

# BMJ Open Development of a minimum dataset for subacute rehabilitation: a three-round e-Delphi consensus study

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## ABSTRACT

**Objectives** To develop a minimum dataset to be routinely collected across a heterogeneous population within a subacute rehabilitation service to guide best care and outcomes for patients, and value for the health service.

**Design** Three-round e-Delphi exercise, followed by consensus meetings.

**Setting** Multicentre study in Brisbane, Australia.

**Participants** Rehabilitation decision-makers, researchers and clinicians were invited to participate in the e-Delphi exercise. A multidisciplinary project steering committee (rehabilitation decision makers, researchers, clinicians and consumers) participated in consensus meetings.

**Methods** In round 1 of the e-Delphi, participants responded to an open-ended question, generating data and outcomes that should be routinely collected in rehabilitation. In rounds 2 and 3, participants rated the importance of collecting each item on a nine-point scale. Consensus was defined a priori, as items rated as 'essential' by at least 70%, and of 'limited importance' by less than 15%, of respondents. Consensus meetings were held to refine and define the dataset for implementation.

**Results** In total, 38 participants completed round 1 of the e-Delphi. Qualitative content analysis of their responses generated 1072 codes, which were condensed into 39 categories and 209 subcategories. Following two rounds of rating (round 2: n=32 participants; round 3: n=28 participants), consensus was reached for 124 items. Four consensus meetings (n=14 participants) resulted in the final dataset which included 42 items across six domains: (1) patient demographics, (2) premorbid health and psychosocial information, (3) admission information, (4) service delivery and interventions, (5) outcomes and (6) caregiver information and outcomes.

**Conclusions** We identified 42 items that reflect the values and experiences of rehabilitation stakeholders. Items unique to this dataset include caregiver information and outcomes, and detailed service delivery and intervention data. Future research will establish the feasibility of collection in practice.

## INTRODUCTION

In recent years, there has been an increase in the prevalence of health conditions that result in severe disability, resulting in greater demand for rehabilitation services globally.<sup>1–3</sup>

## Strengths and limitations of this study

- A strength of this study was the inclusion of multiple stakeholder groups, producing a consensus-derived minimum dataset that accounts for the diverse perspectives and priorities across rehabilitation settings (as opposed to specific subdivisions, professions and conditions).
- Response rates decreased across Delphi rounds in the current study, but representation was maintained across all stakeholder groups, discipline backgrounds and clinical specialty.
- The sample was limited to universities and/or publicly funded rehabilitation services in Queensland, Australia, potentially limiting generalisability to international and/or private rehabilitation settings.
- The final dataset was refined by a multistakeholder steering committee with local implementation in mind, meaning that further refinement may be needed for implementation in other rehabilitation settings.

This demand is expected to continue to increase in a climate of higher survival rates, longer life expectancies and the increasing prevalence of chronic disease.<sup>1–3</sup> Rehabilitation is defined as a series of interventions required when everyday function is limited due to either ageing or a health condition, including chronic diseases or disorders, injuries or traumas.<sup>4</sup> An estimated 74% of all years lived with disability are caused by health conditions for which rehabilitation may be beneficial.<sup>1</sup> In view of a rising need for rehabilitation, WHO global disability action plan calls for efficient models of care that can strengthen and extend rehabilitation.<sup>5</sup>

A need to rethink rehabilitation has resulted in a shift towards value-based models of care, which account for consumer perspectives on high-quality outcomes<sup>6–9</sup> and are defined by the ratio between these outcomes and their respective costs.<sup>10</sup> Core to achieving value-based care is the capture of data that extends beyond measures of cost

and efficiency, to measures of effectiveness, value and experience.<sup>6,11</sup> Data collection is vital for quality improvement, as it enables institutions to evaluate their existing practice, and to identify areas for ongoing improvement and innovation.<sup>12</sup> However, there is currently a wide variation in the data and outcomes collected in rehabilitation, and current data collection initiatives may not fully encompass the principles of patient-centred and value-based care. Minimum datasets (MDS) within healthcare settings have been used to reduce such variation in data collection and have been defined as a coherent set of data elements which should be collected for specific categories or domains of healthcare.<sup>13</sup> Ultimately, the collection of MDSs via registries can facilitate standardised care and quality improvement in addition to enabling a means of data collection for research.<sup>14</sup> However, an MDS for rehabilitation which captures the principles of value-based care is yet to be defined.

While there are many datasets that collect condition-specific data and outcomes,<sup>15</sup> there are few that measure care, global outcomes and value-based indicators across a heterogeneous rehabilitation population. Such a dataset has the potential to evaluate outcomes of rehabilitative care, measure alignment with best evidence recommendations, identify opportunities for service improvement and research, and benchmark care over time and between rehabilitation services.<sup>14</sup> Therefore, the aim of this project was to develop an MDS, or a single, consolidated set of data items and core outcomes, for use in rehabilitation services to guide best care and outcomes for patients, and value for the health service.

## METHODS

### Study design

A three-round e-Delphi exercise<sup>16</sup> was employed in this study. The Delphi technique is widely used to gather opinion and generate consensus through multiple rounds of questionnaires.<sup>17</sup> It is an iterative decision-making process where responses from each round are summarised and communicated back to participants to allow them to review their responses in reference to the median group response in the subsequent rounds.<sup>18</sup> The initial round often begins with an exploratory open-ended question where responses generated in that round are then rated by participants in subsequent rounds.<sup>19</sup> Consensus meetings were held with the project steering committee to further refine and define the data items and outcomes nominated in the e-Delphi in readiness for implementation.

### Participants

An expert panel was established for the e-Delphi using purposive sampling. The following participant groups were eligible to participate: clinicians currently working in an inpatient or community-based rehabilitation service (specialists, doctors, nurses and allied health); researchers currently undertaking clinical or health services research

in an area related to inpatient, outpatient or community-based rehabilitation services; decision-makers who have a current management role in a rehabilitation service. Participants could identify as more than one of these participant groups (eg, clinician–researchers).

In Delphi studies, it is recommended that explicit criteria are used to select an expert panel that has knowledge about the subject being investigated.<sup>20</sup> Participants were selected to achieve maximum variation in health discipline, rehabilitation setting, and clinical specialty. While there is no agreed minimum sample size that ensures the reliability of Delphi studies,<sup>16</sup> previous research has found that reliable Delphi outcomes can be obtained with small expert panels that are selected using strict inclusion criteria.<sup>21</sup>

A project steering committee was convened to oversee local implementation of the rehabilitation dataset. This committee included consumers (n=3; past rehabilitation client, caregiver, consumer advocate) and rehabilitation clinicians (n=5), managers (n=2) and researchers (n=4) working at the new specialist treatment and rehabilitation service, which is a 100-bed general and specialist rehabilitation service in Brisbane, Australia. The steering committee included representatives from nursing, allied health and medicine, as well as inpatient, outpatient and community-based rehabilitation settings.

### Recruitment

Expressions of interest were sought from participants, with information disseminated via existing local rehabilitation-relevant health service and university email lists. All potential participants who expressed interest in participating were screened for eligibility. The final participant panel was purposively sampled to achieve maximum variation in the following variables: stakeholder group, health discipline, rehabilitation setting and clinical specialty.

### Data collection and analysis

The questionnaires were administered using the online survey platform Qualtrics. All three rounds of the e-Delphi were piloted by the project team prior to survey deployment; minor changes were made such as formatting, restructuring of questions, and addition of question prompts. A link to each questionnaire was distributed to each participant via email. Data collection occurred between July and October 2020.

### Round 1

Participants responded to an open-ended question: ‘What data should be routinely collected for all rehabilitation patients in order to describe care and outcomes?’ Open-ended questions are recommended to reduce the risk of bias through guiding or directing participant response.<sup>22</sup> Participants were prompted to consider the following domains: provider demographics, patient and caregiver information, service delivery and outcomes (online supplemental file 1). Responses were analysed using qualitative content analysis,<sup>23</sup> a method frequently used

in Delphi studies to analyse open-ended responses.<sup>24 25</sup> All participant responses were coded and allocated into categories within each of the four domains. To ensure consistency of data interpretation and coding, the coding generated by the primary coder (HC) was reviewed by additional authors (SJW and AMY).

### Round 2

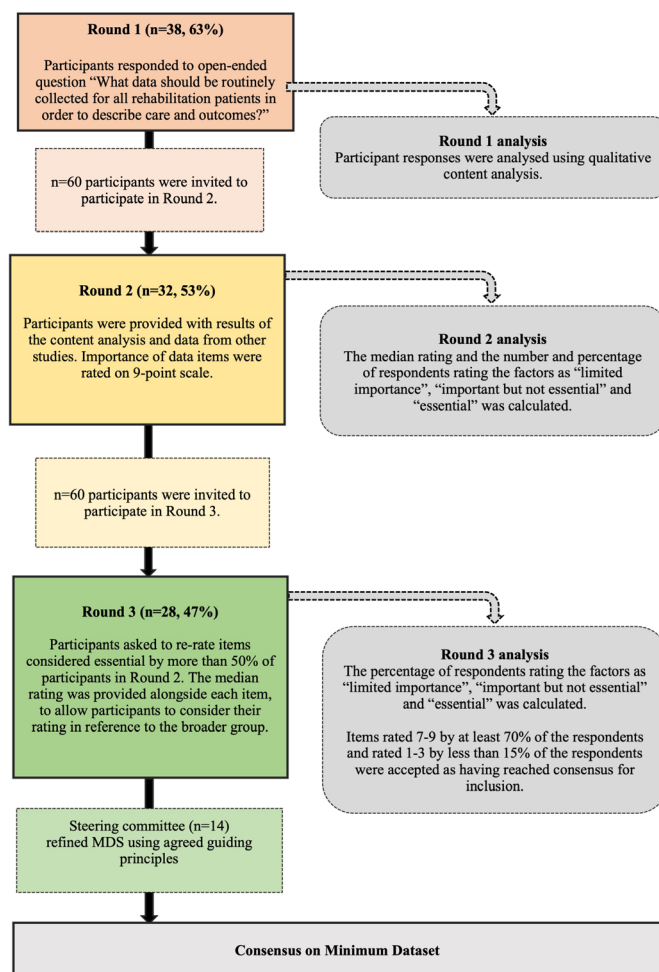
Items from round 1 were combined with additional data from a scoping review of rehabilitation datasets<sup>26</sup> and multistakeholder focus groups defining successful rehabilitation (Wallace *et al.*, What is 'successful rehabilitation'? A multistakeholder nominal group technique study to inform rehabilitation outcome measurement; in preparation), and randomly presented to participants in round 2 to prevent an order effect. Participants were asked to rate the importance of routinely collecting each item using a modified version of the Grading of Recommendations Assessment, Development and Evaluation rating scale, whereby 1–3 indicates 'limited importance', 4–6 is 'important but not essential' and 7–9 is 'essential'.<sup>27</sup> The number and percentage of respondents rating the importance of items as 'limited', 'important but not essential' and 'essential' were calculated for each item.

### Round 3

Items rated as 'essential' by at least 50% of participants in round 2 were randomly presented to participants in Round 3, alongside the median rating. Participants were asked to consider their ratings in reference to the wider group.<sup>28</sup> Criteria for final consensus was defined a priori as a rating of 7–9 by at least 70% of the respondents and 1–3 by less than 15% of the respondents.<sup>28</sup> An overview of the e-Delphi exercise and participant response and attrition rates is presented in figure 1.

### Consensus meetings

The steering committee convened for four meetings between December 2020 and June 2021. The committee agreed on guiding principles for inclusion of data items in the final dataset (ie, feasible and acceptable, patient and family-centred, interprofessional, considers the continuum of care, goal oriented and meaningful). Guiding principles were drawn from a related qualitative study which explored stakeholder perspectives of 'successful rehabilitation' (Wallace *et al.*, in preparation). The first meeting involved reviewing the final list of items from the e-Delphi, and systematically including or removing items, as informed by these guiding principles. Prior to each subsequent meeting, members received an options paper drafted by the research team (AMY and AC) outlining proposed options for the definition, source, codeset values and/or measurement instrument for each data items. Online surveys using Microsoft Forms and individual meetings with subject matter experts were used to obtain feedback from members between meetings to inform the development of these options papers.



**Figure 1** Summary of e-Delphi process.

During meetings, each data item was discussed in turn until group consensus was achieved.

### Patient and public involvement

Consumer representatives were consulted on the study design from conception, and involved in reviewing and selecting the final dataset items as part of the steering committee.

## RESULTS

### e-Delphi round 1

A total of 45 participants commenced the survey, with 38 completing at least one question in round 1 (table 1). All participants worked within a Queensland university and/or publicly funded rehabilitation service located in south-east Queensland. Participants who did not attempt at least one question were removed from the dataset. Of the 20 participants who identified as clinicians, 13 worked in a hospital inpatient rehabilitation setting, 5 worked in community rehabilitation and 2 worked in a hospital acute setting. The healthcare decision makers represented within this survey (n=12) included directors and executive directors, managers and programme managers.



**Table 1** e-Delphi participant demographics for round 1

Variable		Round 1 (n=38)
Age, years	18–24	0 (0%)
	25–34	5 (13.2%)
	35–44	13 (34.2%)
	45–54	12 (31.6%)
	55–64	8 (21.1%)
	65+	0 (0%)
Gender	Female	32 (84.2%)
	Male	5 (13.1%)
	Other	1 (2.6%)
Stakeholder group*	Clinician	20 (52.6%)
	Researcher	18 (47.4%)
	Decision-maker	12 (31.6%)
Discipline background*	Nursing	5 (12.5%)
	Occupational therapy	5 (12.5%)
	Physiotherapy	5 (12.5%)
	Medicine	4 (10%)
	Speech pathology	3 (7.5%)
	Psychology	3 (7.5%)
	Dietetics	3 (7.5%)
	Pharmacy	3 (7.5%)
	Audiology	3 (7.5%)
	Social work	2 (5%)
	Other†	4 (10%)
Area of specialty (clinicians and researchers)	Multiple clinical specialties	9 (15.5%)
	Geriatrics	13 (22.4)
	Stroke	10 (17.2%)
	Acquired brain injury	7 (12.1%)
	Progressive neurological conditions	7 (12.1%)
	Spinal cord injury	2 (3.4%)
	Other‡	10 (17.2%)
Years of experience (clinicians)	1–3	2 (10%)
	3–5	1 (5%)
	5+	17 (85%)
Career stage (researchers)	Predoctoral	7 (38.9%)
	Postdoctoral: Early-mid career researcher (≤15 years post-PhD)	7 (39.9%)
	Postdoctoral: Experienced researcher (>16 years post-PhD)	4 (22.2%)

Continued

**Table 1** Continued

Variable		Round 1 (n=38)
Years of managerial experience (decision makers)	1–3	1 (8.3%)
	3–5	0 (0%)
	5+	11 (91.7%)

\*Participants were able to select more than one response.

†Includes 'health services research', 'biomedical science', 'rehabilitation engineering' and 'sociology'.

‡Includes 'major trauma/burns', 'amputation', 'deconditioning', 'scope of practice', 'hearing impairment and rehabilitation', 'mental health', 'ankle fracture', 'trauma data analysis', 'health economics' and 'orthopaedic conditions'.

§

Eighteen researchers participated, representing a range of career levels.

Analysis of participant responses produced 1072 codes in total, which were condensed into 39 categories and 209 subcategories (online supplemental file 1). These items were cross-checked with a scoping review<sup>26</sup> and focus groups (Wallace *et al*, in preparation) that form part of this project. An additional seven items were added and presented for rating across rounds 2 and 3.

### e-Delphi rounds 2 and 3

A total of 32 participants completed round 2, and 28 participants completed round 3 (online supplemental file 2). Out of 216 items presented in round 2, 192 items were rated as essential by more than 50% of participants (online supplemental file 3) and were subsequently presented in round 3. In round 3, 124 items were rated as essential by at least 70% of the participants and of limited importance by less than 15% of the respondents in round 3 (table 2).

### Consensus meetings

The outcome of the four steering committee meetings was a final dataset of 42 data items, with items across the six domains including patient demographics (six items), premorbid health and psychosocial status (seven items), admission information (four items), service delivery and interventions (12 items), patient outcomes (nine items) and caregiver information and outcomes (four items) (table 3; online supplemental file 4) provides a draft data dictionary for these data items). The committee made the decision to remove items from the round 3 list that were considered to be too focused on physiological or condition-specific outcomes (eg, dysphagia, communication impairment), were already captured and reported in hospital-wide datasets (eg, mortality, discharge destination), were specific to the inpatient setting only (eg, need for post-discharge services) and where consensus could not be reached about its definition (eg, specialist outpatient therapies).

**Table 2** Final list of items (n=124) reaching consensus in round 3, with percentage of respondents rating item as 'essential'**Provider demographics**

Unit/facility description	1. Setting: Inpatient/outpatient, day therapy (86%)	
Treating team	1. Treating disciplines (93%) 2. Type of service provided (89%)	3. Specialist outpatient therapies (86%) 4. Occasions of service by each discipline for each client (75%)

**Patient and caregivers information: patient information**

Demographics and identification	1. Age/birthdate (96%) 2. Indigenous status (89%)	3. Language (89%) 4. Sex/gender (86%)
Premorbid health status	1. Sensory impairments (93%) 2. Medical/health history (82%) 3. Medications (79%)	4. Drug and alcohol history (79%) 5. Psychosocial history (75%)
Premorbid social, functional and community participation	1. Preadmission living situation (96%) 2. Premorbid function/mobility/ADLs (93%) 3. Existing family/carer supports available (89%) 4. Existing community supports/social connections (82%)	5. Premorbid level of community participation (82%) 6. Premorbid communication (79%) 7. Intent of return to work (79%) 8. Referrals/assessments for aged care home services (75%)
Client premorbid health rating/quality of life	1. Well-being/worry/anxiety (93%)	2. Health-related quality of life (71%)
Admission information	1. Date/time of admission or follow-up (93%)	2. AN-SNAP classification of rehabilitation admission (71%)
Current diagnoses and impairments	1. Primary diagnosis/referral reason (100%) 2. Mobility, function and ADLs (100%) 3. Condition/Impairment severity (96%) 4. Cognitive impairment (96%) 5. Communication impairment (96%) 6. Date of onset/time since diagnosis (93%)	7. Dysphagia and modified diet (93%) 8. Decision-making capacity (89%) 9. Risk of clinical incidents (82%) 10. Frailty (75%) 11. Rehabilitation complexity (71%) 12. Behaviour challenges (71%)
Participation	1. Participation (86%) 2. Rehabilitation goals (82%)	3. Client expectations (82%) 4. Motivation (71%)
Discharge/post care-related information	1. Need for carer (100%) 2. Discharge setting/location (96%) 3. Date/time of discharge (96%) 4. Need for services postdischarge (96%) 5. Referral to other services/services accessed when no longer receiving active rehabilitation (93%)	6. Ongoing postdischarge care requirements (89%) 7. New residential aged care facility admission (82%) 8. Discharge barriers (79%) 9. Driving instruction on discharge (79%) 10. Discharge summary completion on time (75%) 11. Advanced care planning (75%)

**Patient and caregivers information: caregiver information**

Demographic and health information	1. Level of involvement (86%) 2. Living arrangement (79%)	3. Health issues that impact care (79%) 4. Relationship to client (71%)
Others	1. Capacity to provide care (82%) 2. Barriers to care (79%)	3. Access to support (71%) 4. Home living situation (71%)

**Service delivery**

Intervention details	1. Type of intervention/treatment details (96%) 2. Mode of delivery (86%) 3. Service delivery model (86%) 4. Frequency of intervention (86%) 5. Occasions of service (82%) 6. Duration and length of intervention (82%) 7. Adherence to treatment (79%)	8. Date of intervention (75%) 9. Dose/intensity of treatment (75%) 10. Total therapy sessions (75%) 11. Medication and dose (75%) 12. Whether intervention match patient goals (71%) 13. Barriers to intervention (71%)
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Continued

**Table 2** Continued

Disciplines/ clinicians, family and patient involvement	1. Patient goal (89%) 2. Care plan provided to the patient (89%) 3. Education provided to patient and caregiver (86%) 4. Discipline that performs intervention (86%)	5. Medication assessment/ recommendations prior to discharge (82%) 6. Family and/or advocate involvement and support (82%) 7. Hours/sessions per day in therapy (across disciplines) (75%) 8. Interdisciplinary care (71%)
Care plan, resources and postdischarge activities	1. Postdischarge follow-up (93%) 2. Management plan (including discharge plan) (89%) 3. Home visits (82%) 4. Future goals at discharge from rehabilitation service (79%)	5. Psychosocial support (79%) 6. Level of resources required (79%) 7. Instructions for ongoing care (71%)
<b>Outcomes</b>		
Impairment	1. Change in function (100%) 2. Change in impairment (93%)	3. Change in diagnosis (79%) 4. Length of time to return to function; change in function (75%)
Activity and participation	1. Activities of daily living (100%) 2. Activity and participation (93%) 3. Ability to return to previous roles/functions/ activities (89%)	4. Community participation (86%) 5. Ability to return to meaningful roles/ functions/activities (82%)
Psychosocial and emotional well-being	1. Quality of life (100%) 2. Psychological well-being (100%)	3. Social well-being (86%) 4. Emotional response to treatment (79%)
Goal attainment	1. Goal attainment (96%)	2. Unmet needs/goals (79%)
Health outcomes	1. Mortality (93%) 2. Cognition (89%) 3. Dysphagia/specific diet (89%) 4. Pain (82%)	5. Frailty (79%) 6. Communication access (71%) 7. Physical access (71%)
Satisfaction and experience	1. Satisfaction with care (82%) 2. Reasons why people ceased treatment (82%)	3. Patient and family service experience (71%) 4. Compliments (71%)
Admission and readmission	1. Length of stay in acute/ rehabilitation (93%) 2. Readmission (93%)	3. Changes in episode of care (79%) 4. Waiting times for review and admission (75%)
Carer outcomes	1. Carer stress (79%) 2. Carer confidence (79%)	3. Carer quality of life (71%)
Others	1. Level of independence (93%) 2. Complications/adverse events and impact on rehabilitation outcomes (93%)	

.ADLs, activities of daily living; AN-SNAP, Australian National Sub-acute and Non-Acute Patient<sup>32</sup>.

## DISCUSSION

The primary aim of this study was to develop a consolidated set of data items and core outcomes for use in rehabilitation services to guide best care and outcomes for patients and value for the health service. Following the completion of a three-round e-Delphi exercise and consensus meetings, a final dataset including 42 items was produced. These included items to describe the patients who are receiving rehabilitation (demographics, premorbid health status), the rehabilitation admission and interventions provided, and the patients' rehabilitation outcomes.

Unsurprisingly, there are items included in this dataset that are commonly collected in other national and international rehabilitation datasets. A recent scoping review

aimed to identify the common data items included in rehabilitation MDS and core outcome sets.<sup>26</sup> The dataset developed in this study shares 18 data items with the list generated in this review, with data commonly collected in other datasets on patient demographics (patient identifier, age, sex, ethnicity/race), premorbid health status (medical/health history, psychosocial history, community supports), admission (length of stay, reason for rehabilitation), service delivery and interventions (intervention provided) and patient outcomes (impairment, change in functional status, activity and participation, health-related quality of life and readmissions). However, the dataset developed in the current study includes 24 items not commonly included in other rehabilitation datasets. These additional items provide further description

**Table 3** Final list of items (n=42) for inclusion in the rehabilitation dataset

<b>Patient information</b>		
Demographics	1. Person identifier 2. Age 3. Sex	4. Indigenous status 5. Language 6. Need for interpreter
Premorbid health and psychosocial status	1. Medical/health history 2. Sensory impairments 3. Drug and alcohol history 4. Psychosocial history	5. Mood 6. Carer supports 7. Community supports
Admission information	1. Total length of stay in hospital 2. Length of stay in rehabilitation	3. Suspension of rehabilitation 4. Reason for rehabilitation
Service delivery and interventions	1. Rehabilitation setting 2. Collaborative goal setting 3. Intervention date 4. Intervention type 5. Intervention duration 6. Barriers to intervention	7. Treating disciplines 8. Occasions of service 9. Mode of delivery 10. Intervention—individual/group 11. Intervention—interprofessional 12. Medication interventions
Outcomes	1. Goal attainment 2. Impairment 3. Change in functional status 4. Activity and participation 5. Health-related quality of life	6. Patient experience 7. Patient satisfaction 8. Complications and adverse events 9. Readmissions
<b>Caregiver information</b>		
Caregiver information and outcomes	1. Current caregiver status 2. Capacity and willingness to care	3. Preparedness to care 4. Carer experience

of rehabilitation service delivery and interventions (eg, whether interventions were provided in a group or interdisciplinary setting; whether collaborative goals were set with patients and their family) and person-centred outcomes (eg, goal attainment, patient experience). Importantly, this dataset includes outcomes of caregivers, specifically whether they were adequately prepared for the caregiver role and their experience of the rehabilitation process. These additional items reflect the core focus of rehabilitation, particularly in terms of being patient and family-centred and goal orientated,<sup>29</sup> and may bridge the gaps in current rehabilitation datasets to allow evaluation of rehabilitation through a value-based healthcare lens.

The recruitment of a variety of different stakeholders, including healthcare decision-makers, researchers and clinicians, was a key strength of this study as it allowed the data items to capture the broader rehabilitation priorities, as opposed to those relevant only to specific subgroups or professions. Overall, the items in this dataset were derived from a consensus between 14 different health disciplines from a range of rehabilitation settings and clinical specialties. Previous rehabilitation datasets have primarily focused on specific conditions (eg, stroke, spinal cord injury), with only 13 of 27 datasets involving consumers in their development.<sup>26</sup> Inclusion of consumers and carers in the foundation work which informed the dataset development (Wallace *et al*, in preparation) and in the project steering committee may explain the inclusion of data items and outcomes specific to caregivers as well as

additional outcomes at the life impact level. Additionally, participation by health service managers and clinicians may explain the increased focus on describing service delivery and interventions to allow refinement and improvement of the service provided to patients based on the outcomes achieved.

This study presents a methodologically valid and consolidated set of data items and outcomes that is relevant for implementation within rehabilitative care settings. Given the shift toward value-based healthcare models,<sup>10</sup> these findings may enable rehabilitation services to measure outcomes that are likely meaningful for patients and families. This dataset may encourage the collection of holistic and clinically relevant data that capture the priorities of rehabilitation, by collecting data relating to provider demographics, patient and caregiver information, service delivery and outcomes. As the expert panel was limited to participants working in universities or public rehabilitation services in Queensland, Australia, validation of the dataset to ensure its relevance in international and/or privately funded rehabilitation settings is required before implementation in other settings.

As this study has generated a list of items and outcomes that would be useful to collect within rehabilitation services, it is crucial that further work is completed to identify and select the most suitable outcome measurement tools to collect this data, with instruments need to be reliable, valid and responsive to detect changes over time,<sup>30</sup> while also being feasible in clinical practice and low burden for both patients and clinicians. There is also



a need to evaluate the implementation process given the challenges with implementing collection of patient-reported outcome measures that have been reported to date.<sup>31</sup> Additional evaluation of the use and outcomes of this dataset in practice would also contribute knowledge to further support the benefits of MDS and clinical registries, such as improving clinical outcomes and care processes and facilitating research.<sup>12</sup>

## CONCLUSION

This study presents a consolidated dataset that captures the priorities and perspectives of key stakeholders of rehabilitation services. Consensus was reached for a total of 124 items, with a strong distribution towards items relevant to patient and caregiver information. This was refined by a multistakeholder committee to a dataset containing 42 items ready for implementation in a local rehabilitation service. The MDS developed in this study may bridge the gaps in current data collection initiatives for rehabilitation services and improve the capacity of services to provide patient-centred care. Ultimately, this study provides a preliminary MDS which may facilitate quality improvement and value-based care. Future research is needed to evaluate the implementation process and outcomes of the MDS, to determine whether it meets its objective to improve the provision of value-based rehabilitation care.

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**Contributors** SJW and AMY conceived the study and developed the protocol; HC performed the initial data analysis and interpretation and developed the initial manuscript; SJW and AMY reviewed the data analysis and interpretation. SJW, AMY and AC led the consensus process within the steering committee. AMY, AC, JRL and SJW critically revised the manuscript and all authors approved the final version to be published. AMY is responsible for the overall content as guarantor.

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**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

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## REFERENCES

- World Health Organization. *Rehabilitation 2030: a call for action*, 2017.
- Goulart BNGde, Anderle P. Rehabilitation: a rising demand that calls for action. *Codas* 2020;32:e20190120–e20.
- Landry MD, Jaglal S, Wodchis WP, *et al.* Analysis of factors affecting demand for rehabilitation services in Ontario, Canada: a health-policy perspective. *Disabil Rehabil* 2008;30:1837–47.
- World Health Organization. Rehabilitation, 2019. Available: <https://www.who.int/news-room/fact-sheets/detail/rehabilitation> [Accessed 27 July 2020].
- World Health Organization. WHO global disability action plan 2014–2021. Available: <https://www.who.int/disabilities/actionplan/en/> [Accessed 11 Mar 2020].
- Ryan M, Kinghorn P, Entwistle VA, *et al.* Valuing patients' experiences of healthcare processes: towards broader applications of existing methods. *Soc Sci Med* 2014;106:194–203.
- Queensland Health. Value based healthcare—shifting from volume to value, 2016. Available: <https://clinicalexcellence.qld.gov.au/priority-areas/clinician-engagement/queensland-clinical-senate/meetings/value-based-healthcare> [Accessed 11 Mar 2020].
- Lee VS, Kawamoto K, Hess R, *et al.* Implementation of a value-driven outcomes program to identify high variability in clinical costs and outcomes and association with reduced cost and improved quality. *JAMA* 2016;316:1061–72.
- Marzorati C, Pravettoni G. Value as the key concept in the health care system: how it has influenced medical practice and clinical decision-making processes. *J Multidiscip Healthc* 2017;10:101–6.
- Porter ME, Teisberg EO. *Redefining health care : creating value-based competition on results*. Boston, Mass.: Harvard Business School Press, 2006.
- Porter ME, Lee TH. The strategy that will fix health care. *Harv Bus Rev* 2013;91:50.
- Queensland Health. *Managing demand on allied health community and outpatient services*, 2005.
- Svensson-Ranallo PA, Adam TJ, Sainfort F. A framework and standardized methodology for developing minimum clinical datasets. *AMIA Jt Summits Transl Sci Proc* 2011;2011:54–8.
- Hoque DME, Kumari V, Hoque M, *et al.* Impact of clinical registries on quality of patient care and clinical outcomes: a systematic review. *PLoS One* 2017;12:e0183667–e67.
- Clarke M. Standardising outcomes for clinical trials and systematic reviews. *Trials* 2007;8:1–3.
- Keeney S, Hasson F, McKenna HP. *The Delphi technique in nursing and health research*. Chichester, West Sussex, U.K.: Wiley-Blackwell, 2011.
- Hutchings A, Raine R, Sanderson C, *et al.* A comparison of formal consensus methods used for developing clinical guidelines. *J Health Serv Res Policy* 2006;11:218–24.
- Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. *J Adv Nurs* 2000;32:1008–15.
- Group Techniques for Program Planning. A guide to nominal group and Delphi processes. *J Appl Behav Sci* 1976;12:581–81.



- 20 Trevelyan EG, Robinson PN. Delphi methodology in health research: how to do it? *Eur J Integr Med* 2015;7:423–8.
- 21 Akins RB, Tolson H, Cole BR. Stability of response characteristics of a Delphi panel: application of bootstrap data expansion. *BMC Med Res Methodol* 2005;5:37.
- 22 Sinha IP, Smyth RL, Williamson PR. Using the Delphi technique to determine which outcomes to measure in clinical trials: recommendations for the future based on a systematic review of existing studies. *PLoS Med* 2011;8:e1000393–e93.
- 23 Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105–12.
- 24 Taylor RM, Feltbower RG, Aslam N, *et al.* Modified international e-Delphi survey to define healthcare professional competencies for working with teenagers and young adults with cancer. *BMJ Open* 2016;6:e011361–e61.
- 25 Sharwood LN, Stanford R, Middleton JW, *et al.* Improving care standards for patients with spinal trauma combining a modified e-Delphi process and stakeholder interviews: a study protocol. *BMJ Open* 2017;7:e012377–e77.
- 26 Lowe JR, Wallace SJ, Sam S, *et al.* Minimum data and core outcomes for subacute rehabilitation: a scoping review. *Clin Rehabil* 2022;36:388–406.
- 27 Guyatt GH, Oxman AD, Kunz R, *et al.* Grade guidelines: 2. framing the question and deciding on important outcomes. *J Clin Epidemiol* 2011;64:395–400.
- 28 Williamson PR, Altman DG, Blazeby JM, *et al.* Developing core outcome sets for clinical trials: issues to consider. *Trials* 2012;13:132–32.
- 29 Wade DT. What is rehabilitation? an empirical investigation leading to an evidence-based description. *Clin Rehabil* 2020;34:571–83.
- 30 Mokkink LB, Terwee CB, Patrick DL, *et al.* The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. *Qual Life Res* 2010;19:539–49.
- 31 Foster A, Croot L, Brazier J, *et al.* The facilitators and barriers to implementing patient reported outcome measures in organisations delivering health related services: a systematic review of reviews. *J Patient Rep Outcomes* 2018;2:46.
- 32 Independent Hospital Pricing Authority. Subacute and non-acute care, 2019. Available: <https://www.ihpa.gov.au/what-we-do/subacute-and-non-acute-care> [Accessed 13 July 2021].

SUPPLEMENTARY MATERIAL

Supplementary File 1. Content analysis of responses from Round 1 generated from n=38 participants.

Question 1: What provider demographics should be routinely collected for all rehabilitation patients in order to describe care and outcomes?	
Categories	Subcategories
Rehabilitation unit description (n=52)	1. Name of ward/clinic (n=24)
	2. Access to other specialty services (n=6)
	3. Setting: Inpatient/Outpatient, day therapy (n=5)
	4. Staffing levels (e.g., Ratio of each discipline to client numbers) (n=5)
	5. Hours/days of operation (i.e., 5 vs 6 vs 7 day rehabilitation service) (n=4)
	6. Clinic/Ward size (n=4)
	7. Services available (n=2)
	8. Clinic/Medicare code (n=1)
	9. Flex beds available (n=1)
General service description (n=51)	1. Location (n=30)
	2. Facility/Hospital name (n=6)
	3. Public/Private service (n=5)
	4. Post-code (n=3)
	5. Service capability level i.e., Clinical Services Capability Framework level of service provision (n=3)

SUPPLEMENTARY MATERIAL

- Treating team (n=44)

6. Hospital and health service district (n=2)

7. Funding model (e.g., Activity based funding) (n=1)

8. Geographical remoteness (n=1)

1. Treating disciplines (e.g., physicians, nursing, allied health disciplines, assistants, recreation officer, animal therapists) (n=30)

2. Name and contact details of treating staff (n=6)

3. Qualifications and level/years of experience (n=3)

4. Type of service provided (e.g., consult and intervention, general or specialist) (n=3)

5. Occasions of service (and time spent) for each client for each discipline (n=2)
- Facilities and resources (n=7)

1. Rehabilitation care environment features (e.g., gyms, dining rooms, outdoor areas, independent living rooms, hydrotherapy, space for family, delta dogs) (n=5)

2. Specialist equipment (e.g., robots) (n=1)

3. Specialist outpatient therapies (e.g., hypertonicity, memory, vestibular clinics) (n=1)

Question 2: What information about patients and caregivers should be routinely collected for all rehabilitation patients in order to describe care and outcomes?

Patient / Caregiver information	Categories	Subcategories
Patient information	Premorbid functional and community participation	1. Preadmission living situation (e.g., alone/with others) (n=33)
		2. Existing family/carer supports available (n=20)
		3. Premorbid level of function/mobility/activities of daily living (n=11)

## SUPPLEMENTARY MATERIAL

information/history  
(n=102)

4. Employment/income status and vocation (n=9)
5. Existing community supports/ social connections (n=6)
6. Preadmission care/community services (n=5)
7. Existing home modifications/layout (n=5)
8. Hobbies, interests or other activity goals (n=4)
9. Premorbid communication (n=2)
10. My Aged Care referrals/assessments (n=2)
11. Premorbid level of community participation (n=2)
12. Intent of return to work (n=1)
13. Preadmission responsibilities (n=1)
14. Driving status (n=1)

Current diagnosis and  
impairments (n=97)

1. Primary diagnosis/Presenting complaint/reason for referral (n=30)
2. Level of function/mobility/Activities of daily living (n=14)
3. Decision-making capacity (n=13)
4. Cognitive impairment (n=11)
5. Behaviour challenges (n=8)
6. Impairment (including severity) (n=7)
7. Frailty (n=3)
8. Communication impairment (n=3)
9. Dysphagia, need for modified diet (n=2)
10. Date of onset/time since diagnosis (n=2)



SUPPLEMENTARY MATERIAL

	11. Risk of clinical incidents (e.g. falls, malnutrition) (n=2)
	12. Rehabilitation complexity (n=1)
	13. Condition complexity (n=1)
Premorbid health information/history (n=61)	1. Medical/health history (n=32)
	2. Psychosocial history (n=8)
	3. Access to care and clinic (n=8)
	4. Nutrition status (n=2)
	5. Previously received rehab (n=2)
	6. Medications (n=2)
	7. Previous hospital admissions (n=1)
	8. Sensory impairments (hearing, vision etc) (n=1)
	9. Usual diet (n=1)
	10. Family history (n=1)
	11. Drug and alcohol history (n=1)
	12. Premorbid history (n=1)
	13. Ability to travel/access transport to services (n=1)
Basic demographic information (n=54)	1. Age, Date of birth (n=16)
* Codes for “Demographics” (n=3)	2. Sex/gender (n=11)
	3. Education level (n=7)

SUPPLEMENTARY MATERIAL

<i>included in the overall count (n=54)</i>	4. Funding source for admission (n=6)
	5. Address (n=3)
	6. Ethnicity (n=2)
	7. Aboriginal and Torres Strait Islander status (n=2)
	8. Language (n=2)
	9. Weight (n=2)
Discharge/post care related information (n=44)	1. Discharge destination (n=14)
	2. Satisfaction with discharge destination (n=1)
	3. Need for carer/caregiver (n=7)
	4. Need for services post-discharge (n=5)
	5. Referral to other services/Services accessed when no longer receiving active rehab (n=4)
	6. Ongoing post-discharge care requirements (n=4)
	7. Date of discharge from unit/hospital (n=2)
	8. Discharge barriers (n=2)
	9. Driving instruction on discharge (n=2)
	10. New residential aged care facility (RACF) admission (n=1)
	11. Discharge summary completion on time (n=1)
	12. Advanced care planning (n=1)

## SUPPLEMENTARY MATERIAL

	Participation (n=36)	1. Rehabilitation goals e.g. Goal Attainment Scaling (n=12)
		2. Client expectations (n=9)
		3. Compliance (n=6)
		4. Participation (n=5)
		5. Motivation (n=3)
		6. Patient ability to identify goals (n=1)
	Client pre-morbid health rating/Quality of life (n=12)	1. Health-related Quality of life (n=8)
		2. Wellbeing/worry/anxiety (n=2)
		3. Satisfaction with usual living situation (n=1)
		4. Satisfaction with pre-morbid function (n=1)
	Admission/clinic information (n=5)	1. Australian National Sub-acute and Non-Acute Patient (AN-SNAP) classification of rehabilitation admission (n=2)
		2. Diagnosis-related group (DRG) of acute admission (n=1)
		3. Where/who client was referred from (n=1)
		4. Date and time of admission (n=1)
	Other (n=1)	1. Participation in research projects (n=1)
	Caregiver information	Capacity to provide care (n=33)
		1. Barriers to care (e.g. financial, logistics, transport, emotions, work, children) (n=14)
		2. Capacity to provide care (e.g., logistics, transport, emotional) (n=13)
		3. Communication barriers (n=2)

SUPPLEMENTARY MATERIAL

- Caregiver demographic information (n=25)
4. Level of burden (n=1)

5. Willingness/capacity to learn (n=1)

6. Receipt of financial support as carer (n=1)

7. Rating of confidence in care role (n=1)

1. Relationship to client (n=6)

2. Living arrangement (i.e. with client, how far away) (n=6)

3. Level of involvement including frequency of contact (n=6)

4. Employment, hours of work (n=2)

5. Age (n=2)

6. Sex/gender (n=1)

7. Ethnicity (n=1)

8. Language (n=1)
- Caregiver health information (n=16)
1. Health issues that impact on ability to provide care (n=6)

2. Health history (n=5)

3. Rating of sense of wellbeing/worry/anxiety (n=2)

4. Rating of own health (n=1)

5. Mental health (n=1)

6. Social participation (n=1)



SUPPLEMENTARY MATERIAL

- |                          |   |
|--------------------------|---|
| Expectations (n=6)       | 1. Family expectations/goals of rehab (n=5)                       |
|                          | 2. Understanding of rehabilitation (n=1)                          |
| Supports available (n=3) | 1. Access to support (services, family, community, respite) (n=3) |
| Living situation (n=3)   | 1. Home living situation (n=2)                                    |
|                          | 2. Usual residence (n=1)  |

Question 3: What information about service delivery and interventions should be routinely collected for all rehabilitation patients in order to describe care and outcomes?

Categories	Subcategories
Intervention / Service delivery information (n=108)	<div>1. Type of intervention (assessment, treatment, education, counselling, self-management, support) (n=27)</div> <div>2. Service delivery model (e.g. individual, group) (n=24)</div> <div>3. Dose/Intensity of therapy (n=16)</div> <div>4. Duration and length of intervention (n=10)</div> <div>5. Mode of delivery (e.g., telehealth vs face to face) (n=6)</div> <div>6. Frequency of intervention (n=5)</div> <div>7. Occasions of service (n=4)</div> <div>8. Barriers to intervention (including factors impacting on ability to provide desired treatment intensity) (n=3)</div> <div>9. Involvement of recreation activities (n=2)</div> <div>10. Date of intervention (n=2)</div>

## SUPPLEMENTARY MATERIAL

11. Changes to therapy (n=1)
12. What was done in session (n=1)
13. Non-pharm treatment (n=1)
14. Whether intervention match patient goals (n=1)
15. Received weekend service (n=1)
16. Total therapy sessions (n=1)
17. Aim of the session (n=1)
18. Major clinical reasoning decisions for treatment plan or change (n=1)
19. Adherence to treatment (n=1)

Disciplines / Clinicians involvement  
(n=31)

1. Interdisciplinary care (n=17)
2. Discipline that performs intervention (including provider of service e.g., professional, allied health assistant, student) (n=10)
3. Hours/sessions per day in therapy (across different disciplines) (n=3)
4. Hours of intervention provided by discipline (n=1)

## Family and patient involvement (n=20)

1. Education provided to patient and caregiver (e.g., post discharge care, communication partner training) (n=8)
2. Patient goal (n=5)
3. Family and/or advocate involvement and support (n=3)
4. Family meetings (n=2)

SUPPLEMENTARY MATERIAL

- Care plan (n=12)

5. Care plan provided to the patient (n=1)

6. Case conferences (n=1)

1. Psychosocial support (e.g., Counselling) (n=3)

2. Management plan (including discharge plan) (n=2)

3. Home visits (n=2)

4. Instructions for ongoing care (e.g., living situation, social circumstances) (n=2)

5. Post discharge follow-up (e.g., needed or not, with which disciplines) (n=2)

6. Future goals at discharge from rehabilitation service (n=1)
- Resources needed (n=5)

1. Equipment and consumables (n=2)

2. Level of resources required (e.g., two therapists vs semi supervised) (n=1)

3. Time spent moving (n=1)

4. Technology assisted therapy (n=1)
- Missed appointments (n=3)

1. Missed appointments and reasons (e.g., staffing limitations, patient compliance) (n=3)
- Indirect patient activities (n=2)

1. Measurement of patient related activities (e.g., writing reports, designing patient specific therapy activities, time spent organising equipment) (n=2)
- Cost of care provision (n=1)

1. Cost-benefit rating of rehabilitation (e.g., financial outlay, time, inconvenience) (n=1)
- Medication (n=1)

1. Medication assessment prior to discharge or need to implement dose administration aid (n=1)

Question 4: Which outcomes should be routinely collected for all rehabilitation patients?

Categories	Subcategories
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## SUPPLEMENTARY MATERIAL

Impairment (n=39)	<ol style="list-style-type: none"><li>1. Change in function (e.g., mobility) (n=25)</li><li>2. Change in impairment (n=12)</li><li>3. Change in diagnosis (n=1)</li><li>4. Length of time to return to function or change in function (n=1)</li></ol>
Satisfaction and experience (n=35)	<ol style="list-style-type: none"><li>1. Satisfaction with care (e.g., goals attained, clinician and services) (n=25)</li><li>2. Patient and family service experience (n=5)</li><li>3. Complaints about services (n=2)</li><li>4. Ease of navigating through service providers (n=1)</li><li>5. Reasons why people ceased treatment (n=1)</li><li>6. Compliments (n=1)</li></ol>
Admission and readmission (n=30)	<ol style="list-style-type: none"><li>1. Length of stay in acute/rehab (n=15)</li><li>2. Waiting times (for review and admission) (n=10)</li><li>3. Readmission (n=3)</li><li>4. Changes in episode of care (e.g., Ward transfers due to deterioration) (n=2)</li></ol>
Carer outcomes (n=29)	<ol style="list-style-type: none"><li>1. Carer quality of life (n=10)</li><li>2. Carer confidence (n=5)</li><li>3. Carer stress (n=5)</li><li>4. Carer wellbeing (n=5)</li></ol>



SUPPLEMENTARY MATERIAL

	5. Families/carers participation (n=2)
	6. Carer needs (n=1)
	7. Third-party disability (n=1)
Quality of Life (n=28)	1. Quality of Life (n=28)
Psychosocial and emotional wellbeing (n=18)	1. Psychological wellbeing (n=16)
	2. Social well-being (n=1)
	3. Emotional response to treatment (n=1)
Goal attainment (n=18)	1. Goal attainment (n=16)
	2. Unmet needs/goals (n=2)
Activity and Participation (n=15)	1. Activity and participation (n=7)
	2. Ability to return to previous roles/functions/activities (n=3)
	3. Activities of daily living (n=3)
	4. Community participation (n=2)
Health outcomes (n=12)	1. Cognition (n=5)
	2. Mortality (n=2)
	3. Weight (n=2)
	4. Pain (n=1)
	5. Frailty (n=1)

SUPPLEMENTARY MATERIAL

	6. Dysphagia / specific diet (if any) (n=1)
Adverse events (n=9)	1. Complications/Adverse events and impact on rehabilitation outcomes (e.g., falls, infections) (n=9)
Independence (n=4)	1. Level of Independence (n=4)

*\* n= number of codes within category and subcategory.*

*\*\* Note: Question 5 of Round 1 was “Is there any other information that should be routinely collected for all rehabilitation patients in order to describe care and outcomes?” and responses were added to the relevant categories developed for each of the previous questions.*

## SUPPLEMENTARY MATERIAL

*Supplementary File 2. e-Delphi participant demographics for Rounds 1, 2 and 3<sup>1</sup>*

VARIABLE		ROUND 1 (N=38)	ROUND 2 (N=23)	ROUND 3 (N=21)
<b>Age, years</b>	18-24	0 (0%)	0 (0%)	0 (0%)
	25-34	5 (13.2%)	2 (8.7%)	3 (14.3%)
	35-44	13 (34.2%)	10 (43.5%)	7 (33.3%)
	45-54	12 (31.6%)	6 (26.1%)	7 (33.3%)
	55-64	8 (21.1%)	5 (21.7%)	4 (19.1%)
	65+	0 (0%)	0 (0%)	0 (0%)
<b>Gender</b>	Female	32 (84.2%)	19 (82.6%)	18 (85.7%)
	Male	5 (13.1%)	4 (17.4%)	3 (14.3%)
	Other	1 (2.6%)	0 (0%)	0 (0%)
<b>Stakeholder group<sup>2</sup></b>	Clinician	20 (52.6%)	12 (52.2%)	10 (43.4%)
	Researcher	18 (47.4%)	11 (47.8%)	9 (42.8%)
	Decision Maker	12 (31.6%)	5 (21.7%)	7 (33.3%)
<b>Discipline background<sup>2</sup></b>	Nursing	5 (12.5%)	2 (8.7%)	5 (23.8%)
	Occupational therapy	5 (12.5%)	3 (13.0%)	2 (9.5%)
	Physiotherapy	5 (12.5%)	2 (8.7%)	3 (14.3%)
	Medicine	4 (10%)	2 (8.7%)	2 (9.5%)
	Speech pathology	3 (7.5%)	2 (8.7%)	2 (9.5%)
	Psychology	3 (7.5%)	1 (13.0%)	0 (0%)
	Dietetics	3 (7.5%)	2 (8.7%)	2 (9.5%)
	Pharmacy	3 (7.5%)	1 (4.3%)	1 (4.8%)
	Audiology	3 (7.5%)	2 (8.7%)	1 (4.8%)
	Social work	2 (5%)	2 (8.7%)	1 (4.8%)
	Other <sup>3</sup>	4 (10%)	3 (13.0%)	2 (9.5%)
<b>Area of specialty</b>	Multiple clinical specialties	9 (15.5%)	6 (26.1%)	2 (9.5%)
	Geriatrics	13 (22.4)	6 (26.1%)	4 (19.1%)
	Stroke	10 (17.2%)	4 (17.4%)	3 (14.3%)

## SUPPLEMENTARY MATERIAL

<b>(clinicians and researchers)</b>	Acquired brain injury	7 (12.1%)	2 (8.7%)	3 (14.3%)
	Progressive neurological conditions	7 (12.1%)	1 (4.3%)	2 (9.5%)
	Spinal cord injury	2 (3.4%)	0 (0%)	0 (0%)
	Other <sup>4</sup>	10 (17.2%)	1 (4.3%)	1 (4.8%)
<b>Years of experience (clinicians)</b>	1-3	2 (10%)	1 (8.3%)	1 (10.0%)
	3-5	1 (5%)	2 (16.7%)	0 (0%)
	5+	17 (85%)	9 (75.0%)	9 (90.0%)
<b>Career stage (researchers)</b>	Pre-doctoral	7 (38.9%)	3 (27.3%)	4 (44.4%)
	Post-doctoral: Early-mid career researcher ( $\leq 15$ years post-PhD)	7 (39.9%)	5 (45.4%)	2 (22.2%)
	Post-doctoral: Experienced researcher ( $>16$ years post-PhD)	4 (22.2%)	3 (27.3%)	3 (33.3%)
<b>Years of managerial experience (decision makers)</b>	1-3	1 (8.3%)	0 (0%)	0 (0%)
	3-5	0 (0%)	0 (0%)	0 (0%)
	5+	11 (91.7%)	5 (100%)	5 (100%)

<sup>1</sup>Whilst there were 38, 32 and 28 participants in Rounds 1, 2, and 3 (respectively), descriptive data was only available for 23 participants for Round 2 (72%) and 21 participants for Round 3 (75%).

<sup>2</sup>Participants were able to select more than one response.

<sup>3</sup>Includes “Health services research”, “Biomedical science”, “Rehabilitation Engineering” and “Sociology”.

<sup>4</sup>Includes “Major trauma/burns”, “Amputation”, “Deconditioning”, “Scope of practice”, “Hearing impairment and rehabilitation”, “mental health”, “Ankle fracture”, “trauma data analysis”, “health economics” and “orthopaedic conditions”.



SUPPLEMENTARY MATERIAL

Supplementary File 3. Round 2 participant ratings (n=32)

Items		Participant ratings												Response Count
		Of limited importance				Important but not essential				Essential				
		1	2	3	1-3 Total	4	5	6	4-6 Total	7	8	9	7-9 Total	
Provider demographics														
Service and rehabilitation unit – General information	1. <b>Setting: Inpatient/outpatient, day therapy</b>	0	0	0	0 (0%)	1	2	3	6 (19%)	8	10	8	26 (81%)	32
	2. <b>Hours/days of operation (i.e., 5 vs 6 vs 7 day rehabilitation service)</b>	0	0	1	1 (3%)	2	4	3	9 (28%)	10	8	4	22 (69%)	32
	3. <b>Services available</b>	0	3	1	4 (13%)	2	1	4	7 (22%)	10	6	5	21 (66%)	32
	4. <b>Service capability level i.e., Clinical Services Capability Framework level of service provision</b>	0	0	2	2 (6%)	3	3	3	9 (28%)	15	2	4	21 (66%)	32
	5. <b>Staffing levels (e.g., Ratio of each discipline to client numbers)</b>	0	2	2	4 (13%)	2	4	3	9 (28%)	10	3	6	19 (59%)	32

SUPPLEMENTARY MATERIAL

	6. Location	0	0	1	1 (3%)	4	4	4	12 (38%)	11	3	5	19 (59%)	32
	7. Public/private service	0	0	0	0 (0%)	5	2	7	14 (44%)	7	5	6	18 (56%)	32
	8. Facility/Hospital name	0	1	0	1 (3%)	5	3	5	13 (41%)	9	4	5	18 (56%)	32
	9. Clinic/medicare code	0	1	1	2 (6%)	6	1	5	12 (38%)	10	4	4	18 (56%)	32
	10. Name of ward/clinic	0	3	2	5 (16%)	3	2	6	11 (34%)	7	4	5	16 (50%)	32
	11. Post-code	0	1	4	5 (16%)	3	3	6	12 (38%)	8	2	5	15 (47%)	32
	12. Geographical remoteness	0	0	2	2 (6%)	4	6	5	15 (47%)	8	3	4	15 (47%)	32
	13. Hospital and health service district	0	2	1	3 (9%)	6	3	6	15 (47%)	7	3	4	14 (44%)	32
	14. Clinic/ward size	1	3	5	9 (28%)	3	2	4	9 (28%)	7	5	2	14 (44%)	32
	15. Funding model (e.g., Activity based funding)	1	1	1	3 (9%)	3	4	9	16 (50%)	6	3	4	13 (41%)	32

## SUPPLEMENTARY MATERIAL

	16. Access to other specialty services	0	2	1	3 (9%)	5	5	7	17 (53%)	5	5	2	12 (38%)	32
	17. Flex beds available	1	3	11	15 (47%)	6	2	4	12 (38%)	3	2	0	5 (16%)	32
Service and rehabilitation unit – Treating team, facilities and resources	18. <b>Treating disciplines (e.g., physicians, nursing, allied health disciplines, recreation officer, animal therapists)</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1 (3%)</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2 (6%)</b>	<b>18</b>	<b>3</b>	<b>8</b>	<b>29 (91%)</b>	<b>32</b>
	19. <b>Occasions of service (and time spent) for each client for each discipline</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1 (3%)</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>4 (13%)</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>27 (84%)</b>	<b>32</b>
	20. <b>Type of service provided (e.g., consult service only, consult and intervention, general or specialist)</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1 (3%)</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>7 (22%)</b>	<b>10</b>	<b>9</b>	<b>5</b>	<b>24 (75%)</b>	<b>32</b>
	21. <b>Specialist outpatient therapies (e.g., hypertonicity,</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1 (3%)</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>10 (31%)</b>	<b>14</b>	<b>5</b>	<b>2</b>	<b>21 (66%)</b>	<b>32</b>

SUPPLEMENTARY MATERIAL

	memory, vestibular clinics)													
	22. Rehabilitation care environment features (e.g., gyms, dining rooms, outdoor areas, independent living rooms, hydrotherapy, space for family, delta dog)	0	3	1	4 (13%)	3	3	4	10 (31%)	11	6	1	18 (56%)	32
	23. Specialist equipment (e.g., robots)	0	2	1	3 (9%)	6	2	9	17 (53%)	9	2	1	12 (38%)	32
	24. Qualifications and level/years of experience	0	3	6	9 (28%)	4	3	8	15 (47%)	6	2	0	8 (25%)	32
	25. Name and contact details of treating staff	2	4	4	10 (31%)	8	5	2	15 (47%)	6	0	1	7 (22%)	32

SUPPLEMENTARY MATERIAL

Patients and caregivers information														
Client – Basic demographic information	26. Age, Date of birth	0	0	0	0 (0%)	0	0	0	0 (0%)	12	3	16	31 (100%)	31
	27. Sex/gender	0	0	0	0 (0%)	0	2	1	3 (10%)	14	1	13	28 (90%)	31
	28. Aboriginal and Torres Strait Islander status	0	0	0	0 (0%)	0	1	2	3 (10%)	11	7	10	28 (90%)	31
	29. Language	0	0	0	0 (0%)	1	1	3	5 (16%)	15	4	7	26 (84%)	31
	30. Education level	0	0	1	1 (3%)	4	0	3	7 (23%)	14	2	7	23 (74%)	31
	31. Address	0	0	1	1 (3%)	5	3	4	11 (35%)	8	3	8	19 (61%)	31
	32. Funding source for admission	0	1	1	2 (6%)	3	1	7	11 (35%)	9	3	6	18 (58%)	31
	33. Weight	0	0	0	0 (0%)	5	3	5	13 (42%)	12	0	6	18 (58%)	31
	34. Ethnicity	0	0	2	2 (6%)	3	3	6	12 (39%)	8	2	7	17 (55%)	31
	35. Socioeconomic status	0	0	2	2 (6%)	4	3	7	13 (42%)	9	0	7	16 (52%)	31

SUPPLEMENTARY MATERIAL														
	36. Marital status	0	0	4	4 (13%)	5	2	5	12 (39%)	9	0	6	15 (48%)	31
	37. Children	0	0	3	3 (9%)	4	3	6	13 (42%)	8	0	7	15 (48%)	31
	38. Country of birth	0	1	1	2 (6%)	2	5	9	16 (52%)	6	2	5	13 (42%)	31
Client – Premorbid health, functional and community participation information/history	39. Preadmission living situation (e.g., alone/with others)	0	0	0	0 (0%)	0	0	1	1 (3%)	12	3	15	30 (97%)	31
	40. Sensory impairments (hearing, vision etc)	0	0	0	0 (0%)	0	1	1	2 (6%)	10	5	14	29 (94%)	31
	41. Existing family/carers supports available	0	0	0	0 (0%)	1	1	0	2 (6%)	13	5	11	29 (94%)	31
	42. Premorbid level of function/mobility /activities of daily living	0	0	0	0 (0%)	0	1	1	2 (6%)	13	4	12	29 (94%)	31
	43. Premorbid communication	0	0	0	0 (0%)	1	1	0	2 (6%)	15	2	12	29 (94%)	31

SUPPLEMENTARY MATERIAL

	44. Medical/health history	0	0	0	0 (0%)	0	2	1	3 (10%)	9	5	14	28 (90%)	31
	45. Medications	0	0	0	0 (0%)	2	1	1	4 (13%)	7	4	16	27 (87%)	31
	46. Psychosocial history	0	0	0	0 (0%)	2	0	3	5 (16%)	11	6	9	26 (84%)	31
	47. Existing community supports/social connections	0	0	0	0 (0%)	0	1	4	5 (16%)	13	3	10	26 (84%)	31
	48. Premorbid level of community participation	0	0	0	0 (0%)	4	0	1	5 (16%)	11	7	8	26 (84%)	31
	49. Drug and alcohol history	0	0	0	0 (0%)	1	2	3	6 (19%)	11	4	10	25 (81%)	31
	50. Premorbid history	0	0	0	0 (0%))	1	1	4	6 (19%)	12	4	9	25 (81%)	31
	51. Employment/income status and vocation	0	0	1	1 (3%)	1	0	4	5 (16%)	12	3	10	25 (81%)	31
	52. Preadmission care/ community services	0	0	0	0 (0%)	2	0	4	6 (19%)	10	6	9	25 (81%)	31



SUPPLEMENTARY MATERIAL

	53. Ability to travel/access transport to services	0	0	0	0 (0%)	1	1	5	7 (23%)	12	5	7	24 (77%)	31
	54. Driving status	0	0	0	0 (0%)	1	1	5	7 (23%)	9	3	12	24 (77%)	31
	55. Preadmission responsibilities	0	0	0	0 (0%)	2	0	7	9 (29%)	9	6	7	22 (71%)	31
	56. Existing home modifications/layout	0	0	0	0 (0%)	4	1	5	10 (32%)	9	2	10	21 (68%)	31
	57. My Aged Care referrals/assessments	0	0	0	0 (0%)	2	0	8	10 (32%)	5	8	8	21 (68%)	31
	58. Nutrition status	0	1	1	2 (6%)	3	0	6	9 (29%)	9	3	8	20 (65%)	31
	59. Access to care and clinic	0	0	0	0 (0%)	4	4	4	12 (39%)	8	4	7	19 (61%)	31
	60. Previously received rehab	0	0	0	0 (0%)	1	5	6	12 (39%)	12	3	4	19 (61%)	31
	61. Previous hospital admissions	0	0	0	0 (0%)	5	2	5	12 (39%)	6	8	5	19 (61%)	31

SUPPLEMENTARY MATERIAL

	62. Hobbies, interests or other activity goals	1	0	1	2 (6%)	2	1	7	10 (32%)	8	4	7	19 (61%)	31
	63. Intent of return to work	0	0	0	0 (0%)	2	2	8	12 (39%)	7	2	10	19 (61%)	31
	64. Usual diet	0	1	1	2 (6%)	4	2	5	11 (35%)	9	2	7	18 (58%)	31
	65. Family history	0	0	1	1 (3%)	3	2	8	13 (42%)	8	4	5	17 (55%)	31
Client – Premorbid health/QOL rating, Admission information and Current diagnosis and impairment	66. Primary diagnosis/ Presenting complaint/ reason for referral	0	0	0	0 (0%)	0	0	0	0 (0.0%)	11	3	17	31 (100%)	31
	67. Level of function/mobility /Activities of daily living	0	0	0	0 (0%)	0	0	0	0 (0%)	14	6	11	31 (100%)	31
	68. Date and time of admission	0	0	0	0 (0%)	1	0	0	1 (3%)	14	4	12	30 (97%)	31
	69. Impairment (including severity)	0	0	0	0 (0%)	0	0	1	1 (3%)	11	6	13	30 (97%)	31

SUPPLEMENTARY MATERIAL

	70. Date of onset/time since diagnosis	0	0	0	0 (0%)	0	1	0	1 (3%)	10	5	15	30 (97%)	31
	71. Cognitive impairment	0	0	0	0 (0%)	1	0	2	3 (10%)	8	7	13	28 (90%)	31
	72. Communication impairment	0	0	0	0 (0%)	1	0	2	3 (10%)	10	7	11	28 (90%)	31
	73. Risk of clinical incidents (e.g. falls, malnutrition)	0	0	0	0 (0%)	2	0	1	3 (10%)	11	7	10	28 (90%)	31
	74. Dysphagia, need for modified diet	0	0	0	0 (0%)	1	0	3	4 (13%)	11	3	13	27 (87%)	31
	75. Rehabilitation complexity	0	0	1	1 (3%)	1	2	1	4 (13%)	14	6	6	26 (84%)	31
	76. Wellbeing/worry/anxiety	0	0	0	0 (0%)	0	0	6	6 (19%)	9	10	6	25 (81%)	31
	77. Health-related Quality of life	0	0	0	0 (0%)	1	1	5	7 (23%)	9	6	9	24 (77%)	31
	78. Australian National Sub-acute and Non-Acute Patient (AN-SNAP) of	1	0	1	2 (6%)	1	1	4	6 (19%)	14	3	6	23 (74%)	31

SUPPLEMENTARY MATERIAL

	rehabilitation admission													
	79. Decision-making capacity	0	0	1	1 (3%)	2	1	4	7 (23%)	7	3	13	23 (74%)	31
	80. Behaviour challenges	0	0	0	0 (0%)	1	1	6	8 (26%)	9	5	9	23 (74%)	31
	81. Condition complexity	0	0	0	0 (0%)	2	1	5	8 (26%)	11	7	5	23 (74%)	31
	82. Where/who client was referred from	0	0	1	1 (3%)	2	1	5	8 (26%)	11	2	9	22 (71%)	31
	83. Diagnosis-related group (DRG) of acute admission	1	0	2	3 (10%)	1	2	6	9 (29%)	9	2	8	19 (61%)	31
	84. Frailty	1	0	0	1 (3%)	0	2	9	11 (35%)	9	2	8	19 (61%)	31
	85. Satisfaction with usual living situation	0	0	0	0 (0%)	4	2	9	15 (48%)	9	4	3	16 (52%)	31
	86. Satisfaction with pre-morbid function	0	0	0	0 (0%)	4	3	10	17 (55%)	7	5	2	14 (45%)	31

SUPPLEMENTARY MATERIAL

Client – Participation, discharge/ post care related information, other	87. Ongoing post-discharge care requirements	0	0	0	0 (0%)	0	0	0	0 (0%)	17	2	11	30 (100%)	30
	88. Discharge destination	0	0	0	0 (0%)	0	0	1	1 (3%)	11	4	14	29 (97%)	30
	89. Need for carer/caregiver	0	0	0	0 (0%)	0	0	1	1 (3%)	12	5	12	29 (97%)	30
	90. Need for services post-discharge	0	0	0	0 (0%)	0	1	0	1 (3%)	14	2	13	29 (97%)	30
	91. Rehabilitation goals e.g. Goal Attainment Scaling	0	0	0	0 (0%)	1	1	0	2 (7%)	14	4	10	28 (93%)	30
	92. Date of discharge from unit/hospital	0	0	0	0 (0%)	1	0	1	2 (7%)	11	4	13	28 (93%)	30
	93. Referral to other services / Services accessed when no longer receiving active rehabilitation	0	0	0	0 (0%)	1	0	5	6 (20%)	10	5	9	24 (80%)	30
	94. Participation	0	0	0	0 (0%)	1	1	5	7 (23%)	10	10	3	23 (77%)	30

SUPPLEMENTARY MATERIAL

	95. Discharge barriers	0	0	1	1 (3%)	1	1	4	6 (20%)	8	6	9	23 (77%)	30
	96. Client expectations	0	0	1	1 (3%)	1	1	6	8 (27%)	11	5	5	21 (70%)	30
	97. New residential aged care facility (RACF) admission	0	0	0	0 (0%)	2	0	7	9 (30%)	9	3	9	21 (70%)	30
	98. Driving instruction on discharge	0	0	0	0 (0%)	2	1	7	10 (33%)	7	5	8	20 (67%)	30
	99. Discharge summary completion on time	2	0	1	3 (10%)	2	0	6	8 (27%)	7	5	7	19 (63%)	30
	100. Motivation	0	0	2	2 (7%)	2	0	8	10 (33%)	6	8	4	18 (60%)	30
	101. Patient ability to identify goals	0	0	0	0 (0%)	3	1	10	14 (47%)	9	4	3	16 (53%)	30
	102. Advanced care planning	0	0	0	0 (0%)	2	2	10	14 (47%)	5	3	8	16 (53%)	30
	103. Compliance	1	0	1	2 (7%)	5	0	8	13 (43%)	6	7	2	15 (50%)	30

SUPPLEMENTARY MATERIAL														
	104. <b>Satisfaction with discharge destination</b>	0	0	0	0 (0%)	3	2	10	15 (50%)	10	4	1	15 (50%)	30
	105. Participation in research projects	0	0	2	2 (7%)	4	3	10	17 (57%)	6	1	4	11 (37%)	30
Caregiver – Caregiver demographic and health information	106. <b>Relationship to client</b>	0	0	0	0 (0%)	1	2	1	4 (13%)	15	4	7	26 (87%)	30
	107. <b>Level of involvement including frequency of contact</b>	0	0	0	0 (0%)	1	1	4	6 (20%)	14	4	6	24 (80%)	30
	108. <b>Living arrangement (i.e. with client, how far away)</b>	0	0	0	0 (0%)	3	2	2	7 (23%)	15	2	6	23 (77%)	30
	109. <b>Health issues that impact on ability to provide care</b>	0	0	0	0 (0%)	1	1	6	8 (27%)	14	4	4	22 (73%)	30
	110. <b>Language</b>	0	0	1	1 (3%)	2	4	3	9 (30%)	11	5	4	20 (67%)	30
	111. <b>Rating of sense of</b>	0	0	1	1 (3%)	3	3	5	11 (37%)	10	6	2	18 (60%)	30



SUPPLEMENTARY MATERIAL

	wellbeing/worry/ anxiety													
	112. Employment, hours of work	0	0	0	0 (0%)	1	6	6	13 (43%)	13	2	2	17 (57%)	30
	113. Age	0	1	2	3 (10%)	0	4	6	10 (33%)	10	1	6	17 (57%)	30
	114. Rating of own health	0	2	0	2 (7%)	6	1	8	15 (50%)	8	4	1	13 (43%)	30
	115. Mental health	0	0	1	1 (3%)	5	7	4	16 (53%)	6	5	2	13 (43%)	30
	116. Sex/gender	0	1	5	6 (20%)	4	4	4	12 (40%)	7	2	3	12 (40%)	30
	117. Social participation	0	0	3	3 (10%)	3	8	6	17 (57%)	7	2	1	10 (33%)	30
	118. Health history	0	0	4	4 (13%)	5	8	6	19 (63%)	2	3	2	7 (23%)	30
	119. Ethnicity	0	1	5	6 (20%)	3	8	8	19 (63%)	3	1	1	5 (17%)	30
Caregiver – Capacity to provide care,	120. Capacity to provide care (e.g., logistics,	0	0	0	0 (0%)	1	2	2	5 (17%)	15	3	7	25 (83%)	30

SUPPLEMENTARY MATERIAL

supports available, living situation and expectations	<b>transport, emotional)</b>														
	121. <b>Barriers to care (e.g. financial, logistics, transport, emotions, work, children)</b>	0	0	0	0 (0%)	3	1	2	6 (20%)	16	2	6	24 (80%)	30	
	122. <b>Communicati on barriers</b>	0	0	0	0 (0%)	3	0	4	7 (23%)	18	3	2	23 (77%)	30	
	123. <b>Access to support (services, family, community, respite)</b>	0	0	1	1 (3%)	2	1	4	7 (23%)	16	2	4	22 (73%)	30	
	124. <b>Home living situation</b>	0	0	1	1 (3%)	2	2	3	7 (23%)	15	3	4	22 (73%)	30	
	125. <b>Family expectations/goal s of rehabilitation</b>	0	0	0	0 (0%)	3	1	4	8 (27%)	12	7	3	22 (73%)	30	
	126. <b>Willingness/c apacity to learn</b>	0	0	1	1 (3%)	4	2	3	9 (30%)	16	2	2	20 (67%)	30	
	127. <b>Usual residence</b>	0	1	0	1 (3%)	4	3	2	9 (30%)	15	2	3	20 (67%)	30	

SUPPLEMENTARY MATERIAL

	128. Rating of confidence in care role	0	1	0	1 (3%)	3	2	5	10 (33%)	14	3	2	19 (63%)	30
	129. Level of burden	0	0	0	0 (0%)	4	1	7	12 (40%)	11	5	2	18 (60%)	30
	130. Understanding of rehabilitation	0	0	2	2 (7%)	3	3	6	12 (40%)	13	3	0	16 (53%)	30
	131. Receipt of financial support as carer	0	0	1	1 (3%)	2	6	6	14 (47%)	12	1	2	15 (50%)	30
Service delivery and interventions														
Intervention/ Service delivery – General information	132. Mode of delivery (e.g., telehealth vs face to face)	0	0	0	0 (0%)	0	0	2	2 (7%)	16	2	9	27 (93%)	29
	133. Type of intervention (assessment, treatment, education, counselling, self-management, support)	0	0	0	0 (0%)	0	0	5	5 (17%)	9	6	9	24 (83%)	29
	134. Service delivery model	0	0	0	0 (0%)	0	0	5	5 (17%)	12	5	7	24 (83%)	29

SUPPLEMENTARY MATERIAL

	(e.g. individual, group)													
	135. Occasions of service	0	0	0	0 (0%)	1	1	3	5 (17%)	13	4	7	24 (83%)	29
	136. Duration and length of intervention	0	0	0	0 (0%)	0	0	6	6 (21%)	13	5	5	23 (79%)	29
	137. Frequency of intervention	0	0	0	0 (0%)	1	1	4	6 (21%)	13	3	7	23 (79%)	29
	138. Date of intervention	0	0	0	0 (0%)	0	1	5	6 (21%)	12	2	9	23 (79%)	29
	139. Whether intervention match patient goals	0	0	1	1 (3%)	3	2	0	5 (17%)	14	5	4	23 (79%)	29
	140. Dose / Intensity of treatment	0	0	0	0 (0%)	1	2	4	7 (24%)	12	3	7	22 (76%)	29
	141. Barriers to intervention (including factors impacting ability to provide desired treatment intensity)	0	0	0	0 (0%)	2	0	5	7 (24%)	13	6	3	22 (76%)	29

SUPPLEMENTARY MATERIAL

142. Adherence to treatment	0	0	0	0 (0%)	1	1	5	7 (24%)	13	5	4	22 (76%)	29
143. Major clinical reasoning decisions for treatment plan or change	1	0	0	1 (3%)	2	3	3	8 (28%)	12	2	6	20 (69%)	29
144. Total therapy sessions	0	0	0	0 (0%)	2	2	7	11 (38%)	10	3	5	18 (62%)	29
145. Changes to therapy	0	1	0	1 (3%)	3	1	7	11 (38%)	12	3	2	17 (59%)	29
146. Non-pharm treatment	1	0	0	1 (3%)	3	4	5	12 (41%)	9	5	2	16 (55%)	29
147. Aim of the session	1	0	1	2 (7%)	4	3	4	11 (38%)	12	2	2	16 (55%)	29
148. Received weekend service	1	1	1	3 (10%)	2	3	6	11 (38%)	9	4	2	15 (52%)	29
149. What was done in session	0	0	0	0 (0%)	6	2	7	15 (52%)	9	3	2	14 (48%)	29
150. Involvement of recreation activities	0	0	0	0 (0%)	4	4	10	18 (62%)	7	3	1	11 (38%)	29

SUPPLEMENTARY MATERIAL

Intervention/ Service delivery – Disciplines/cl inicians, family and patient involvement	151. Patient goal	0	0	0	0 (0%)	2	1	1	4 (14%)	11	4	10	25 (86%)	29
	152. Education provided to patient and caregiver (e.g., post discharge care, communication partner training)	0	0	2	2 (7%)	1	0	2	3 (10%)	15	5	4	24 (83%)	29
	153. Care plan provided to the patient	0	0	0	0 (0%)	0	0	5	5 (17%)	12	3	9	24 (83%)	29
	154. Medication assessment prior to discharge or need to implement dose administration aid	0	0	0	0 (0%)	2	1	4	7 (24%)	13	2	7	22 (76%)	29
	155. Interdisciplin ary care	0	0	0	0 (0%)	1	1	6	8 (28%)	12	3	6	21 (72%)	29
	156. Discipline that performs intervention (including provider of service e.g.,	1	0	0	1 (3%)	1	1	6	8 (28%)	12	4	4	20 (69%)	29

SUPPLEMENTARY MATERIAL

	professional, allied health assistant, student)													
	157. Hours/sessions per day in therapy (across different disciplines)	0	0	2	2 (7%)	2	1	4	7 (24%)	14	3	3	20 (69%)	29
	158. Family and/or advocate involvement and support	0	0	1	1 (3%)	3	1	4	8 (28%)	13	4	3	20 (69%)	29
	159. Family meetings	0	0	0	0 (0%)	2	0	7	9 (31%)	12	5	3	20 (69%)	29
	160. Hours of intervention provided by discipline	1	0	0	1 (3%)	4	1	5	10 (34%)	11	4	3	18 (62%)	29
	161. Case conferences	0	0	0	0 (0%)	2	4	7	13 (45%)	7	4	5	16 (55%)	29
Intervention/ Service delivery – Care plan, resources/cos	162. Post discharge follow-up (e.g., needed or not, with which disciplines)	0	0	0	0 (0%)	0	1	0	1 (3%)	16	5	7	28 (97%)	29



SUPPLEMENTARY MATERIAL

t of care, post- discharge and indirect patient activities	163. Management plan (including discharge plan)	0	0	0	0 (0%)	1	1	0	2 (7%)	19	3	5	27 (93%)	29
	164. Home visits	0	0	0	0 (0%)	1	0	3	4 (14%)	15	3	7	25 (86%)	29
	165. Future goals at discharge from rehabilitation service	0	0	1	1 (3%)	0	0	3	3 (10%)	15	7	3	25 (86%)	29
	166. Psychosocial support (e.g., Counselling)	0	0	0	0 (0%)	0	1	4	5 (17%)	11	8	5	24 (83%)	29
	167. Instructions for ongoing care (e.g., living situation, social circumstances)	0	0	0	0 (0%)	2	0	3	5 (17%)	16	3	5	24 (83%)	29
	168. Level of resources required (e.g., two therapists vs semi supervised)	0	1	1	2 (7%)	2	1	6	9 (31%)	11	3	4	18 (62%)	29

SUPPLEMENTARY MATERIAL

	169. Measurement of patient related activities (e.g., writing reports, designing patient specific therapy activities, time spent organising equipment)	1	0	1	2 (7%)	4	1	4	9 (31%)	13	3	2	18 (62%)	29
	170. Equipment and consumables	1	0	0	1 (3%)	0	5	6	11 (38%)	10	3	4	17 (59%)	29
	171. Technology assisted therapy	0	0	1	1 (3%)	2	1	9	12 (41%)	9	4	3	16 (55%)	29
	172. Missed appointments and reasons (e.g., staffing limitations, patient compliance)	1	1	2	4 (14%)	1	2	7	10 (34%)	9	4	2	15 (52%)	29
	173. Cost-benefit rating of rehabilitation (e.g., financial outlay, time, inconvenience)	1	1	5	7 (24%)	1	5	5	11 (38%)	9	2	0	11 (38%)	29
	174. Time spent moving	1	1	2	4 (14%)	2	4	13	19 (66%)	5	1	0	6 (21%)	29

SUPPLEMENTARY MATERIAL

Outcomes														
Outcomes – Independence , impairment, activity, participation, quality of life and psychosocial and emotional wellbeing	175. Level of Independence	0	0	0	0 (0%)	0	0	0	0 (0%)	15	3	11	29 (100%)	29
	176. Change in function (e.g., mobility)	0	0	0	0 (0%)	1	0	1	2 (7%)	16	3	8	27 (93%)	29
	177. Ability to return to previous roles/functions/activities	0	0	0	0 (0%)	0	1	1	2 (7%)	13	5	9	27 (93%)	29
	178. Activities of daily living	0	0	0	0 (0%)	0	1	1	2 (7%)	14	4	9	27 (93%)	29
	179. Quality of Life	0	0	0	0 (0%)	0	0	2	2 (7%)	14	4	9	27 (93%)	29
	180. Psychological wellbeing	0	0	0	0 (0%)	0	1	3	4 (14%)	11	5	9	25 (86%)	29
	181. Change in impairment	0	0	1	1 (3%)	0	0	4	4 (14%)	13	5	6	24 (83%)	29
	182. Change in diagnosis	0	0	1	1 (3%)	0	2	3	5 (17%)	13	4	6	23 (79%)	29
	183. Activity and participation	0	0	0	0 (0%)	1	1	4	6 (21%)	15	3	5	23 (79%)	29

SUPPLEMENTARY MATERIAL

	184. <b>Community participation</b>	0	0	0	0 (0%)	0	1	5	6 (21%)	13	3	7	23 (79%)	29
	185. <b>Social wellbeing</b>	0	0	0	0 (0%)	0	1	5	6 (21%)	13	5	5	23 (79%)	29
	186. <b>Length of time to return to function or change in function</b>	0	0	0	0 (0%)	0	2	5	7 (24%)	16	2	4	22 (76%)	29
	187. <b>Emotional response to treatment</b>	1	0	0	1 (3%)	2	1	8	11 (38%)	13	2	2	17 (59%)	29
Outcomes – Adverse events, goal attainment, health outcomes, admission/readmission, satisfaction and experience	188. <b>Complications/Adverse events and impact on rehabilitation outcomes (e.g., falls, infections)</b>	0	0	0	0 (0%)	0	0	2	2 (7%)	10	5	12	27 (93%)	29
	189. <b>Goal attainment</b>	0	0	0	0 (0%)	0	1	1	2 (7%)	11	6	10	27 (93%)	29
	190. <b>Cognition</b>	0	1	0	1 (3%)	0	0	1	1 (3%)	14	6	7	27 (93%)	29
	191. <b>Satisfaction with care (e.g., goals attained,</b>	0	0	0	0 (0%)	0	1	1	2 (7%)	15	5	7	27 (93%)	29

SUPPLEMENTARY MATERIAL

	clinician and services)													
192.	Pain	0	0	0	0 (0%)	0	1	2	3 (10%)	15	3	8	26 (90%)	29
193.	Mortality	0	0	0	0 (0%)	0	0	4	4 (14%)	8	4	13	25 (86%)	29
194.	Reasons why people ceased treatment	0	0	0	0 (0%)	1	0	3	4 (14%)	18	2	5	25 (86%)	29
195.	Length of stay in acute/rehabilitation	1	0	1	2 (7%)	0	1	1	2 (7%)	14	1	10	25 (86%)	29
196.	Readmission	0	1	0	1 (3%)	0	0	3	3 (10%)	14	1	10	25 (86%)	29
197.	Dysphagia / specific diet (if any)	0	0	0	0 (0%)	0	0	5	5 (17%)	12	4	8	24 (83%)	29
198.	Unmet needs/goals	0	0	1	1 (3%)	0	0	5	5 (17%)	16	5	2	23 (79%)	29
199.	Complaints about services	0	0	2	2 (7%)	1	1	2	4 (14%)	15	4	4	23 (79%)	29

SUPPLEMENTARY MATERIAL

	200. Patient and family service experience	0	1	0	1 (3%)	1	0	5	6 (21%)	11	7	4	22 (76%)	29
	201. Communication access	0	0	0	0 (0%)	1	1	7	9 (31%)	14	3	3	20 (69%)	29
	202. Waiting times (for review and admission)	1	0	0	1 (3%)	1	4	4	9 (31%)	12	4	3	19 (66%)	29
	203. Changes in episode of care (e.g., Ward transfers due to deterioration)	1	0	1	2 (7%)	1	2	5	8 (28%)	15	2	2	19 (66%)	29
	204. Frailty	1	0	0	1 (3%)	1	1	8	10 (34%)	9	4	5	18 (62%)	29
	205. Compliments	0	0	3	3 (10%)	2	2	5	9 (31%)	9	2	6	17 (59%)	29
	206. Physical access	1	0	2	3 (10%)	1	1	7	9 (31%)	12	1	4	17 (59%)	29
	207. Weight	1	0	2	3 (10%)	2	4	4	10 (34%)	10	2	4	16 (55%)	29
	208. Therapeutic alliance (patient	0	1	0	1 (3%)	5	3	7	15 (52%)	11	2	0	13 (45%)	29

SUPPLEMENTARY MATERIAL

	relationship with treating team)														
	209. Ease of navigating through service providers	1	0	4	5 (17%)	1	6	7	14 (48%)	7	2	1	10 (34%)	29	
Outcomes – Carer outcomes	210. <b>Carer quality of life</b>	0	0	0	0 (0%)	0	3	6	9 (31%)	15	2	3	20 (69%)	29	
	211. <b>Carer stress</b>	0	0	0	0 (0%)	0	2	7	9 (31%)	10	4	6	20 (69%)	29	
	212. <b>Carer confidence</b>	0	0	0	0 (0%)	0	3	7	10 (34%)	13	3	3	19 (66%)	29	
	213. <b>Carer wellbeing</b>	0	0	0	0 (0%)	0	3	7	10 (34%)	11	3	5	19 (66%)	29	
	214. <b>Families/care rs participation</b>	0	0	0	0 (0%)	1	1	8	10 (34%)	14	4	1	19 (66%)	29	
	215. <b>Carer needs</b>	0	0	0	0 (0%)	1	3	9	13 (45%)	12	2	2	16 (55%)	29	
	216. Third-party disability	1	0	1	2 (7%)	3	5	10	18 (62%)	6	1	2	9 (31%)	29	

\* Note: participants were asked to rate how important it is to always collect the following data items and outcomes [shown above] for all rehabilitation patients in order to describe care and outcomes.

\*\*Note: Items rated 7-9 by ≥ 50% of respondents were presented in round 3 - indicated in bold.



## SUPPLEMENTARY MATERIAL

*\*\*\*Note: Additional codes included from the findings of other studies within the project group (i.e., Nominal group technique with expert panel and scoping review) included: Patient basic demographic information (“Socioeconomic status”, “Country of birth”, “Marital status”, “Children”), Satisfaction and experience (“Therapeutic alliance (patient relationship with treating team)”, “Physical access” and “Communication access”).*

# Rehabilitation Data Set

## Data dictionary

### Data elements

#### Demographics

##### Person Identifier

Definition:	The patient identifier (UR number) is a unique record number assigned to a person for the purpose of uniquely identifying them within a healthcare facility.
Format:	Alphanumeric; code X[X(19)] Character length – 1-20
Codeset values:	A valid identifier assigned using the Assignment of unique identifier standard
Source data standard:	Queensland Health Admitted Patient Care Data Set

##### Age

Definition:	A patient's age is their age in years at the time of their admission to rehabilitation. It is calculated as the episode begin date minus the patient's date of birth.
Format:	Numerical
Codeset values:	Any number above 1 in years.
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts-Australian Version

##### Indigenous Status

Definition:	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin
Format:	Numeric code
Codeset values:	1 Aboriginal but not Torres Strait Islander origin 2 Torres Strait Islander but not Aboriginal origin 3 Both Aboriginal and Torres Strait Islander origin 4 Neither Aboriginal nor Torres Strait Islander origin 8 Not stated/unknown - follow-up required 9 Not stated/unknown - no follow-up required
Source data standard:	<i>Applicable data sources:</i> Queensland Data Standard <a href="https://health.qld.gov.au/person-and-provider-identification-data-set-definitions">Person and Provider Identification Data Set-Definitions (health.qld.gov.au)</a> Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts-Australian Version (codes 8 and 9 = Not stated or inadequately defined)

##### Sex

Definition:	Sex refers to a person's biological characteristics. A person's sex is usually described as being either male or female. A person may have both male and female characteristics, or neither male nor female characteristics, or other sexual characteristics.
Format:	Numeric code
Codeset values:	1 Male 2 Female 3 Other 9 Not stated/ Inadequately described
Source data standard:	Australian Institute of Health and Welfare Person-sex METeOR Identifier: 635126 Australian Bureau of Statistics 2016. Standard for Sex and Gender Variables (Cat. no. 1200.0.55.012). Attorney-General's Department 2015. Australian Government Guidelines on the Recognition of Sex and Gender. Queensland source standard: Queensland Hospital Admitted Patient Data Collection

## Language

Definition:	Preferred language of the person receiving rehabilitation services (including sign language)
Format:	Coded text
Codeset values:	Any value from Appendix G - Language Codes of the <a href="#">Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0</a>
Source data standard:	<a href="#">Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0</a>

## Need for an interpreter

Definition:	Whether an interpreter service is required by or for a person (including sign language)
Format:	Numeric code
Codeset values:	1 Interpreter needed 2 Interpreter not needed 9 Unknown
Source data standard	Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0 pp. 109 – 110. 7.38 Interpreter required (public hospitals)

## Premorbid health and psychosocial status

### Medical/health history

Definition:	The previous medical conditions experienced by the person.
Format:	Coded text
Codeset values:	Any valid code from SNOMED CT-AU, mapped according to the following categories for AROC reporting purposes. Cardiac disease Respiratory disease Drug and alcohol abuse Dementia Delirium, pre-existing Mental health problem Renal failure with dialysis Renal failure NO dialysis Epilepsy Parkinson's disease Stroke Spinal cord injury/disease Brain injury Multiple sclerosis Hearing impairment Diabetes mellitus Morbid obesity Inflammatory arthritis Osteoarthritis Osteoporosis Chronic pain Cancer Pressure ulcer, pre-existing Visual impairment Other
Source data standard:	ieMR problems list with categories accessed via the Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts-Australian Version

## Sensory impairments

Definition:	Details about a person's sensory impairments which existed prior to the current episode of care.
Format:	Coded text
Codeset values:	Blind - L eye Blind - R eye Hearing deficit - Left ear Hearing deficit - Right ear Nonverbal Sensation - touch deficit Speech deficit Uncorrected visual impairment Other:
Source data standard:	Collection source - ieMR

## Drug and alcohol history

Definition:	An indicator of a person's tobacco/ alcohol/ substance use history
Format:	Coded text
Codeset values:	Use: Yes No Not indicated  Details: Current Past Not indicated  Substance type (illicit substances only) Amphetamines Cocaine Ecstasy Hallucinogens/LSD Heroin Inhalants/glue/solvents Marijuana Methamphetamines Prescription Medications Other Not indicated
Source data standard:	Collection source - ieMR

## Psychosocial history – employment status

Definition:	The person's employment status prior to this impairment
Format:	Numeric code
Codeset values:	1. Employed 2. Unemployed 3. Student 4. Not in labour force 5. Retired for age 6. Retired for disability
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts- Australian Version

### Psychosocial history – level of education

Definition:	The highest level of education obtained by the person
Format:	Numeric code
Codeset values:	<ol style="list-style-type: none"> <li>1. None</li> <li>2. Highschool</li> <li>3. Some College</li> <li>4. University degree</li> <li>5. Post graduate degree</li> </ol>
Source data standard:	Collection source - ieMR

### Psychosocial history – preadmission living situation

Definition:	The living situation of the person prior to this episode of care.
Format:	Numeric code
Codeset values:	<ol style="list-style-type: none"> <li>1. Private residence</li> <li>2. Residential low level care (hostel)</li> <li>3. Residential, high level care (nursing home)</li> <li>4. Community group home</li> <li>5. Boarding house</li> <li>6. Transitional living unit.</li> <li>7. Other</li> </ol>
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts- Australian Version

### Psychosocial history - trauma

Definition:	History related to injuries, abuse or neglect in the household and the type of abuse.
Format:	Coded text
Codeset values:	Yes No Type: Free text – character limited field
Source data standard:	Collection source - ieMR

### Mood

Definition:	An indicator of mood at the commencement of the rehabilitation episode.
Format:	Numeral between 0 and 12
Codeset values:	Total score (0-12) Anxiety sub-scale (0-6, generated from Q1 and Q2) Depression sub-scale (0-6, generated from Q3 and Q4)
Source data standard:	Patient Health Questionnaire-4 (PHQ-4) (proposed measure)

### Carer supports

Definition:	The level of carer support received by the patient prior to their current inpatient admission. Include both paid and unpaid support. Paid carer support includes both government funded and private health funded carers. Unpaid carer support include care provided by a relative, friend, partner etc.
Format:	Numeric code
Codeset values:	<ol style="list-style-type: none"> <li>1. No carer and does not need one.</li> <li>2. No carer and needs one</li> <li>3. Carer not living in</li> <li>4. Carer living in, not co-dependent.</li> <li>5. Carer living in, co-dependent.</li> </ol>
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts- Australian Version

## Community supports

Definition:	Details of the community supports that a person received in the month prior to admission.
Format:	Y/N
Codeset values:	Domestic assistance Social support Nursing care Allied health Personal care Meals Provision of goods & equipment Transport services Case management
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts-Australian Version

## Admission information

### Total length of stay in hospital

Definition:	The total length of patient's inpatient stay calculated from the date of admission to date of separation. This includes all coded episodes of care for the admission (e.g. acute care, rehabilitation, maintenance, palliative care etc)
Format:	Numeral
Codeset values:	Any valid numeral
Source data standard:	Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0

### Length of stay of rehabilitation

Definition:	The total length of stay in the rehabilitation unit or service, or the SNAP rehabilitation care date where there is no rehabilitation specific unit (e.g. mixed acute and rehab ward).
Format:	Numeral
Codeset values:	Any valid number
Source data standard:	Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0

### Suspension of rehabilitation

Definition:	The total number of rehabilitation treatment suspension occurrences during this admission.
Format:	Numeral
Codeset values:	Any valid number (0 where there is no suspension)
Source data standard:	Australasian Rehabilitation Outcomes Centre Inpatient Data Dictionary V4 for Analysts-Australian Version

### Reason for rehabilitation

Definition:	The primary reason for a patient undergoing a rehabilitation episode of care.	
Format:	Coded text	
Codeset values:	<i>RST</i> <i>Stroke</i>	Left Body Involvement, Right Body Involvement, Bilateral Involvement, No Paresis, Other Stroke
	<i>RBD</i> <i>Brain dysfunction</i>	Non-Traumatic -Sub-arachnoid haemorrhage, Anoxic brain damage, Other non-traumatic brain dysfunction, Traumatic -Open Injury, Closed Injury.
	<i>RNE</i> <i>Neurological conditions</i>	Multiple Sclerosis, Parkinsonism, Polyneuropathy, Guillian-Barre, Cerebral Palsy, Neuromuscular disorders, Other neurological conditions

<i>RSC</i>	<i>Spinal cord dysfunction</i>	Non-Traumatic spinal cord dysfunction -Incomplete paraplegia, Complete paraplegia, Incomplete C1-4 quadriplegia, Incomplete C5-8 quadriplegia, Complete C1-4 quadriplegia, Complete C5-8 quadriplegia, Other non-traumatic spinal cord dysfunction, Traumatic spinal cord dysfunction - Incomplete paraplegia, Complete paraplegia, Incomplete C1-4 quadriplegia, Incomplete C5-8 quadriplegia, Complete C1-4 quadriplegia, Complete C5-8 quadriplegia, Other non-traumatic spinal cord dysfunction.
<i>RAL</i>	<i>Amputation of limb</i>	Single upper extremity above the elbow, Single upper extremity below the elbow, Single lower extremity above the knee, Single lower extremity below the knee, Double lower extremity above the knee, Double lower extremity above/below the knee, Double lower extremity below the knee, Partial foot, Other amputation not from trauma
<i>RAR</i>	<i>Arthritis</i>	Rheumatoid Arthritis, Osteoarthritis, Other Arthritis.
<i>RPS</i>	<i>Pain syndromes</i>	Neck pain, Back pain, Extremity pain, Headache, Multi-site pain, Other pain.
<i>ROF</i>	<i>Orthopaedic conditions - fractures,</i>	Includes: Fracture of hip -unilateral, Fracture of hip – bilateral, Fracture of shaft of femur, Fracture of pelvis, Fracture of knee, Fracture of lower leg or ankle or foot, Fracture of upper limb, Fracture of spine, Fracture of multiple sites, Other orthopaedic fracture.
<i>ROR</i>	<i>Orthopaedic conditions - replacements</i>	Includes: Hip replacement unilateral or bilateral, Knee replacement – unilateral or bilateral, Knee and hip replacement – same or different side, Shoulder replacement.
<i>ROA</i>	<i>Orthopaedic conditions – all other</i>	Soft tissue injury.
<i>RCA</i>	<i>Cardiac</i>	Following recent onset of new cardiac impairment, Chronic cardiac insufficiency, Heart and heart/lung transplant
<i>RPU</i>	<i>Pulmonary</i>	Chronic obstructive pulmonary disease, Lung transplant, Other pulmonary
<i>RBV</i>	<i>Burns</i>	Burns
<i>RCD</i>	<i>Congenital deformities</i>	Spina Bifida, Other Congenital deformities
<i>ROI</i>	<i>Other disabling impairments</i>	Lymphoedema, Conversion disorder, Other disabling Impairments – that cannot be classified into a specific group.
<i>RMT</i>	<i>Major multiple trauma</i>	Brain and spinal cord injury, Brain and multiple fracture/amputation, Spinal and multiple fracture/amputation, Other multiple trauma.
<i>RDD</i>	<i>Developmental disabilities</i>	Developmental disabilities (excluding Cerebral Palsy)
<i>RDE</i>	<i>Debility</i>	Re-conditioning following surgery, Reconditioning following medical illness, Cancer rehabilitation.
Source data standard:	Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0	

## Service delivery and interventions

### Rehabilitation setting

Definition:	The type of patient for which a service is being provided, for example inpatient or outpatient.
Format:	Coded text
Codeset values:	1. Inpatient 2. Outpatient 3. Community
Source data standard:	Collection source - ieMR

### Collaborative goal setting

Definition:	The completion of collaborative patient-centred goal setting to inform rehabilitation care and interventions
Format:	Coded text
Codeset values:	Yes No Type: Free text – character limited field

### Intervention date

Definition:	The date that the service event commenced
Format:	DDMMYY
Codeset values:	Any valid date
Source data standard:	Collection source - ieMR

### Intervention type

Definition:	The type of intervention provided to a patient during a rehabilitation episode
Format:	Coded text
Codeset values:	1. Assessment and evaluation (including goal setting) 2. Education (knowledge, skills and self-management) 3. Risk Management 4. Intervention 5. Liaison and coordination
Source data standard:	Collection source - ieMR

### Intervention duration

Definition:	The duration of clinical care activity provided to a person or group in the rehabilitation service that can be assigned (in whole or part) to an individual patient
Format:	Numerical, maximum 4 digits
Codeset values:	Valid duration recorded in minutes
Source data standard:	Collection source - ieMR



## Barriers to intervention

Definition:	Barriers to providing specific interventions to a person in the rehabilitation service by the healthcare professional.
Format:	Coded text
Codeset values:	<ol style="list-style-type: none"> <li>1. Patient absent</li> <li>2. Patient declined</li> <li>3. Patient in pain</li> <li>4. Patient unwell</li> <li>5. Other patient reason</li> <li>6. Staff-related barrier</li> <li>7. Staff reprioritisation due to workload</li> <li>8. Staff unavailable</li> <li>9. Other staff reason</li> </ol>
Source data standard:	Collection source - ieMR

## Treating disciplines

Definition:	Details of the professions involved in the treatment of a patient in a rehabilitation setting, as represented by a code.
Format:	Coded text
Codeset values:	Any valid clinician code, grouped for reporting e.g. nursing, allied health professional, allied health assistant, medical
Source data standard:	Collection source - ieMR

## Occasions of service

Definition:	The number of occasions of service provided to a patient during the rehabilitation episode.
Format:	Numeral
Codeset values:	Any valid numeral
Source data standard:	Collection source - ieMR

## Intervention - mode of delivery

Definition:	The method of delivery of an intervention between a patient and a healthcare provider.
Format:	Coded text
Codeset values:	<ol style="list-style-type: none"> <li>1. Face-to-face</li> <li>2. Telephone</li> <li>3. Telehealth</li> <li>4. Chart only</li> <li>5. Home visit</li> </ol>
Source data standard:	Collection source - ieMR

## Intervention – individual/ group

Definition:	Whether the intervention is provided to a patient in an individual on-to-one care setting, or in a group setting.
Format:	Coded text
Codeset values:	<ol style="list-style-type: none"> <li>1. Individual</li> <li>2. Group</li> </ol>
Source data standard:	Collection source - ieMR

## Intervention – interprofessional

Definition:	Whether the individual intervention is provided by a single discipline or more than one discipline in an interprofessional manner.
Format:	Coded text
Codeset values:	1. Single discipline 2. Interprofessional
Source data standard:	Collection source - ieMR

## Medication interventions

Definition:	A list of the medications administered during the rehabilitation episode, sorted by therapeutic class.
Format:	Coded text
Codeset values:	Any medication, classified for visualisation into therapeutic classes using the following categories: <ul style="list-style-type: none"> <li>- Potassium and electrolytes</li> <li>- Insulin</li> <li>- Narcotics</li> <li>- Cytotoxic</li> <li>- Heparin and anticoagulants</li> <li>- Allergies and antibiotics</li> <li>- Other (all other medications)</li> </ul>
Source data standard:	Collection source - ieMR

## Outcomes

### Goal attainment

Definition:	The attainment result of goals established on commencement in the rehabilitation setting
Format:	Coded text
Codeset values:	1. Goal met 2. Goal partially met 3. Goal not met
Source data standard:	Collection source - ieMR

### Impairment

Definition:	Change/improvement in impairment at the end of rehabilitation episode
Format:	TBA
Codeset values:	TBA
Source data standard:	Potential measures used in other datasets: AROC (ASIA Impairment Scale), UKROC (Northwick Park Dependency Scale), ICHOM (Simplified modified Rankin Scale Questionnaire), NSCISC (ASIA Impairment Scale), RIKSSTROKE (non-validated instrument), Paul Coverdell (modified Rankin Scale Questionnaire)

### Change in functional status - total

Definition:	The change in FIM score (total), calculated by the FIM scores collected at the beginning of the rehabilitation episode and at the end of the rehabilitation episode for an individual patient.
Format:	Numeral
Codeset values:	Numeral between 18 and 126
Source data standard:	Australasian Rehabilitation Outcomes Centre (AROC) Inpatient Data Dictionary for Analysts (AU) V4

## Change in functional status - subscales

Definition:	The change in FIM subscale scores (motor and cognition), calculated by the FIM sub-scale scores collected at the beginning of the rehabilitation episode and at the end of the rehabilitation episode for an individual patient.
Format:	Numeral
Codeset values:	Motor subscale (sum of individual motor items): numeral between 13 and 91. Cognition subscale (sum of individual cognition items): numeral between 5 and 35.
Source data standard:	Australasian Rehabilitation Outcomes Centre (AROC) Inpatient Data Dictionary for Analysts (AU) V4

## Activity and participation

Status: Routine clinical information

Definition:	Level of activity and participation obtained at the end of rehabilitation episode. <i>Note: Need to consider timing of this assessment given consumer experience of rehabilitation being a lifelong journey</i>
Format:	TBA
Codeset values:	TBA
Source data standard:	Potential measures used in other datasets: AROC (Employment status; Return to pre-impairment activities), UKROC (Mayo-Portland Adaptability Inventory), CIHI (Reintegration to Normal Living index), NSW BIRD (Mayo-Portland Adaptability Inventory; PROMIS-29), ICHOM (PROMIS-10), RHSCIR (Craig Hospital Inventory of Environmental Factors), NSCISC (Craig Handicap Assessment and Reporting Technique - short form), RIKSSTROKE (non-validated instrument)

## Health related quality of life

Definition:	The impact of health or disease on quality of life; how well a person functions in their life and his or her perceived wellbeing in physical, mental, and social domains of health; value of health states (reference: Kirimi and Brazier, 2016)
Format:	TBC
Codeset values:	TBC
Source data standard:	Potential tools used in other datasets: EQ-5D, PROMIS, SF-36

## Patient experience

Definition:	Information about the patient's perception of the experience of inpatient rehabilitation
Format:	TBC
Codeset values:	TBC
Source data standard:	TBC

## Patient satisfaction

Definition:	A measure of a patient's overall satisfaction with the rehabilitation episode
Format:	TBC
Codeset values:	TBC
Source data standard:	TBC

## Complications and adverse events

Definition:	A hospital-acquired complication (HAC) refers to a complication for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring.
Format:	Coded text
Codeset values:	1. Pressure injury 2. Falls resulting in fracture or intracranial injury 3. Healthcare associated infection 4. Respiratory complications 5. Venous thromboembolism

6. Renal failure
7. Gastrointestinal bleeding
8. Medication complications
9. Delirium
10. Persistent incontinence
11. Malnutrition
12. Cardiac complications

Source data standard: Hospital acquired complications v3.1 [Hospital-Acquired Complications \(HACs\) List - Specifications - Version 3.1 | Australian Commission on Safety and Quality in Health Care](#)

## Number of readmissions

Definition:	An avoidable hospital readmission occurs when a patient who has been discharged from hospital (index admission) is admitted again within 28 days, and the readmission is a) clinically related to the index admission, and b) has the potential to be avoided through improved clinical management and/or appropriate discharge planning in the index admission
Format:	Numeral
Codeset values:	Any valid numeral
Source data standard:	Queensland Hospital Admitted Patient Data Collection (QHAPDC) 2020-2021 V1.0

## Caregiver information and outcomes

### Current caregiver status

Definition:	The current caregiver status of the person to take on the caregiving role after the rehabilitation episode
Format:	Coded text
Codeset values:	<ol style="list-style-type: none"> <li>1. Yes, currently caregiver for this person</li> <li>2. No, not currently caregiver for this person</li> </ol>
Source data standard:	Collection source - ieMR

### Caregiver capacity and willingness to care

Definition:	The physical, emotional, social, and psychological capacity and willingness to take on the planned caregiver role, as assessed early in the rehabilitation episode.
Format:	TBA
Codeset values:	TBA
Source data standard:	Suggested tool: Preparedness for Caregiving Scale (Henriksson et al 2013)

### Caregiver preparedness

Definition:	Caregiver reflection on how prepared they were in taking on the caregiving role, as assessed after completion of the rehabilitation episode
Format:	TBA
Codeset values:	TBA
Source data standard:	Suggested tool: Preparedness for Caregiving Scale (Henriksson et al 2013)

### Caregiver experience

Definition:	The caregiver's experience with the rehabilitation episode, as experienced by them (not as a proxy for the patient)
Format:	TBA
Codeset values:	TBA
Source data standard:	TBA – no tool identified.