AROC Outcome Targets Report
Inpatient – Pathway 3
Anywhere Hospital

July 2013 – June 2014
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AROC impairment specific benchmarking process

Since 2005 AROC has hosted benchmarking workshops, each of which has focused on one specific impairment. The ultimate objective of the workshop is the development of outcome targets specific to the impairment in question. A representative group of providers of rehabilitation for that impairment are invited to attend the workshop, covering both Australian public and private sectors in as many states and territories as possible, and New Zealand.

As part of the workshop invitees are provided with some detail regarding best practice outcomes relevant to the impairment under study (from an expert speaker and review of literature), and substantive analysis of AROC data relating to that impairment. During the workshop de-identified facility outcome data is presented and compared. Workshop participants are invited to discuss the issues (resource availability/processes etc) that affect the outcomes they achieve, and then to suggest relevant draft outcome targets.

Post workshop the draft targets, if created, are subjected to a sector wide review and feedback process prior to being finalised. Once finalised AROC publishes them on their website and includes the targets in their 6 monthly benchmarking process.

The process of benchmarking enables rehabilitation facilities to compare their functional outcomes against others in their field, and in this instance with targets. This healthy comparison between facilities allows for continuous reflection, evaluation and improvement of rehabilitation provided. Targets are developed by rehabilitation clinicians for rehabilitation clinicians, informed by clinical guidelines and current best practice. They are endorsed by the industry and enable benchmarking between facilities.

NOTE: the goal of benchmark workshops is to develop quality targets and these should not be linked to funding.
Introducing the Outcome Targets Report

This is the third AROC Outcome Targets Report which graphically compares your facility’s data to the AROC Benchmark (as set by AROC members). For each impairment that has had outcome targets established we provide background information on the development of the impairment specific target and graphically present the results for all facilities with sufficient data on this impairment.

To date, outcome targets have been set for four impairments: fractured neck of femur, stroke, brain dysfunction and reconditioning. For each impairment targets are set by AN-SNAP class.

The Outcome Targets Report is structured as a series of chapters, one per impairment. Each chapter begins with a background to the development of the impairment specific outcome target. Following this are the targets themselves, with each individual target followed by de-identified facility level graphs, one graph per AN-SNAP class per target. The red dotted horizontal line on the graph is the benchmark for that particular target. Each bar on each graph represents a facility, your facility is the coloured bar. If your bar is green your facility has achieved target; if your bar is orange your facility is within 5% of target; if your bar is red your facility has not achieved the target.

Some facilities only have a small number of episodes for a given impairment. Your facility will only receive the chapters for which you have a minimum of 20 completed episodes within the impairment (minimum of 15 episodes for brain dysfunction). Further, a minimum of 5 episodes within the AN-SNAP class of an impairment is required for your facility to appear on the graph for that target of that impairment.

NOTE: This report should be considered in conjunction with relevant Impairment Specific Reports and the Benchmark Core Report for your facility.
Data used in this report

• Data included in this report are episodes ending during the financial year 2014 (1 July 2013 to 30 June 2014 inclusive)

• Data in this report was collected using both version 3 (V3) and version 4 (V4) AROC data sets. All data collected using the V3 data set has been mapped to the V4 data set. This report is based on the V4 data set - Pathway 3 (inpatient direct care)

• All data are presented by AN-SNAP class (Appendix 3) within the impairment group (Appendix 2) the targets are set for

• Appendix 1 (glossary) contains definitions of concepts referred to in this report. An understanding of these will help with interpretation of the data

• Unit of counting is by concatenated episode, not by patient

• **NOTE:** Commencing with 2013 Calendar Year reports AROC has implemented a new analysis practice called **Data Concatenation** to identify groups of ‘submitted episodes’ that should be joined to form a single ‘AROC Reporting Episode’ – prior to outcomes analysis. For more detail about this practice please refer to Appendix 1
How to interpret your graphs

1. Impairment the graph is about
2. Target the graph is about
3. AN-SNAP class the graph is about
4. Target details for this AN-SNAP class for this impairment
5. Target value shown on graph
6. Line indicating target level
7. One bar per facility
8. Your facility will be highlighted if you had at least 5 episodes for this AN-SNAP class within this impairment:
   a) green indicates the target was achieved at your facility
   b) orange indicates your facility is within 5% of achieving the target
   c) red indicates your facility did not achieve the target
   d) if your facility achieved 0% for this target no bar will appear
9. Summary of how many facilities achieved target and the average across all facilities

AROC Target Outcomes Report (Inpatient - pathway 3) — Anywhere Hospital from July 2013 to June 2014
Fractured neck of femur
Background to target development

The first AROC Benchmarking Workshop run was on fractured neck of femur (#NOF) in April 2005. A follow-up workshop took place in October 2007 and the targets for outcomes of treatment of fractured neck of femur were developed at that workshop and were published in June 2008. AROC later held another follow-up #NOF Benchmarking Workshop in November 2010. The targets for outcomes of treatment of fractured neck of femur were reviewed and adjusted at this workshop and the revised targets published in March 2011.

The #NOF outcome targets developed address four key aspects of rehabilitation:

• Target 1 - Time since surgery to rehabilitation
• Target 2 - Length of inpatient hospital stay
• Target 3 - Functional gain achieved (as measured by FIM change)
• Target 4 - Discharge to accommodation, which allowed for same or greater independence
Episodes used to determine targets

Data was analysed in relation to the outcome targets at two time points, end of calendar year 2006 and financial year 2009/2010.

Data used to determine the targets comprised all episodes with AROC impairment codes:

- 8.111 (fracture of hip, unilateral)
- 8.112 (fracture of hip, bilateral)

Levels of functioning are categorised by V3 AN-SNAP classes:

- 3-227 Orthopaedic Conditions, Fractures, Motor 58-91
- 3-228 Orthopaedic Conditions, Fractures, Motor 48-57
- 3-229 Orthopaedic Conditions, Fractures, Motor 14-47, Cognitive 19-35
- 3-230 Orthopaedic Conditions, Fractures, Motor 14-47, Cognitive 5-18

Changes to AROC analysis between original target development in 2008 and revision in 2011:

- Removal of 90 days rule (episodes with a LOS greater than 90 days are no longer excluded from the dataset)
- Analysis is now based on “completed” episodes of care (refer to Appendix 1 for definition)
Summary of fractured neck of femur

Distribution of completed episodes across facilities treating #NOF

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete episodes</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3227</td>
<td>0</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3228</td>
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<td>1 2 3 4</td>
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<td>0</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>All episodes</td>
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<td></td>
</tr>
</tbody>
</table>

AOC Target Outcomes Report (Inpatient - pathway 3) --- Anywhere Hospital from July 2013 to June 2014

NOTE: 126 of 284 (47.7%) facilities reporting #NOF had fewer than 20 episodes.
**Target 1: Time since surgery to rehabilitation**

<table>
<thead>
<tr>
<th>AN-SNAP class 3-227</th>
<th>80%</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-SNAP class 3-228</td>
<td>80%</td>
</tr>
<tr>
<td>AN-SNAP class 3-229</td>
<td>70%</td>
</tr>
<tr>
<td>AN-SNAP class 3-230</td>
<td>60%</td>
</tr>
</tbody>
</table>

Data **excluded** from this analysis: nil

**NOTE:** At the time this target was developed, neither Australia or New Zealand had strong data upon which to develop a target, therefore the target was based on international literature and guidelines that rehabilitation should be started early to promote mobility and function (refer to the Scottish Intercollegiate Guidelines Network [http://www.sign.ac.uk/guidelines/fulltext/56/section9.html](http://www.sign.ac.uk/guidelines/fulltext/56/section9.html)). As a result this target was initially developed as “80% of all #NOF episodes will be admitted for rehabilitation within 7 days post surgery”.

At the time of creation of these targets AROC did not receive data from its members regarding date of surgery. As in interim measure, AROC used “date of onset” as a proxy to complete analysis. During target development participants advised that there is about a 3 day time lag between date of onset (date of relevant acute admission) and date of surgery, which needs to be considered when reporting performance against the current target.

Date of surgery is now being collected routinely in the version 4 AROC dataset, which commenced in July 2012. This target will be reviewed when sufficient V4 data exists.
#NOF Target 1: Time Since Surgery to Rehabilitation — AN-SNAP class 3-227 Target = 80% within 7 days post surgery

(33/161 facilities made target; average was 61.8%)
#NOF Target 1: Time Since Surgery to Rehabilitation — AN-SNAP class 3-228 Target = 80% within 7 days post surgery

(41/129 facilities made target; average was 63.1%)
#NOF Target 1: Time Since Surgery to Rehabilitation — AN-SNAP class 3-229 Target = 70% within 7 days post surgery

(53/145 facilities made target; average was 59.0%)
# NOF Target 1: Time Since Surgery to Rehabilitation — AN-SNAP class 3-230 Target = 60% within 7 days post surgery

(33/57 facilities made target; average was 60.3%)
## Target 2: Length of stay

### 2011 length of stay outcome targets

Half all #NOF episodes to achieve a length of stay of:

- AN-SNAP class 3-227 14 days or less
- AN-SNAP class 3-228 18 days or less
- AN-SNAP class 3-229 23 days or less
- AN-SNAP class 3-230 21 days or less

Data **excluded** from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

**NOTE:** Original outcome targets published in 2008 were set at slight stretch (40th percentile of actual 2006 data). In other words 40% of all episodes were already achieving this length of stay, whilst 60% were not.

Upon review of 2006 data for completed episodes only, it was decided to adjust the targets in-line with the statistical changes. The targets remain at the 40th percentile of 2006 data. However they now reflect completed episodes only (in-line with AROC reporting).
#NOF Target 2: Length of Stay — AN-SNAP class 3-227 Target = 14 days or less

(100/160 facilities made target; average was 55.4%)
#NOF Target 2: Length of Stay — AN-SNAP class 3-228 Target = 18 days or less

(65/129 facilities made target; average was 47.6%)
#NOF Target 2: Length of Stay — AN-SNAP class 3-229 Target = 23 days or less

(76/146 facilities made target; average was 47.4%)
# NOF Target 2: Length of Stay — AN-SNAP class 3-230 Target = 21 days or less

(25/56 facilities made target; average was 43.1%)
Target 3: FIM change

2011 functional gain outcome targets

Half all #NOF episodes to achieve a FIM change score of:

- AN-SNAP class 3-227 17 points or more
- AN-SNAP class 3-228 25 points or more
- AN-SNAP class 3-229 31 points or more
- AN-SNAP class 3-230 23 points or more

Data excluded from this analysis:

- Invalid FIM score (1 or more items not answered or null)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Original outcome targets published in 2008 were set at slight stretch (60th percentile of actual 2006 data). In other words 40% of all episodes were already achieving this length of stay, whilst 60% were not.

Upon review of 2006 data for completed episodes only, it was decided to adjust the targets in-line with the statistical changes. The targets remain at the 60th percentile of 2006 data. However they now reflect completed episodes only (in-line with AROC reporting).
#NOF Target 3: FIM Change — AN-SNAP class 3-227 Target = 17 points or more

(42/160 facilities made target; average was 37.6%)
#NOF Target 3: FIM Change — AN-SNAP class 3-228 Target = 25 points or more

(65/129 facilities made target; average was 47.6%)
#NOF Target 3: FIM Change — AN-SNAP class 3-230 Target = 23 points or more

(22/56 facilities made target; average was 43.3%)
Target 4: Discharge destination

2011 discharge destination outcome targets

Proportion of completed #NOF episodes to be discharged to pre-impairment form of accommodation or one which allows for greater independence:

- AN-SNAP class 3-227 90%
- AN-SNAP class 3-228 80%
- AN-SNAP class 3-229 75%
- AN-SNAP class 3-230 70%

Data excluded from this analysis:

- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Original outcome targets published in 2008 were set just above 2006 proportion. It was agreed to adjust the 2011 targets to be just above the 2009/2010 proportion for completed episodes as this data was more accurate and reliable than 2006 data.
#NOF Target 4: Discharge Destination — AN-SNAP class 3-227 Target = 90% achieve same or greater independence

(54/160 facilities made target; average was 78.6%)
#NOF Target 4: Discharge Destination — AN-SNAP class 3-228 Target = 80% achieve same or greater independence

(50/129 facilities made target; average was 70.9%)
#NOF Target 4: Discharge Destination — AN-SNAP class 3-229 Target = 75% achieve same or greater independence

(43/146 facilities made target; average was 63.0%)
#NOF Target 4: Discharge Destination — AN-SNAP class 3-230 Target = 70% achieve same or greater independence

(15/56 facilities made target; average was 54.8%)
Stroke
Background to target development

The first AROC stroke benchmarking workshop took place in February 2008 and the targets for outcomes of treatment of stroke developed at that workshop were published in June 2008. AROC later held a follow-up stroke benchmarking workshop in May 2011. The objective of the follow-up workshop was to evaluate the achievements of stroke outcome targets over the past 3 years and review the targets as deemed necessary. The reviewed targets for outcomes of treatment of stroke as adjusted at this workshop were published in August 2011.

The Stroke outcome targets developed address four key aspects of rehabilitation:

- **Target 1** - Time since onset to rehabilitation
- **Target 2** - Length of inpatient hospital stay
- **Target 3** - Functional gain achieved (as measured by FIM change)
- **Target 4** - Discharge to accommodation which allowed for same or greater independence
Episodes used to determine targets

Data was analysed at two time points, financial years 2006/2007 and 2009/2010. For the 2011 workshop the 2006/2007 data was re-analysed to include ‘completed episodes’ only, enabling direct comparison to the 2009/2010 data.

Data used to determine the stroke targets comprised all episodes with AROC impairment codes:

- 1.11 - Haemorrhagic, left body involvement
- 1.12 - Haemorrhagic, right body involvement
- 1.13 - Haemorrhagic, bilateral body involvement
- 1.14 - Haemorrhagic, no Paresis and
- 1.19 - Haemorrhagic, other stroke
- 1.21 - Ischaemic, left body involvement
- 1.22 - Ischaemic, right body involvement
- 1.23 - Ischaemic, bilateral body involvement
- 1.24 - Ischaemic, no Paresis and
- 1.29 - Ischaemic, other stroke

Levels of functioning are categorised by V3 AN-SNAP classes:

- 3-204 Stroke, Motor 63-91, Cognitive 20-35
- 3-205 Stroke, Motor 63-91, Cognitive 5-19
- 3-206 Stroke, Motor 47-62, Cognitive 16-35
- 3-207 Stroke, Motor 47-62, Cognitive 5-15
- 3-208 Stroke, Motor 14-46, Age>=75
- 3-209 Stroke, Motor 14-46, Age <=74
Summary of stroke

Distribution of completed episodes across facilities treating stroke

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete episodes</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3204</td>
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</tr>
<tr>
<td>3205</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3206</td>
<td>0</td>
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<td>3208</td>
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<td></td>
</tr>
<tr>
<td>3209</td>
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<td></td>
</tr>
<tr>
<td>All episodes</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

- ✔ Achieved target
- ☀ Within 5% of target
- ✗ Did not achieve target
- --- Not reported (0-4 episodes)

NOTE: 106 of 248 (42.7%) facilities reporting Stroke had fewer than 20 episodes.
## Target 1: Time between onset and rehabilitation

### 2011 time between onset and rehabilitation outcome targets

Half (50%) of all stroke episodes to be admitted for rehabilitation post onset within:

- AN-SNAP class 3-204 9 days
- AN-SNAP class 3-205 9 days
- AN-SNAP class 3-206 10 days
- AN-SNAP class 3-207 14 days
- AN-SNAP class 3-208 13 days
- AN-SNAP class 3-209 16 days

75% of stroke episodes to be admitted for rehabilitation post onset within:

- AN-SNAP class 3-204 19 days
- AN-SNAP class 3-205 19 days
- AN-SNAP class 3-206 19 days
- AN-SNAP class 3-207 19 days
- AN-SNAP class 3-208 19 days
- AN-SNAP class 3-209 19 days

Data excluded from this analysis: nil
Target 1: Time between onset and rehabilitation continued

NOTE: Development of the 2008 target was guided by best practice and clinical judgment. A dual target was set based on the 25th and 75th percentile of current data at that time.

The targets were set as identical for each AN-SNAP class; a target of 7 days between onset and rehabilitation for 50% of episodes and 19 days for 75% of episodes.

The 2011 follow-up workshop participants agreed that the data gave confirmation that the targets set in 2008 were ‘aspirational’. Very few facilities had been able to meet the targets.

The 2011 workshop adjusted the 50% targets to reflect the data current at that time. However they retained the 75% target.

In setting the 50% targets it was found the mean number of days varied across AN-SNAP classes. As a result, the 50% targets were adjusted to reflect a target by AN-SNAP class.
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-204 Target = 50% within 9 days

(103/149 facilities made target; average was 56.8%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-204 Target = 75% within 19 days

(106/148 facilities made target; average was 78.3%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-205 Target = 50% within 9 days

(12/19 facilities made target; average was 49.3%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-206 Target = 50% within 10 days

(93/140 facilities made target; average was 56.1%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-206 Target = 75% within 19 days

(93/140 facilities made target; average was 77.7%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-207 Target = 50% within 14 days

(7/9 facilities made target; average was 60.9%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-207 Target = 75% within 19 days

(5/9 facilities made target; average was 70.6%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-208 Target = 50% within 13 days

(95/127 facilities made target; average was 61.1%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-208 Target = 75% within 19 days

(73/127 facilities made target; average was 73.3%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-209 Target = 50% within 16 days

(67/94 facilities made target; average was 59.2%)
Stroke Target 1: Time Between Onset and Rehabilitation — AN-SNAP class 3-209 Target = 75% within 19 days

(36/94 facilities made target; average was 63.2%)
Target 2: Length of stay

2011 length of stay outcome targets

Half all stroke episodes to achieve a length of stay of:

- AN-SNAP class 3-204 14 days or less
- AN-SNAP class 3-205 21 days or less
- AN-SNAP class 3-206 20 days or less
- AN-SNAP class 3-207 26 days or less
- AN-SNAP class 3-208 29 days or less
- AN-SNAP class 3-209 38 days or less

Data excluded from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Targets were set at the median of 2009/2010 data. The median was chosen as statistically speaking it allows for a long tail. This means that a subset of patients can have a significantly longer length of stay, which is often required clinically, without risk of negatively impacting on the length of stay report for that unit.
Stroke Target 2: Length of Stay — AN-SNAP class 3-204 Target = 14 days or less

(123/158 facilities made target; average was 60.9%)
Stroke Target 2: Length of Stay — AN-SNAP class 3-205 Target = 21 days or less

(12/17 facilities made target; average was 61.6%)
Stroke Target 2: Length of Stay — AN-SNAP class 3-206 Target = 20 days or less

(90/145 facilities made target; average was 54.6%)
Stroke Target 2: Length of Stay — AN-SNAP class 3-207 Target = 26 days or less

(4/6 facilities made target; average was 57.1%)
Stroke Target 2: Length of Stay — AN-SNAP class 3-208 Target = 29 days or less

(49/121 facilities made target; average was 44.5%)
Stroke Target 2: Length of Stay — AN-SNAP class 3-209 Target = 38 days or less

(32/94 facilities made target; average was 43.4%)
Target 3: FIM change

2011 functional gain outcome targets

Half all stroke episodes to achieve a FIM change score of:

- AN-SNAP class 3-204 14 points or more
- AN-SNAP class 3-205 18 points or more
- AN-SNAP class 3-206 25 points or more
- AN-SNAP class 3-207 29 points or more
- AN-SNAP class 3-208 28 points or more
- AN-SNAP class 3-209 39 points or more

Data excluded from this analysis:

- Invalid FIM score (1 or more items not answered or null)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: It was agreed at the 2008 workshop that the target around functional gain would be a slight stretch target set by AN-SNAP class at the 60th percentile of 2008 data. In other words, 40% of all stroke episodes would be already achieving this level of FIM change, whilst the other 60% are not.

At the follow-up workshop in 2011 targets were adjusted to the median of the 2009/2010 data. Where the 2009/2010 data indicated a target lower than that previously set the 2008 target was retained.
Stroke Target 3: FIM Change — AN-SNAP class 3-204 Target = 14 points or more

(61/158 facilities made target; average was 42.9%)
Stroke Target 3: FIM Change — AN-SNAP class 3-205 Target = 18 points or more

(9/17 facilities made target; average was 48.5%)
Stroke Target 3: FIM Change — AN-SNAP class 3-206 Target = 25 points or more

(63/145 facilities made target; average was 44.2%)
Stroke Target 3: FIM Change — AN-SNAP class 3-207 Target = 29 points or more

(3/6 facilities made target; average was 51.0%)
Stroke Target 3: FIM Change — AN-SNAP class 3-208 Target = 28 points or more

(55/121 facilities made target; average was 45.5%)
Stroke Target 3: FIM Change — AN-SNAP class 3-209 Target = 39 points or more

(53/94 facilities made target; average was 48.4%)
Target 4: Discharge destination

2011 discharge destination outcome targets

Proportion of completed stroke episodes to be discharged to pre-impairment form of accommodation or one which allows for greater independence:

- AN-SNAP class 3-204 82%
- AN-SNAP class 3-205 77%
- AN-SNAP class 3-206 80%
- AN-SNAP class 3-207 75%
- AN-SNAP class 3-208 61%
- AN-SNAP class 3-209 78%

Data excluded from this analysis:

- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Results of data analysis at the original workshop showed large differences between the public and private sectors. Participants from public hospitals voiced realistic concerns that it would be difficult for the public sector to raise their discharge proportions to meet that of the private sector. For these reasons the target was set at the current public proportion by AN-SNAP class.

In the 2011 follow-up workshop analysis using 2009/2010 data showed that all AN-SNAP class targets were being met. As a result targets for all classes were increased.
Stroke Target 4: Discharge Destination — AN-SNAP class 3-204 Target = 82% achieve same or greater independence

(62/158 facilities made target; average was 74.2%)
Stroke Target 4: Discharge Destination — AN-SNAP class 3-205 Target = 77% achieve same or greater independence

(3/17 facilities made target; average was 45.0%)
Stroke Target 4: Discharge Destination — AN-SNAP class 3-206 Target = 80% achieve same or greater independence

(44/145 facilities made target; average was 63.5%)
Stroke Target 4: Discharge Destination — AN-SNAP class 3-207 Target = 75% achieve same or greater independence

(1/6 facilities made target; average was 50.8%)
Stroke Target 4: Discharge Destination — AN-SNAP class 3-208 Target = 61% achieve same or greater independence

(17/121 facilities made target; average was 40.7%)
Stroke Target 4: Discharge Destination — AN-SNAP class 3-209 Target = 78% achieve same or greater independence

78% (8/94 facilities made target; average was 39.5%)
Traumatic brain dysfunction
Background to target development

The first AROC brain injury benchmarking workshop took place in September 2008. Targets developed at this workshop for outcomes of treatment of brain injury were published in July 2009. AROC later held a follow-up brain injury benchmarking workshop in November 2013. The objective of the follow-up workshop was to evaluate the achievements of brain injury outcome targets over the past four years and review the targets as deemed necessary. The reviewed targets for outcomes of treatment of brain injury as adjusted at this workshop were published in February 2014.

Brain injury targets were originally set by trauma categories, that is, traumatic brain injury (TBI) and non-traumatic brain injury (NTBI). At the follow-up workshop TBI were still considered to be an homogenous group so targets were maintained and updated for open and closed injury combined, and targets for AN-SNAP class 3-202 were added. At the follow-up workshop it was agreed that there was insufficient data to develop/maintain robust targets for NTBI so these targets were removed.

Traumatic brain injury outcome targets developed address four key aspects of rehabilitation:

• Target 1 - Time since onset to rehabilitation
• Target 2 - Length of inpatient hospital stay
• Target 3 - Functional gain achieved (as measured by FIM change)
• Target 4 - Discharge to accommodation, which allowed for same or greater independence
Episodes used to determine targets

Data was analysed using a subset of financial year 2012 brain injury episodes belonging to “specialist” Brain Injury Units identified from around Australia and New Zealand.

Data used to determine the TBI targets comprised all episodes with AROC impairment codes:
- 2.21 (open injury)
- 2.22 (closed injury)

Levels of functioning are categorised by V3 AN-SNAP classes:
- 3-210 - Brain Dysfunction, motor 56-91, cognitive 32-35
- 3-211 - Brain Dysfunction, motor 56-91, cognitive 24-31
- 3-212 - Brain Dysfunction, motor 56-91, cognitive 20-23
- 3-213 - Brain Dysfunction, motor 56-91, cognitive 5-19
- 3-214 - Brain Dysfunction, motor 24-55
- 3-215 - Brain Dysfunction, motor 14-23
- 3-202 - Brain Dysfunction, motor 13
Summary of traumatic brain injury (TBI)

Distribution of completed episodes across facilities treating traumatic brain injury

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>— — — —</td>
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<td>— — — —</td>
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<td>— — — —</td>
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<tr>
<td>3202</td>
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<td>— — — —</td>
</tr>
<tr>
<td>All episodes</td>
<td>0</td>
<td>— — — —</td>
</tr>
</tbody>
</table>

* No figures provided for this AN-SNAP class due to insufficient episodes

Note: 156 of 170 (91.2%) facilities reporting Traumatic Brain Dysfunction had fewer than 15 episodes.
Target 1: Time between onset and rehabilitation

2014 time between onset and rehabilitation outcome targets

Traumatic Brain Injury:

• 50% of TBI episodes to start rehabilitation within 14 days of injury

Data excluded from this analysis: nil

NOTE: Best practice, clinical judgment and the current data guided the development of these targets. Targets were set at a slightly higher level than the current data and independent of AN-SNAP classes.
TBI Target 1: Time Between Onset and Rehabilitation — Target = 50% within 14 days

(15/20 facilities made target; average was 36.6%)
Target 2: Length of stay

2014 length of stay outcome targets

Half of all TBI episodes to achieve a length of stay of:

- AN-SNAP class 3-210 12 days or less
- AN-SNAP class 3-211 16 days or less
- AN-SNAP class 3-212 22 days or less
- AN-SNAP class 3-213 26 days or less
- AN-SNAP class 3-214 36 days or less
- AN-SNAP class 3-215 70 days or less
- AN-SNAP class 3-202 105 days or less

Data excluded from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Targets were set at the FY2012 median (50% mark) allowing for a long tail. This means that a subset of patients can have a significantly longer length of stay, which is often required clinically, without negatively impacting the LOS report for that unit.
TBI Target 2: Length of Stay — AN-SNAP class 3-210 Target = 12 days or less

(3/4 facilities made target; average was 62.5%)
TBI Target 2: Length of Stay — AN-SNAP class 3-211 Target = 16 days or less

(10/17 facilities made target; average was 57.1%)
Proportion of completed episodes to achieve a length of stay of \( \leq 22 \) days

24 facilities made target; average was 47.1%
TBI Target 2: Length of Stay — AN-SNAP class 3-213 Target = 26 days or less

(5/9 facilities made target; average was 43.3%)
TBI Target 2: Length of Stay — AN-SNAP class 3-214 Target = 36 days or less

(6/11 facilities made target; average was 54.8%)
TBI Target 2: Length of Stay — AN-SNAP class 3-202 Target = 105 days or less

(3/4 facilities made target; average was 48.9%)
# Target 3: FIM change

## 2014 functional gain outcome targets

Half of all TBI episodes to achieve a FIM change of:

- AN-SNAP class 3-210 8 points or more
- AN-SNAP class 3-211 13 points or more
- AN-SNAP class 3-212 16 points or more
- AN-SNAP class 3-213 26 points or more
- AN-SNAP class 3-214 50 points or more
- AN-SNAP class 3-215 77 points or more
- AN-SNAP class 3-202 78 points or more

Data **excluded** from this analysis:

- Invalid FIM score (1 or more items not answered or null)
- Incomplete episodes (refer to Appendix 1 for definition)

**NOTE:** Targets were set at the FY2012 median (50% mark) allowing for a long tail. This means that a subset of patients can have a significantly lower FIM change score, which can occur clinically, without risk of negatively impacting the FIM change report for that unit.
TBI Target 3: FIM Change — AN-SNAP class 3-210 Target = 8 points or more

(4/4 facilities made target; average was 70.6%)
TBI Target 3: FIM Change — AN-SNAP class 3-211 Target = 13 points or more

Proportion of completed episodes to achieve a FIM change of 13+ points

50%

0%

(10/17 facilities made target; average was 57.1%)
Proportion of completed episodes to achieve a FIM change of 16+ points

TBI Target 3: FIM Change —AN-SNAP class 3-212 Target = 16 points or more

(3/4 facilities made target; average was 63.6%)
TBI Target 3: FIM Change — AN-SNAP class 3-213 Target = 26 points or more

(5/9 facilities made target; average was 48.6%)
TBI Target 3: FIM Change — AN-SNAP class 3-214 Target = 50 points or more

Proportion of completed episodes to achieve a FIM change of 50+ points

50% journey

(7/11 facilities made target; average was 47.4%)
TBI Target 3: FIM Change — AN-SNAP class 3-202 Target = 78 points or more

(0/4 facilities made target; average was 28.3%)
Target 4: Discharge destination

2014 discharge destination outcome targets

Proportion of brain injury completed episodes discharged to the community that will be discharged to a private residence:

- TBI 90%

Data excluded from this analysis:

- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: Feedback from the workshop regarding discharge destination targets was mixed. It has been suggested that the target should reflect discharge to the most appropriate setting for their remaining disability, which is not necessarily the patient’s home. This is a valid suggestion, however the current AROC dataset does not have a field for recording “appropriateness of discharge destination”.

It was determined that this target should be set just above the proportion of the cohort discharged to the community, i.e. excluding episodes that remained in the hospital setting, and independent of AN-SNAP classes.
TBI Target 4: Discharge Destination — Target = 90% discharged to a private residence

(9/14 facilities made target; average was 90.5%)
Reconditioning
Background to target development

The first AROC reconditioning benchmarking workshop took place in July 2009. Targets developed at this workshop for outcomes of treatment of reconditioning were published in November 2009.

Reconditioning impairments are not a homogenous group and it was agreed at the workshop that targets needed to be developed at an impairment level.

The reconditioning outcome targets developed address three key aspects of rehabilitation:

• Target 1 - Length of inpatient hospital stay
• Target 2 - Functional gain achieved (as measured by FIM change)
• Target 3 - Discharge to accommodation, which allowed for same or greater independence
Episodes used to determine targets

Data was analysed using calendar year 2008 data.

Episodes used to determine the targets comprised all episodes with AROC impairment codes:

• 16.1 (reconditioning post surgery)
• 16.2 (reconditioning post medical illness)
• 16.3 (reconditioning post cancer)

Levels of functioning are categorised by V3 AN-SNAP classes:

• 3-242 - Other Impairments, Motor 67-91
• 3-243 - Other Impairments, Motor 53-66
• 3-244 - Other Impairments, Motor 25-52
• 3-245 - Other Impairments, Motor 14-24
Summary of reconditioning post surgery

Distribution of completed episodes across facilities treating reconditioning following surgery

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete episodes</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3242</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3243</td>
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<td></td>
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<tr>
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</tr>
<tr>
<td>3245</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>All episodes</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

✓ Achieved target
_within 5% of target
✗ Did not achieve target
Not reported (0-4 episodes)

NOTE: 154 of 263 (58.6%) facilities reporting Reconditioning following Surgery had fewer than 20 episodes.
Target 1: Length of stay

2009 reconditioning length of stay outcome targets

Half of all reconditioning post surgery episodes to achieve a length of stay of:

- AN-SNAP class 3-242 11 days or less
- AN-SNAP class 3-243 14 days or less
- AN-SNAP class 3-244 20 days or less
- AN-SNAP class 3-245 no target set due to insufficient episodes

Data excluded from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of current data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have a significantly longer LOS, which is often required clinically, without negatively impacting on the LOS report for that unit.
Reconditioning post surgery Target 1: Length of Stay — AN-SNAP class 3-242 Target = 11 days or less

Proportion of completed episodes to achieve a length of stay of ≤11 days

50%

(81/134 facilities made target; average was 52.9%)
Reconditioning post surgery Target 1: Length of Stay — AN-SNAP class 3-243 Target = 14 days or less

(78/132 facilities made target; average was 53.0%)
Reconditioning post surgery Target 1: Length of Stay — AN-SNAP class 3-244 Target = 20 days or less

(67/118 facilities made target; average was 51.7%)
Target 2: FIM change

2009 reconditioning functional gain outcome targets

Half of all reconditioning post surgery episodes to achieve a FIM change of:

- AN-SNAP class 3-242 10 points or more
- AN-SNAP class 3-243 19 points or more
- AN-SNAP class 3-244 26 points or more
- AN-SNAP class 3-245 no target set due to insufficient episodes

Data excluded from this analysis:

- Invalid FIM score (1 or more items not answered or null)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of 2008 data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have significantly less FIM change, without negatively impacting on the FIM change report for that unit.
Reconditioning post surgery Target 2: FIM Change — AN-SNAP class 3-24 Target = 10 points or more

(69/134 facilities made target; average was 49.7%)
Reconditioning post surgery Target 2: FIM Change — AN-SNAP class 3-243 Target = 19 points or more

(71/132 facilities made target; average was 51.5%)
Reconditioning post surgery Target 2: FIM Change — AN-SNAP class 3-244 Target = 26 points or more

(65/118 facilities made target; average was 47.8%)
## Target 3: Discharge destination

### 2009 reconditioning discharge destination outcome targets

Proportion of reconditioning post surgery episodes discharged to accommodation that allows for same or greater independence:

- AN-SNAP class 3-242 84%
- AN-SNAP class 3-243 86%
- AN-SNAP class 3-244 79%
- AN-SNAP class 3-245 no target set due to insufficient episodes

Data **excluded** from this analysis:

- Incomplete episodes (refer to Appendix 1 for definition)

**NOTE:** This target is set at the 2008 proportion of episodes discharged to accommodation that allows for same or greater independence.
Reconditioning post surgery Target 3: Discharge Destination — AN-SNAP class 3-242 Target = 84%
achieve same or greater independence

(73/134 facilities made target; average was 81.8%)
Reconditioning post surgery Target 3: Discharge Destination — AN-SNAP class 3-243 Target = 86%
achieve same or greater independence

(42/132 facilities made target; average was 76.6%)
Reconditioning post surgery Target 3: Discharge Destination — AN-SNAP class 3-244 Target = 79%
achieve same or greater independence

(51/118 facilities made target; average was 72.8%)
Summary of reconditioning post medical illness

Distribution of completed episodes across facilities treating reconditioning following medical illness

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete episodes</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3242</td>
<td>0</td>
<td>1 2 3</td>
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<tr>
<td>3243</td>
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<td>0</td>
<td>1 2 3</td>
</tr>
<tr>
<td>All episodes</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: 80 of 260 (30.8%) facilities reporting Reconditioning following Medical Illness had fewer than 20 episodes.
Target 1: Length of stay

2009 reconditioning length of stay outcome targets

Half of all reconditioning post medical illness episodes to achieve a length of stay of:

- AN-SNAP class 3-242 13 days or less
- AN-SNAP class 3-243 15 days or less
- AN-SNAP class 3-244 20 days or less
- AN-SNAP class 3-245 26 days or less

Data excluded from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of current data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have a significantly longer LOS, which is often required clinically, without negatively impacting on the LOS report for that unit.
Reconditioning post medical illness Target 1: Length of Stay — AN-SNAP class 3-242 Target = 13 days or less

(128/178 facilities made target; average was 59.9%)
Reconditioning post medical illness Target 1: Length of Stay — AN-SNAP class 3-243 Target = 15 days or less

Proportion of completed episodes to achieve a length of stay of ≤15 days

(125/197 facilities made target; average was 56.2%)
Reconditioning post medical illness Target 1: Length of Stay — AN-SNAP class 3-244 Target = 20 days or less

(113/190 facilities made target; average was 54.0%)
Reconditioning post medical illness Target 1: Length of Stay — AN-SNAP class 3-245 Target = 26 days or less

(35/45 facilities made target; average was 60.5%)
Target 2: FIM change

2009 reconditioning functional gain outcome targets

Half of all reconditioning post medical illness episodes to achieve a FIM change of:

AN-SNAP class 3-242  9 points or more
AN-SNAP class 3-243  16 points or more
AN-SNAP class 3-244  21 points or more
AN-SNAP class 3-245  13 points or more

Data excluded from this analysis:

• Invalid FIM score (1 or more items not answered or null)
• Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of 2008 data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have significantly less FIM change, without negatively impacting on the FIM change report for that unit.
Reconditioning post medical illness Target 2: FIM Change — AN-SNAP class 3-242 Target = 9 points or more

(91/178 facilities made target; average was 52.1%)
Reconditioning post medical illness Target 2: FIM Change — AN-SNAP class 3-243 Target = 16 points or more

(111/197 facilities made target; average was 53.5%)
Reconditioning post medical illness Target 2: FIM Change — AN-SNAP class 3-244 Target = 21 points or more

Proportion of completed episodes to achieve a FIM change of 21+ points

(90/190 facilities made target; average was 47.8%)
Reconditioning post medical illness Target 2: FIM Change — AN-SNAP class 3-245 Target = 13 points or more

(29/45 facilities made target; average was 57.6%)
Target 3: Discharge destination

2009 reconditioning discharge destination outcome targets
Proportion of reconditioning post medical illness episodes discharged to accommodation that allows for same or greater independence:

- AN-SNAP class 3-242 83%
- AN-SNAP class 3-243 82%
- AN-SNAP class 3-244 75%
- AN-SNAP class 3-245 61%

Data excluded from this analysis:
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target is set at the 2008 proportion of episodes discharged to accommodation that allows for same or greater independence.
Reconditioning post medical illness Target 3: Discharge Destination — AN-SNAP class 3-242 Target = 83% achieve same or greater independence

(99/178 facilities made target; average was 81.4%)
Reconditioning post medical illness Target 3: Discharge Destination — AN-SNAP class 3-243 Target = 82% achieve same or greater independence

(79/197 facilities made target; average was 75.7%)
Reconditioning post medical illness Target 3: Discharge Destination — AN-SNAP class 3-244 Target = 75% achieve same or greater independence

(87/190 facilities made target; average was 71.0%)
Reconditioning post medical illness Target 3: Discharge Destination — AN-SNAP class 3-245 Target = 61% achieve same or greater independence

(17/45 facilities made target; average was 58.6%)
Summary of reconditioning post cancer

Distribution of completed episodes across facilities treating reconditioning following cancer

Snapshot of target outcomes at your facility:

<table>
<thead>
<tr>
<th>AN-SNAP class</th>
<th>Complete episodes</th>
<th>Target status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3242</td>
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<td>3245</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>All episodes</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: 163 of 171 (95.3%) facilities reporting Reconditioning following Cancer had fewer than 20 episodes.
Target 1: Length of stay

2009 reconditioning length of stay outcome targets
Half of all reconditioning post cancer episodes to achieve a length of stay of:

- AN-SNAP class 3-242 13 days or less
- AN-SNAP class 3-243 14 days or less
- AN-SNAP class 3-244 20 days or less
- AN-SNAP class 3-245 no target set due to insufficient episodes

Data excluded from this analysis:

- Invalid LOS (error in dates giving negative or > 500 days LOS)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of current data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have a significantly longer LOS, which is often required clinically, without negatively impacting on the LOS report for that unit.
Reconditioning post cancer Target 1: Length of Stay — AN-SNAP class 3-242 Target = 13 days or less

(9/17 facilities made target; average was 54.2%)
Reconditioning post cancer Target 1: Length of Stay — AN-SNAP class 3-243 Target = 14 days or less

(11/14 facilities made target; average was 58.2%)
Reconditioning post cancer Target 1: Length of Stay — AN-SNAP class 3-244 Target = 20 days or less

Proportion of completed episodes to achieve a length of stay of ≤20 days

(8/10 facilities made target; average was 71.9%)
Target 2: FIM change

2009 reconditioning functional gain outcome targets

Half of all reconditioning post cancer episodes to achieve a FIM change of:

AN-SNAP class 3-242 8 points or more
AN-SNAP class 3-243 19 points or more
AN-SNAP class 3-244 23 points or more
AN-SNAP class 3-245 no target set due to insufficient episodes

Data excluded from this analysis:

- Invalid FIM score (1 or more items not answered or null)
- Incomplete episodes (refer to Appendix 1 for definition)

NOTE: This target was set at the median of 2008 data for the cohort discharged to the community. Statistically speaking setting the target as the median allows for a long tail. This means that a subset of patients can have significantly less FIM change, without negatively impacting on the FIM change report for that unit.
Reconditioning post cancer Target 2: FIM Change — AN-SNAP class 3-242 Target = 8 points or more

(15/17 facilities made target; average was 70.0%)
Reconditioning post cancer Target 2: FIM Change — AN-SNAP class 3-243 Target = 19 points or more

Proportion of completed episodes to achieve a FIM change of 19+ points

50%

(6/14 facilities made target; average was 44.8%)
Reconditioning post cancer Target 2: FIM Change — AN-SNAP class 3-244 Target = 23 points or more

(4/10 facilities made target; average was 49.0%)
## Target 3: Discharge destination

### 2009 reconditioning discharge destination outcome targets

Proportion of reconditioning post cancer episodes discharged to accommodation that allows for same or greater independence:

- AN-SNAP class 3-242  88%
- AN-SNAP class 3-243  84%
- AN-SNAP class 3-244  77%
- AN-SNAP class 3-245  no target set due to insufficient episodes

Data **excluded** from this analysis:

- Incomplete episodes (refer to Appendix 1 for definition)

**NOTE:** This target is set at the 2008 proportion of episodes discharged to accommodation that allows for same or greater independence.
Reconditioning post cancer Target 3: Discharge Destination — AN-SNAP class 3-242 Target = 88% achieve same or greater independence

(8/17 facilities made target; average was 79.2%)
Reconditioning post cancer Target 3: Discharge Destination — AN-SNAP class 3-243 Target = 84% achieve same or greater independence

(6/14 facilities made target; average was 75.9%)
Reconditioning post cancer Target 3: Discharge Destination — AN-SNAP class 3-244 Target = 77% achieve same or greater independence

Proportion of completed episodes to be discharged to accommodation that allows for same or greater independence

77%

(0/10 facilities made target; average was 52.0%)
Appendix 1: Glossary

**AN-SNAP**

The Australian National Sub-Acute and Non-Acute Patient Classification (AN-SNAP) is a casemix classification for sub-acute and non-acute care provided in a variety of treatment settings. Version 3, introduced in January 2012, is used in these reports; refer to Appendix 3 for the full list of classes.

**Change in FIM score**

The change in functional status from the beginning to the end of the episode is measured by the change in FIM score. This is calculated as the FIM score at the end of the episode minus the FIM score at the start of the episode. In some instances the change in total FIM score (the sum of items 1 to 18) is calculated. In other cases either the change in FIM motor score (the sum of items 1 to 13) or the change in FIM cognition score (the sum of items 14 to 18) is calculated.

A higher FIM score corresponds to higher level of function while a lower FIM score represents less functional independence. This means that a positive value for the change in FIM score indicates functional improvement of the client during the episode. A negative value for the change in FIM score indicates a decline in functional independence during the episode.

**Complete/incomplete episode**

An episode is considered “complete” for the purpose of calculating outcome statistics in this report if (A) the mode of episode end was either 1 (discharged to usual accommodation) or 2 (discharged to interim accommodation) AND total FIM score at episode end was greater than 18, or (B) the mode of episode end was 7 (change of care type within sub-acute/non-acute care) AND length of stay greater than 6 days.
Data Concatenation

Increasingly some jurisdictions have introduced business rules around data collection that have resulted in episodes of rehabilitation being ended and then re-commenced a few days later. AROC definitions would record these as one episode with the period in between defined as a suspension of rehabilitation. Such business rules result in two (or more) episodes of rehabilitation being reported to AROC when only one full episode should be reported.

Whilst this happens much more frequently in some impairment groups (e.g. spinal cord injury & brain injury) it does impact all impairments to some degree. Reporting of multiple episodes impacts outcomes analysis, resulting in shorter than real length of stays and reduced FIM change being reported.

Concatenated episodes will have a revised Length of stay and FIM change (start details will be taken from the identified primary episode; end details from the identified final episode), and will also have a revised number of suspensions (being the sum across all concatenated ‘submitted episodes’ plus the number of breaks between ‘submitted episodes’) and a revised number of suspension days (being the sum across all concatenated ‘submitted episodes’ plus the sum of all days between ‘submitted episodes’).

Reported episodes to AROC are identified for concatenation based on the following rules:

- Subsequent episodes MUST have same impairment code and be from same reporting facility with same MRN and DOB
- Leading episode must be discharged into the hospital system with following episode being admitted from hospital system
- Number of days between episodes being 0-14 days for spinal and 0-7 days for all other impairments

To make it easier for AROC to identify episodes that should be concatenated in January 2014 the data item Mode of Episode Start had an additional code set value added: 9 = recommenced rehabilitation episode following suspension
Glossary . . . continued

FIM
The Functional Independence Measure (FIM) is used as a tool to assess the functional independence of patients at episode start and end. Details of the specific FIM instrument used in these reports can be found in “UDSmr Adult FIM Workshop – Participant Manual, Version 5.1 (Australia). Buffalo, NY 14214: State University of New York at Buffalo; 2008.”

Length of stay
The length of stay of an episode is the number of days on which care has been provided. It is calculated as the end date minus the start date, minus the number of leave days during the episode.

Version 4 data set
Version 4 (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).

This report utilises only Pathway 3 data (inpatient direct care).
## Appendix 2: AROC impairment codes

### STROKE

<table>
<thead>
<tr>
<th>Haemorrhagic</th>
<th>Ischaemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.11 Left body involvement</td>
<td>1.21 Left body involvement (right brain)</td>
</tr>
<tr>
<td>1.12 Right body involvement</td>
<td>1.22 Right body involvement (left brain)</td>
</tr>
<tr>
<td>1.13 Bilateral involvement</td>
<td>1.23 Bilateral involvement</td>
</tr>
<tr>
<td>1.14 No paresis</td>
<td>1.24 No paresis</td>
</tr>
<tr>
<td>1.19 Other Stroke</td>
<td>1.29 Other stroke</td>
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</tbody>
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### BRAIN DYSFUNCTION

<table>
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<tr>
<th>Non-traumatic</th>
<th>Traumatic</th>
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</thead>
<tbody>
<tr>
<td>2.11 Sub-arachnoid haemorrhage</td>
<td>2.21 Open injury</td>
</tr>
<tr>
<td>2.12 Anoxic brain damage</td>
<td>2.22 Closed injury</td>
</tr>
<tr>
<td>2.13 Other non-traumatic brain dysfunction</td>
<td>2.23 Other non-traumatic spinal cord dysfunction</td>
</tr>
</tbody>
</table>

### NEUROLOGICAL CONDITIONS

| 3.1 Multiple Sclerosis | 3.9 Other neurological conditions |
| 3.2 Parkinsonism | 3.8 Neuromuscular disorders |
| 3.3 Polyneuropathy | 3.5 Cerebral palsy |
| 3.4 Guillian-Barre | 3.6 Other neurological conditions |

### SPINAL CORD DYSFUNCTION

<table>
<thead>
<tr>
<th>Non traumatic spinal cord dysfunction</th>
<th>Traumatic spinal cord dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.111 Paraplegia, incomplete</td>
<td>4.211 Paraplegia, incomplete</td>
</tr>
<tr>
<td>4.112 Paraplegia, complete</td>
<td>4.212 Paraplegia, complete</td>
</tr>
<tr>
<td>4.1211 Quadriplegia, incomplete C1-4</td>
<td>4.2211 Quadriplegia, incomplete C1-4</td>
</tr>
<tr>
<td>4.1212 Quadriplegia, incomplete C5-8</td>
<td>4.2212 Quadriplegia, incomplete C1-4</td>
</tr>
<tr>
<td>4.1221 Quadriplegia, complete C1-4</td>
<td>4.2221 Quadriplegia, complete C1-4</td>
</tr>
<tr>
<td>4.1222 Quadriplegia, complete C5-8</td>
<td>4.2222 Quadriplegia, complete C5-8</td>
</tr>
<tr>
<td>4.13 Other non-traumatic spinal cord dysfunction</td>
<td>4.23 Other traumatic spinal cord dysfunction</td>
</tr>
</tbody>
</table>

### AMPUTATION OF LIMB

<table>
<thead>
<tr>
<th>Non resulting from trauma</th>
<th>Resulting from trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.11 Single upper above elbow</td>
<td>5.21 Single upper above elbow</td>
</tr>
<tr>
<td>5.12 Single upper below elbow</td>
<td>5.22 Single upper below elbow</td>
</tr>
<tr>
<td>5.13 Single lower above knee (includes through knee)</td>
<td>5.23 Single lower above below knee (includes through knee)</td>
</tr>
<tr>
<td>5.14 Single lower below knee</td>
<td>5.24 Single lower below knee</td>
</tr>
<tr>
<td>5.15 Double lower above knee (includes through knee)</td>
<td>5.25 Double lower above knee (includes through knee)</td>
</tr>
<tr>
<td>5.16 Double lower above/below knee</td>
<td>5.26 Double lower above/below knee</td>
</tr>
<tr>
<td>5.17 Double lower below knee</td>
<td>5.27 Double lower below knee</td>
</tr>
<tr>
<td>5.18 Partial foot (single or double)</td>
<td>5.28 Partial foot (single or double)</td>
</tr>
<tr>
<td>5.19 Other amputation not from trauma</td>
<td>5.29 Other amputation from trauma</td>
</tr>
</tbody>
</table>

### ARTHRITIS

<table>
<thead>
<tr>
<th>6.1 Rheumatoid arthritis</th>
<th>6.2 Osteoarthritis</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.9 Other arthritis</td>
<td></td>
</tr>
</tbody>
</table>

### PAIN SYNDROMES

<table>
<thead>
<tr>
<th>7.1 Neck pain</th>
<th>7.9 Other pain (includes abdo/chest wall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2 Back Pain</td>
<td>7.5 Multi-site pain</td>
</tr>
<tr>
<td>7.3 Extremity pain</td>
<td>7.7 Headache (includes migraine)</td>
</tr>
<tr>
<td>7.4 Headache (includes migraine)</td>
<td>7.8 Other pain (includes abdo/chest wall)</td>
</tr>
</tbody>
</table>
ORTHOPAEDIC CONDITIONS

Fractures (includes dislocation)
8.111 Fracture of hip, unilateral (incl. #NOF)
8.112 Fracture of hip, bilateral (incl. #NOF)
8.12 Fracture of shaft of femur
8.13 Fracture of pelvis
8.141 Fracture of knee
8.142 Fracture of lower leg, ankle, foot
8.15 Fracture of upper limb
8.16 Fracture of spine
8.17 Fracture of multiple sites
8.19 Other orthopaedic fracture

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 and hip replacement, same side
8.232 Knee and hip replacement, diff sides
8.24 Shoulder replacement
8.25 Post spinal surgery
8.26 Other orthopaedic surgery

Soft tissue injury
8.3 Soft tissue injury

CARDIAC
9.1 Following recent onset of new cardiac impairment
9.2 Chronic cardiac insufficiency
9.3 Heart and 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 deformity

OTHER DISABLING IMPAIRMENTS
13.1 Lymphoedema
13.3 Conversion disorder
13.9 Other disabling impairments that cannot be classified into a specific group

MAJOR MULTIPLE TRAUMA
14.1 Brain + spinal cord injury
14.2 Brain + multiple fracture/amputation
14.3 Spinal cord + multi fracture/amputation
14.9 Other multiple trauma

DEVELOPMENTAL DISABILITIES
15.1 Developmental disabilities (excludes cerebral palsy)

RE-CONDITIONING/RESTORATIVE
16.1 Re-conditioning following surgery
16.2 Reconditioning following medical illness
16.3 Cancer rehabilitation
Appendix 3: AN-SNAP V3 overnight rehabilitation classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Description of AN-SNAP class</th>
<th>Class</th>
<th>Description of AN-SNAP Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-201</td>
<td>Rehabilitation, admit for assessment only</td>
<td>3-224</td>
<td>Amputation of limb, FIM motor 72-91</td>
</tr>
<tr>
<td>3-202</td>
<td>Brain, Neurological, Spinal &amp; Major Multiple Trauma, FIM motor 13</td>
<td>3-225</td>
<td>Amputation of limb, FIM motor 14-71</td>
</tr>
<tr>
<td>3-203</td>
<td>All other impairments, FIM motor 13</td>
<td>3-226</td>
<td>Pain Syndromes</td>
</tr>
<tr>
<td>3-204</td>
<td>Stroke, FIM motor 63-91, FIM cognition 20-35</td>
<td>3-227</td>
<td>Orthopaedic conditions, fractures, FIM motor 58-91</td>
</tr>
<tr>
<td>3-205</td>
<td>Stroke, FIM motor 63-91, FIM cognition 5-19</td>
<td>3-228</td>
<td>Orthopaedic conditions, fractures, FIM motor 48-57</td>
</tr>
<tr>
<td>3-207</td>
<td>Stroke, FIM motor 47-62, FIM cognition 5-15</td>
<td>3-230</td>
<td>Orthopaedic conditions, fractures, FIM motor 14-47, FIM cognition 5-18</td>
</tr>
<tr>
<td>3-208</td>
<td>Stroke, FIM motor 14-46, age&gt;=75</td>
<td>3-231</td>
<td>Orthopaedic conditions, replacement, FIM motor 72-91</td>
</tr>
<tr>
<td>3-209</td>
<td>Stroke, FIM motor 14-46, age&lt;=74</td>
<td>3-232</td>
<td>Orthopaedic conditions, replacement, FIM motor 49-71</td>
</tr>
<tr>
<td>3-210</td>
<td>Brain Dysfunction, FIM motor 56-91, FIM cognition 32-35</td>
<td>3-233</td>
<td>Orthopaedic conditions, replacement, FIM motor 14-48</td>
</tr>
<tr>
<td>3-211</td>
<td>Brain Dysfunction, FIM motor 56-91, FIM cognition 24-31</td>
<td>3-234</td>
<td>Orthopaedic conditions, all other, FIM motor 68-91</td>
</tr>
<tr>
<td>3-212</td>
<td>Brain Dysfunction, FIM motor 56-91, FIM cognition 20-23</td>
<td>3-235</td>
<td>Orthopaedic conditions, all other, FIM motor 53-67</td>
</tr>
<tr>
<td>3-213</td>
<td>Brain Dysfunction, FIM motor 56-91, FIM cognition 5-19</td>
<td>3-236</td>
<td>Orthopaedic conditions, all other, FIM motor 14-52</td>
</tr>
<tr>
<td>3-214</td>
<td>Brain Dysfunction, FIM motor 24-55</td>
<td>3-237</td>
<td>Cardiac</td>
</tr>
<tr>
<td>3-215</td>
<td>Brain Dysfunction, FIM motor 14-23</td>
<td>3-238</td>
<td>Major Multiple Trauma, FIM total 101-126</td>
</tr>
<tr>
<td>3-216</td>
<td>Neurological, FIM motor 63-91</td>
<td>3-239</td>
<td>Major Multiple Trauma, FIM total 74-100 or Burns</td>
</tr>
<tr>
<td>3-217</td>
<td>Neurological, FIM motor 49-62</td>
<td>3-240</td>
<td>Major Multiple Trauma, FIM total 44-73</td>
</tr>
<tr>
<td>3-218</td>
<td>Neurological, FIM motor 18-48</td>
<td>3-241</td>
<td>Major Multiple Trauma, FIM total 19-43</td>
</tr>
<tr>
<td>3-219</td>
<td>Neurological, FIM motor 14-17</td>
<td>3-242</td>
<td>All other impairments, FIM motor 67-91</td>
</tr>
<tr>
<td>3-220</td>
<td>Spinal Cord Dysfunction, FIM motor 81-91</td>
<td>3-243</td>
<td>All other impairments, FIM motor 53-66</td>
</tr>
<tr>
<td>3-221</td>
<td>Spinal Cord Dysfunction, FIM motor 47-80</td>
<td>3-244</td>
<td>All other impairments, FIM motor 25-52</td>
</tr>
<tr>
<td>3-222</td>
<td>Spinal Cord Dysfunction, FIM motor 14-46, age&gt;=33</td>
<td>3-245</td>
<td>All other impairments, FIM motor 14-24</td>
</tr>
<tr>
<td>3-223</td>
<td>Spinal Cord Dysfunction, FIM motor 14-46, age&lt;=32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** AN-SNAP classes for inpatient rehabilitation have not changed between V2 and V3.
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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: +61 2 4221 4411
Email: aroc@uow.edu.au
Web: ahsri.uow.edu.au/aroc