/14 data indicates that increasing frailty, falls and weight loss generally associated with:
  ➢ reduced average admission FIM score
  ➢ increased average LOS

• Increasing frailty and falls generally associated with:
  ➢ Increased service needs
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