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>8,000</td>
</tr>
<tr>
<td>2011 (n=15,456)</td>
<td>10,000</td>
</tr>
<tr>
<td>2012 (n=17,235)</td>
<td>12,000</td>
</tr>
<tr>
<td>2013 (n=20,253)</td>
<td>14,000</td>
</tr>
<tr>
<td>2014 (n=22,815)</td>
<td>16,000</td>
</tr>
</tbody>
</table>
Average age by gender and impairment code FY2104

Average age (years)

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

(Male: number of males, Female: number of females)
Weight loss, falls, ability to participate from Day 1?
Weight loss, falls, unable to participate

None  
n=7,024  
37.8%

Fallen  
n=6,291  
33.8%

Weight loss  
n=1,157  
6.2%

Unable to participate  
n=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

Note: 1. Canadian Study on Health and Aging
Impairment code by frailty

Proportion of episodes within impairment

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

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

Proportion of episodes that have fallen

<table>
<thead>
<tr>
<th>Frailty</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very fit (n=26)</td>
<td>0%</td>
</tr>
<tr>
<td>Well, without active disease (n=364)</td>
<td>10%</td>
</tr>
<tr>
<td>Well, with treated comorbid disease (n=1,258)</td>
<td>20%</td>
</tr>
<tr>
<td>Apparently vulnerable (n=1,069)</td>
<td>30%</td>
</tr>
<tr>
<td>Mildly frail (n=2,014)</td>
<td>40%</td>
</tr>
<tr>
<td>Moderately frail (n=2,254)</td>
<td>50%</td>
</tr>
<tr>
<td>Severely frail (n=565)</td>
<td>60%</td>
</tr>
<tr>
<td>Terminally ill (n=48)</td>
<td>70%</td>
</tr>
</tbody>
</table>
Able to participate from Day 1 by frailty and impairment code

Proportion of episodes that participated from day 1

Frailty

0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

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

<table>
<thead>
<tr>
<th>Frailty</th>
<th>Average FIM score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very fit (n=106)</td>
<td>90</td>
</tr>
<tr>
<td>Well, without active disease (n=1,269)</td>
<td>90</td>
</tr>
<tr>
<td>Well, with treated comorbid disease (n=3,387)</td>
<td>90</td>
</tr>
<tr>
<td>Apparently vulnerable (n=1,810)</td>
<td>90</td>
</tr>
<tr>
<td>Mildly frail (n=3,437)</td>
<td>72</td>
</tr>
<tr>
<td>Moderately frail (n=3,113)</td>
<td>72</td>
</tr>
<tr>
<td>Severely frail (n=549)</td>
<td>54</td>
</tr>
<tr>
<td>Terminally ill (n=58)</td>
<td>54</td>
</tr>
</tbody>
</table>
Average discharge FIM by frailty

<table>
<thead>
<tr>
<th>Frailty</th>
<th>Admission Total</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very fit (n=106)</td>
<td>110</td>
<td>8</td>
</tr>
<tr>
<td>Well, without active disease (n=1,269)</td>
<td>110</td>
<td>8</td>
</tr>
<tr>
<td>Well, with treated comorbid disease (n=3,387)</td>
<td>105</td>
<td>15</td>
</tr>
<tr>
<td>Apparently vulnerable (n=1,810)</td>
<td>95</td>
<td>40</td>
</tr>
<tr>
<td>Mildly frail (n=3,437)</td>
<td>80</td>
<td>52</td>
</tr>
<tr>
<td>Moderately frail (n=3,113)</td>
<td>72</td>
<td>54</td>
</tr>
<tr>
<td>Severely frail (n=549)</td>
<td>65</td>
<td>49</td>
</tr>
<tr>
<td>Terminally ill (n=58)</td>
<td>58</td>
<td>40</td>
</tr>
</tbody>
</table>
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
Average LOS by frailty

<table>
<thead>
<tr>
<th>Frailty</th>
<th>Average LOS (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very fit (n=106)</td>
<td>13.5</td>
</tr>
<tr>
<td>Well, without active disease (n=1,269)</td>
<td>12.8</td>
</tr>
<tr>
<td>Well, with treated comorbid disease (n=3,387)</td>
<td>14.6</td>
</tr>
<tr>
<td>Apparently vulnerable (n=1,810)</td>
<td>16.2</td>
</tr>
<tr>
<td>Mildly frail (n=3,437)</td>
<td>18.9</td>
</tr>
<tr>
<td>Moderately frail (n=3,113)</td>
<td>20.8</td>
</tr>
<tr>
<td>Severely frail (n=549)</td>
<td>24.6</td>
</tr>
<tr>
<td>Terminally ill (n=58)</td>
<td>23.1</td>
</tr>
</tbody>
</table>
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 post by frailty

Proportion of episodes by 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=630)
- Terminally ill (n=78)

Frailty categories:
- 0
- 1
- 2
- 3
- 4+
Services prior by falls, weight loss & participation

Proportion of episodes

- 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

Number of episodes

Domestic assistance | Social support | Nursing care | Allied health care | Personal care | Meals | Provision of goods & equipment | Transport services | Case management

Services Prior | Services Post

Service Type

AAG & ACS Regional Conference Batemans Bay
Summary FIM, ALOS 
weight loss, falls, unable to participate
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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