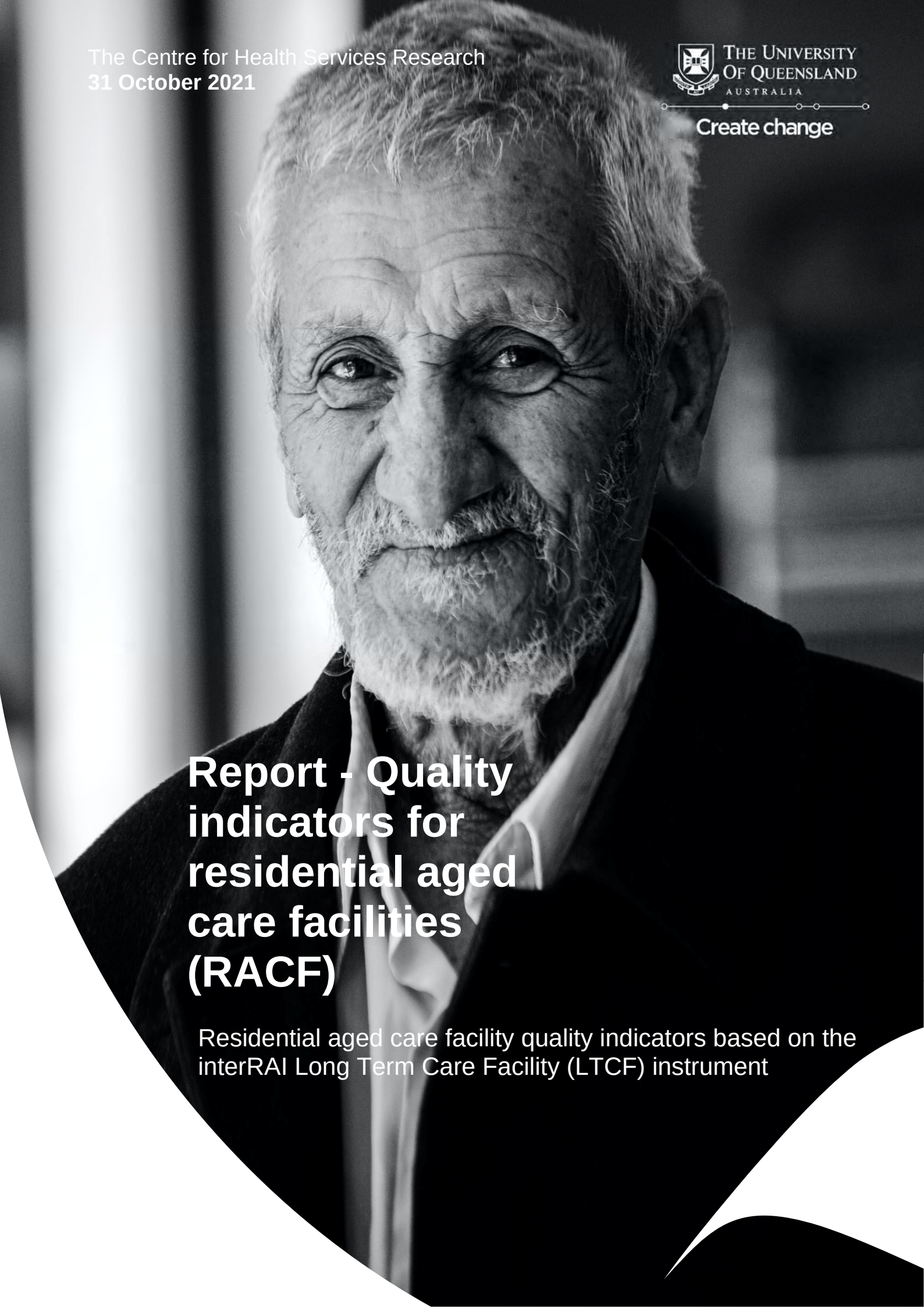
The Centre for Health Services Research
31 October 2021



Report - Quality indicators for residential aged care facilities (RACF)

Residential aged care facility quality indicators based on the interRAI Long Term Care Facility (LTCF) instrument

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Funding Contributors: Digital Health Cooperative Research Centre (CRC) and industry partners - the Bupa Foundation and the Australian Department of Health.

Recommended Citation: Martin-Khan M, Bird D, Caughey G, Yin M, Morris T, Alan J, Donohoe S, Gray L (2021), Report - Quality indicators for residential aged care facilities (RACF), Brisbane: The University of Queensland

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Executive summary

Following a literature review completed by the Registry of Senior Australians (ROSA) for the Australian Royal Commission into Aged Care Quality and Safety, existing interRAI-based Quality Indicators (QIs) were presented to an expert panel for discussion. Relevant domains of care for Australia, considering current mandatory QIs, were identified. Utilising the RAND/UCLA appropriateness method, the panel nominated a set of 25 initial QIs for consideration by a benchmarking consortium.

The aim of this project was to select residential aged care facility (RACF) quality indicators (QIs) which could be recommended for collection in Australia as part of a minimum data set to measure and report quality of care in RACF, and which could enable participation in benchmarking activities.

This QI development project is part of the 'Aged Care Data Compare' project (ACDC), a project funded by the Digital Health Cooperative Research Centre and industry partners - the Bupa Foundation and the Australian Department of Health. The ACDC project's goal is to create infrastructure that can support benchmarking of quality measures within and between residential care providers.

ACDC's objective is to demonstrate that reliable and standardised data, primarily collected and used for assessment and care planning in a RACF, can be "re-used." For example, to assist in monitoring the quality of care provided, and for identifying areas for improvement.

To this end, ACDC has curated a suite of QIs that are calculable from this data, and meaningful and useful to staff and residents. ACDC is also developing a prototype data exchange capability linked to a secure data repository. This will enable provider organisations to confidentially share data, without compromising security or privacy, and allow calculation and comparison of QIs for benchmarking within and between care facilities.

The work aims to complement work being done by the federal government to support accreditation processes, and public reporting, on the performance of RACFs. ACDC's emphasis is on provider's own use of day-to-day data for internal quality measures, monitoring and improvement.

The ACDC project is utilising the interRAI Long Term Care Facility (LTCF) data set to enable data standardisation and sharing of data among software solutions, and providers. The LTCF data set contains all the original RAI-MDS data elements that underpin public reporting of QIs in Canada and the USA. Therefore, the project has elected to create QIs that can be scored from this system, and the QIs from interRAI-compatible jurisdictions became candidates for the selection process.

A voting process was used to focus the recommendations at the domain, sub-domain, and then individual QI level. Initially all the QIs were grouped across 14 domains. These **domains** were presented to the panel. As a result of the discussion, two domains were combined, and a new domain was added. The panel voted to identify the domains to include for further consideration. **Sub-domains** were considered and prioritised with two rounds of voting. Then **individual QIs** from the priority sub-domains were selected for the final suite following two further rounds of voting. The panel discussed the voting outcomes via videoconference (Zoom Meetings) in a structured workshop format between rounds 1 and 2 at each stage. The panel could also make recommendations for additions (new domains, sub-domains or QIs) which would be added for voting in the next round. An additional domain was created by splitting one domain following discussion in the last workshop.

The final recommended QI set comprised 25 QIs, in 15 domains. Australian mandatory QIs were considered at all stages of the process. In the final round of voting, two of the nine current mandatory Australian QIs were not fully supported and subsequently excluded from the final 25.

Introduction

The aim of this project was to select interRAI-based residential aged care facility (RACF) quality indicators (QIs) that could be recommended for collection in Australia as part of a minimum data set; to measure and report on quality of care in RACF, and enable participation in benchmarking activities. This project is a sub-project of a larger body of work within the ACDC project.

The ACDC project aims to demonstrate that RACF data, primarily collected and used for assessment and care planning, can be usefully re-purposed if collected in a reliable and standard format. This demonstration was chosen to support the monitoring of quality of care provided, and for identifying areas for improvement.

ACDC is also developing a prototype data exchange capability linked to a secure data repository. This will enable provider organisations to confidentially share data, without compromising security or privacy, and allow calculation and comparison of QIs for benchmarking within and between care facilities. Use of standardised data and QIs would also allow international comparisons.

This project has curated a suite of QIs that are calculable from this data, and meaningful and useful to staff and residents (this report).

This project aimed to complement work being done by government to support accreditation processes and public reporting on the performance of RACFs. The project's emphasis is on care provider's own use of day-to-day data for internal quality measurement, monitoring and improvement initiatives.

Quality indicators

Improving the quality and safety of care for older people living in aged care settings is a key imperative for national health and social care systems globally. Quality and safety indicator systems have been developed, validated, and implemented internationally to measure and monitor quality of care constructs that reflect both care processes and outcomes in aged care. In Australia, the mandatory aged care QI program began on July 1, 2019. The program collects QI data from all residential aged care services within Australia every 3 months and provides RACF specific benchmarked reporting to the industry. The Australian Institute of Health and Welfare (AIHW) publishes quarterly indicator data, de-identified by provider, at a national, state and territory level on the GEN Aged Care website[1].

Improving the quality and safety of care for older people living in aged care settings is a key imperative for national health and social care systems globally

interRAI

interRAI is a collaborative network of researchers and practitioners in over 35 countries committed to improving the care for people who are disabled or medically complex[2]. It promotes evidence-informed clinical practice and policy-decision-making. The quality indicators for short-listing consideration were derived from the variables in the interRAI assessment systems[3].

[1] Australian Government, GEN Aged Care Data, Canberra: Australian Institute of Health and Welfare. https://www.gen-agedcaredata.gov.au/ Accessed: 20 October 2021
[2] interRAI, interRAI 'About Us'. https://interrai.org/about-interrai/ Accessed: 13 October 2021.
[3] Carpenter, I., & Hirdes, J. P. (2013). Using interRAI assessment systems to measure and maintain quality of long-term care. *A good life in old age*, *17*, 93-139.

ACDC Project

Understanding the needs and preferences of older people naturally leads to personalised and good quality care. Providers of residential aged care gather this information, but their processes vary, and distinct software solutions record it differently. This lack of "standardisation" leads to inefficiencies and missed opportunities.

- Without a standardised way of recording data, sharing information among care professionals and organisations is difficult at best and sometimes impossible.
- Understanding and comparing quality of care within and between organisations is currently hindered by non-standardised data.
- Preparing reports for management and funders, including government, is likewise challenging.

The aim of the ACDC project is to resolve technical challenges around the standardisation and sharing of valuable data that is recorded as part of every-day practice in residential aged care. To this end, the project works with interested aged care service providers, software vendors and government.

The ACDC project has a range of sub-projects (Figure 1) within its overarching goal. One of the sub-projects is identifying a suite of quality indicators that can be calculated from the standardised data identified from other sub-projects. More about the ACDC project can be found at this link: https://chsr.centre.uq.edu.au/aged-care-data-compare

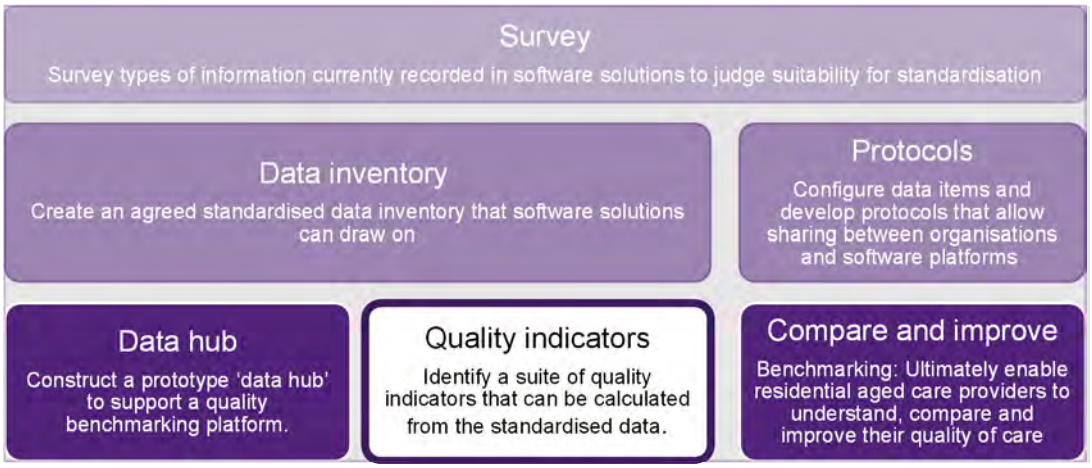


Figure 1. ACDC sub-projects including the QI Project

QI Project

The primary aim of the QI project was to select a short list of QIs from existing interRAI international QIs which could be derived from data collected via the interRAI Long Term Care Facility (LTCF) assessment.

To this end, a QI could be included if it met one of the following parameters:

- The QI must already be in an existing interRAI LTCF list.
- A new QI could be recommended if the required variables to calculate it were in the LTCF list.
- A new QI might be considered if the concept was an interRAI QI or variable in another assessment.
- If a concept was recommended as a priority but not currently scorable it would be taken as recommendation for future work.

The project period was August 2021 – October 2021.

Methodology

The collated QIs were categorised across areas of care, labelled as domains, which were then further divided into sub-domains. The RAND/UCLA Appropriateness Method[4] was used to identify sub-domains and QIs preferred from a list of QIs currently in use internationally. These QIs were drawn from a literature review and subsequent internet search. An expert panel voted in two rounds on sub-domains and QIs, recommending variations on care domain and sub-domain categorisation if deemed appropriate.

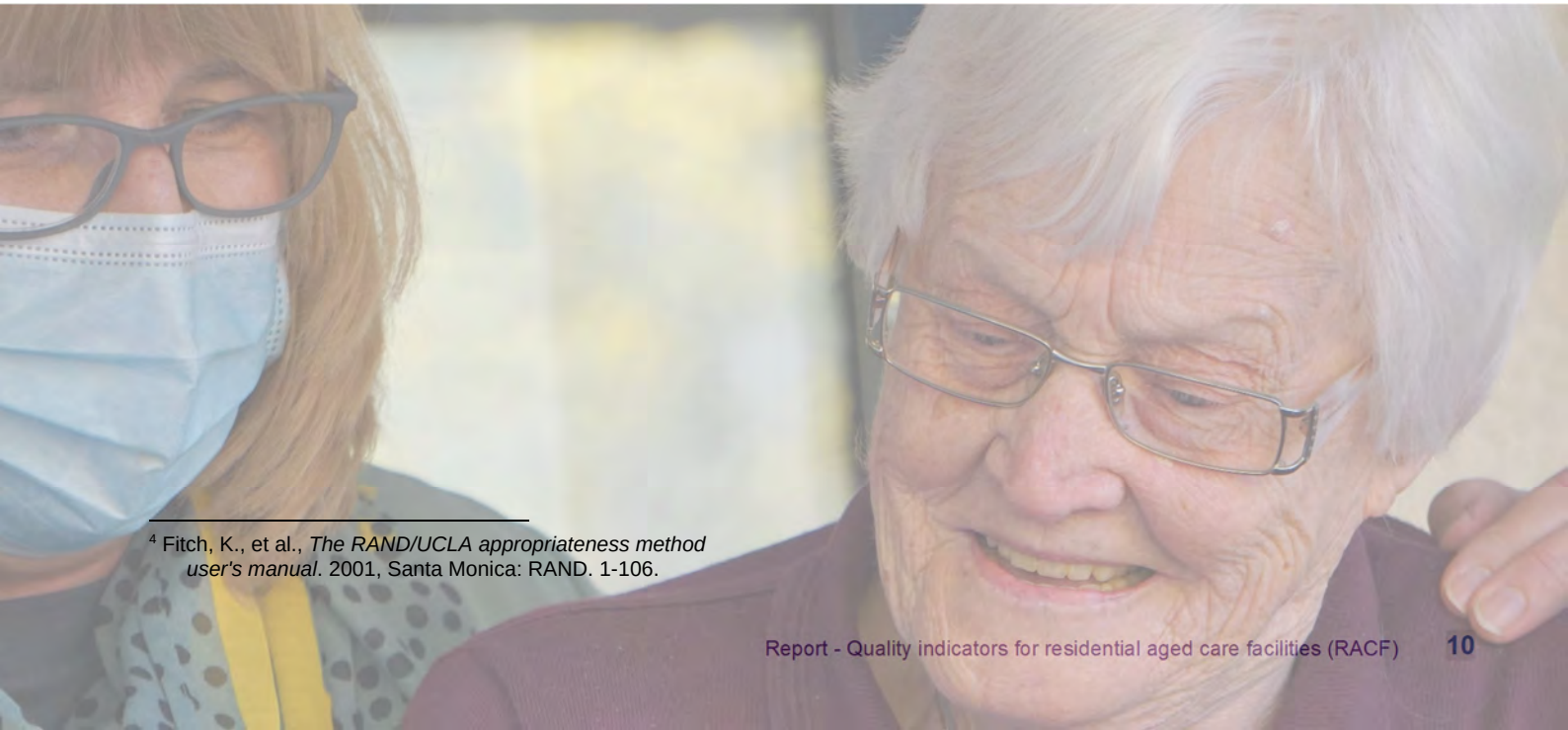
Primary Aim: Identification of QIs

The expert panel identified a preferred short list of existing QIs to utilise in a program of benchmarking work. The existing QIs were drawn from the literature review completed by the team at ROSA and an internet search carried out by Martin-Khan.

Secondary Aim: Recommendations for future work

Following the presentation of the existing QIs, initially as a series of care domains, then as a list of care sub-domains, the expert panel were able to make recommendations highlighting any areas where important topics or potential QIs were absent from the existing collated international QIs.

If a new topic/quality issue could not be matched with a QI from an existing interRAI-based QI, or a non-interRAI QI mapped to interRAI variables (regardless of assessment origin), a recommendation would be recorded for future consideration.



[4] Fitch, K., et al., *The RAND/UCLA appropriateness method user's manual*. 2001, Santa Monica: RAND. 1-106.

Protocol

Existing literature was reviewed for international interRAI QIs. A four-stage consensus development process was used to identify a set of 'high impact' QIs relevant to Australian residential aged care based upon explicit prioritisation criteria. An expert panel was selected based on experience and expertise with a view to variation across the panel.

No ethics approval was required to carry out the project, but approval is being obtained for the next step from The University of Queensland Ethics Committee to obtain access to interRAI repository residential care data held in Australia to apply to the recommended QIs as part of the benchmarking process, and to publish the results.

Stage 1 – Screening

An original QI literature review completed as part of a report for the Royal Commission into Aged Care Quality and Safety[5], supplied with working documents by project partner A/Professor Gillian Caughey of the Registry of Senior Australians (ROSA; South Australian Health and Medical Research Institute in South Australia), provided the foundation information for this project. We screened the working documents (spreadsheets in Microsoft Excel, version 2108) from ROSA and completed an additional web search for interRAI QIs.

From the ROSA documentation, 11 countries were identified with aged care quality and safety monitoring systems indicators at the population level. This includes seven European countries (Denmark, Finland, Germany, Iceland, Netherlands, Sweden, and the United Kingdom), two North American countries (Canada and the United States of America) and two countries from Australasia (New Zealand, Australia). The Australian systems included both the Victorian and the National Aged Care Mandatory Quality Indicator Program indicator sets. In summary:

- A total of 305 quality and safety indicators for residential aged care were identified within a range of domains, including physical and psychosocial function, health-related areas (including medication-related indicators), social well-being, safety, and quality of life. In addition, 50 home care indicators were also identified from Canada, Netherlands, and Sweden, totalling 355 QIs.
- Overall, five of the 11 countries used a version interRAI Resident Assessment Instrument (RAI) minimum data set (MDS) or an adaptation of this instrument, for their quality and safety indicator sets and data collection. The RAI data are predominantly clinical observations recorded by care staff in the aged care facility. Except for the USA, the RAI systems for long term care are developed and licensed by the interRAI research collaborative (see www.interrai.org). In the USA, the same data set is utilised, but it is managed by the Centres for Medicare and Medicaid Services (CMS). The remaining countries used other sources of data including health care records, registries, national surveys, other forms of active data collection (i.e., different to RAI) and administrative claims data.
- A search of active health organisations known to use interRAI assessments was carried out by hand to identify any interRAI QIs not previously accounted for, and to record websites that report LTCF QIs for residential care (Table 1). This search identified information about the BelRAI system (in Belgium), along with the interRAI repository QI set (only available to interRAI Fellows).
- The current Australian aged care QIs (N=9) were added to the list to be considered given their mandatory status.

The total list of QIs from the ROSA report was reviewed. interRAI home care and short stay QIs were removed as they were designated not relevant for this project. QIs from jurisdictions not utilising the

[5] Caughey GE, Lang CE, Bray SC, Moldovan M, Jorissen RN, Wesselingh S, Inacio MC. (2020) International and National Quality and Safety Indicators for Aged Care. Report for the Royal Commission into Aged Care Quality and Safety. South Australian Health and Medical Research Institute, Adelaide, South Australia

collection of data via the interRAI LTCF were also removed. This left QIs from the five countries that used the interRAI, with all QIs being drawn from interRAI data, except one QI (hospitalisation admission waiting times). The QI for hospitalisation admission waiting times was removed prior to the project's second workshop as the data variable was not in the LTCF variable list. Two QIs (hospitalisation and emergency department visits) are scored using claims data in the USA, but they can also be scored using LTCF variables if re-defined, therefore they were retained.

Table 1. International organisations with mandated interRAI LTCF QIs and their websites

Country	Organisation and dataset	Weblink and key references
Europe	SHELTER (Research Study by interRAI Fellows)	Onder, Graziano, Iain Carpenter, Harriet Finne-Soveri, Jacob Gindin, Dinnus Frijters, Jean Claude Henrard, Thorsten Nikolaus et al. "Assessment of nursing home residents in Europe: the Services and Health for Elderly in Long TERm care (SHELTER) study." *BMC health services research* 12, no. 1 (2012): 1-10. https://link.springer.com/article/10.1186/1472-6963-12-5
Finland	Finnish Institute for Health and Welfare	https://thl.fi/en/web/ageing/assessment-of-service-needs-with-the-rai-system/information-on-the-rai-assessment-system
Iceland	Ministry of Health and Social Security Stiki interRAI	https://www.stiki.eu/en/rai-heilsumatskerfi/ https://catalog.interrai.org/localization/iceland https://www.chsra.wisc.edu/qi/qi_matrix_6.3_2_page_quarterly_without_section_u.pdf
Canada	Canadian Institute for Health Information (CIHI) interRAI Canada	https://www.cihi.ca/en https://uwaterloo.ca/interrai-canada/
Canada Ontario	Health Quality Ontario	http://www.hqontario.ca/portals/0/documents/pr/pr-ltc-benchmarking-resource-guide-en.pdf Public reporting website: https://www.hqontario.ca/System-Performance
New Zealand	interRAI New Zealand Momentum TAS New Zealand	https://www.interrai.co.nz/data-research-and-reporting/data-visualisation/ https://www.interrai.co.nz/data-research-and-reporting/analysis-and-reporting/quality-indicators/
Australia	National Aged Care Mandatory Quality Indicator Program (QI Program) interRAI Australia	https://www.health.gov.au/sites/default/files/documents/2021/06/national-aged-care-mandatory-quality-indicator-program-manual-national-aged-care-mandatory-quality-indicator-program-manual-2-0-part-a-final-version_1.pdf https://interrai-au.org/ https://agedcare.royalcommission.gov.au/system/files/2020-06/LGR.9999.0001.0001.pdf
USA	Centers for Medicare and Medicaide Services (CMS)	https://data.cms.gov/provider-data/topics/nursing-homes/quality-of-resident-care https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/FSQRS
Belgium	BelRAI	https://www.healthybelgium.be/en/health-system-performance-assessment/specific-domains/care-for-the-elderly

Each identified/included QI on the list was individually coded to enable tracking of the QIs throughout the project. A list of care domains was developed to sort the total QI list, using the ROSA recommended domain list, and other existing list of domains as a reference point. QIs were then sorted into sub-domains within the domains. Sets of QIs that were clearly linked to one another were grouped to form one QI (the description may have differed slightly but if the definition and variables were identical it was grouped together, and the individual QI codes were recorded). Disagreements were resolved through discussion.

The collated list of current interRAI Long Term Care Facility (LTCF) QIs and domains of care were recorded in a manual developed for the ACDC workshops[6].

Stage 2 – Online shortlisting by consensus panel

We held two recruiting workshops which described the project and an overview of the process. We invited stakeholder representatives to volunteer to participate in our project. We then actively recruited people to ensure wide representation.

We convened the consensus panel comprising 15 members: eight representing aged care providers, two peak body representative, and five academics (Details in Appendix 1).

In the first Panel Workshop (PW1), we recapped the context of the project for new participants and gave an overview of the consensus process. We asked participants to discuss then vote (during the meeting) on our list of preliminary domains. Prior to the workshop the panel members received the project manual describing the domains with examples of sub-domains and QIs. The panel also had the opportunity to recommend additional domains.

Voting was completed online with results available during the workshop immediately after voting closed. The panel voted on each domain (dichotomous Yes/No), with a 30% Yes vote required to retain the domain for consideration in the remaining rounds.

Stage 3 – Face-to-face consensus panel workshop

Utilising the results from Stage 2, the manual was updated with details for each domain including any additional domains. Under each domain, all the sub-domains were described with example QIs. A voting guide, criteria sheet, and the manual were provided to the panel members a week prior to each workshop. Panellists were asked to consider the criteria when voting on the online survey (Table 2).

For scoring the voting, we used the RAND/UCLA appropriateness consensus methodology, which is useful for judgements requiring deliberation and discussion, particularly when the group meets in person (or via videoconference). Each decision point was mediated via two rounds of voting on a 9-point scale (where one is the lowest). A ‘don’t know’ option was not provided. Between the round 1 and round 2 voting rounds a panel workshop for discussion was held. There were two decision points in Stage 3: (a) Sub-domains; and (b) QIs. For each round of voting, panellists independently completed an online survey with reference to specific criteria (Table 2). Panellists were not aware of the other members individual votes (anonymity was maintained).

When the online survey voting was completed, the votes were analysed and the results of round 1 were provided to the panel prior to the next Panel Workshop. Each voting individual received a personalised voting sheet showing their own vote along with the information regarding the voting outcome for the whole panel.

[6] Martin-Khan M, D Bird, G Caughey, L Gray (2021), Voting Manual – Quality indicators for residential aged care facilities (RACF), Versions 1-4, Brisbane: The University of Queensland.

Table 2. ACDC QI criteria for evaluating the validity of a QI

Criteria Topic	Definition
Criteria 1: Mandatory indicator	Identified as an Australian QI currently mandatory in Australian RACF.
Criteria 2: Evidence for health benefits	Adequate scientific evidence or professional consensus supports a link between the outcome specified by the indicator and a health benefit to the resident.
Criteria 3: Provider Control	A provider influences most of the factors that determine the outcome of the indicator (relevant to the resident's recent target assessment).
Criteria 4: Generalisability	The indicator is relevant to a high proportion of the targeted population.
Criteria 5: Responsiveness	The indicator is responsive to changes over time; it will be possible to identify and measure the impact of interventions designed to improve care (evidence that there are interventions which can lead to improvements in care).
Criteria 6: Event rate	The outcome specified by the indicator occurs frequently and/or is of sufficient significance that monitoring should occur.
Criteria 7: Clarity of purpose	The indicator is clearly relevant for improving the quality of care for residents and informative when reported (either at a provider level or for public reporting).
Criteria 8: Measurement accuracy	Ideally the indicator would be measured using a gold standard measure or a measure with proven robust attributes for the measured population when administered appropriately. The indicator measures what it is meant to measure.

a) Sub-Domains

Panel members voted to identify which sub-domains were to be retained ('Yes' vote) for the QI voting rounds. Any excluded sub-domains were removed from the manual and no QIs were listed in the final voting rounds for those sub-domains. This process enabled the panel to keep the content focused on topics of primary interest.

After round 1 voting, panellists next attended an online facilitated and structured videoconference via Zoom for Panel Workshop 2 (PW2). Dr. Martin-Khan explained the outcome of the voting and gave examples of the impact of choices. We then opened the online survey for round 2 voting and discussed each of the domains and their sub-domains, focusing on those with maximal discordance, defined as any with an undecided outcome. Panellists had their own voting summaries so they could see their round 1 vote, and they could also see the overall panel voting results on the survey pages. Discussion was encouraged regarding clinical evidence for and against the sub-domain, and reasons for voting each way in round 1. Panellists were encouraged to make a preliminary round 2 vote during the discussion (in PW2) and to review their votes after the workshop prior to submitting their definitive vote. During this process there was also an opportunity to recommend additional sub-domains or to move sub-domains between domains if required.

b) Quality Indicators

The process was then repeated to vote for the QIs in the final set of sub-domains.

The manual was updated, and any sub-domains voted out following PW2 were deleted. For remaining sub-domains, relevant QIs were listed in the manual with definitions and variables for each variation where different countries used a similar yet different QI.

Panel members voted to recommend specific QIs across all sub-domains prior to the first of the QI workshops (PW3). Discussion of QIs was spread over two workshops (PW3, PW4). Round 2 voting occurred during or after the workshop discussion. The QI voting took into consideration the criteria (Table 2), the current Australian mandatory QIs, and a stated expectation of an outcome for a short QI final list (20-30 in total). Results of Round 2 – Part 1 voting (Domains 'Changed Behaviours' to 'Infections') were provided to panel members prior to the Round 2 – Part 2 voting in PW4 (Domains 'Medications' to 'Social Engagement').

Stage 4 – Definitions for Australia and data testing

Once the final suite of QIs was decided, the QIs were formally defined, and relevant variables were selected. In many cases a single interRAI QI is collected in several countries with slightly different variations, therefore, an initial description was confirmed for the ACDC benchmarking suite. These was recorded in manual for the panel, identifying the origin of the nominated QI and the countries with similar QIs[7]. If syntax was available from the interRAI repository (in the first instance) for the variation this was also identified. Variables were also identified for exclusion criteria and risk adjustment[8] if available at the time.

In the Australian interRAI repository of data there is a small dataset of interRAI LTCF data. This will be used to run the initial analysis for this set of QIs to establish some rudimentary baseline data. This data was collected (2017-2019) in 10 Queensland residential care facilities by research nurses and contains baseline data, along with 3-month and 6-month follow-up data.

The variables and data are not included in this report.

Analysis of Votes

We analysed median, 30th percentile, 70th percentile, the Asymmetry Index (AI), the Interpercentile Range Adjusted for Symmetry (IPRAS), the Interpercentile Range (IPR), Interpercentile Range Central Point (IPRCP), and the mean standard deviation from the mean using Microsoft Excel, version 2108[9]. This data was used to apply decision rules, defined *a priori*, to identify valid or invalid QIs. Only votes from round 2 were utilised to determine the final QI set.

While we followed the rules for voting in and out at each stage (giving the panel ultimate control over the recommended QI set), we did indicate to the panel that we were aiming for a short list of anywhere between 20 – 30 QIs (including the Australian 9 mandatory QIs). Process and decision rules for voting were decided *a priori*:

Process rules

1. Participation by a panel member any first voting round was not a requirement for participation in a second voting round (and vice versa).
2. To vote in round 2 of the QI voting, panellists must have attended the Workshop to discuss first round results, have received a one-on-one briefing from the Project Leader, or watched the

[7] Martin-Khan M, D Bird, G Caughey, L Gray (2021), Voting Manual – Quality indicators for residential aged care facilities (RACF), Versions 1-4, Brisbane: The University of Queensland.
[8] Martin-Khan M, D Bird, G Caughey, L Gray (2021), Technical Manual – Quality indicators for residential aged care facilities (RACF), Versions 1, Brisbane: The University of Queensland.
[9] Basger, B.J., T.F. Chen, and R.J. Moles, *Validation of prescribing appropriateness criteria for older Australians using the RAND/UCLA appropriateness method.* BMJ open, 2012. **2**(5): p. e001431.

workshop video recording. These measures ensured all participants voting in the round were up to date with the same content.

3. Australian mandatory QIs would be included and identified in the QIs to be discussed. The panel could vote the QIs in or out depending on their preferences. The recommended set would acknowledge the panel's voting preferences, but any benchmarking calculations would define and score the full set of Australian mandatory QIs for comparison purposes (even if they were not all recommended).

Decision rules

1. All votes from the second round would be included in the calculation (highest and lowest votes would not be removed).
2. Votes from partially completed voting surveys contributed to the calculations.
3. A median up to (but not including) 0.5 would be rounded down, but a median from 0.5 and higher would be rounded up for the purposes of deciding to retain the QI (Voting 'Yes'). IPRAS and IPR were rounded to two decimal places for calculations and comparison.
4. Scoring: Median of 7-9 without disagreement was 'Yes'; Median of 4-6 or any median with disagreement was 'Undecided'; Median of 1-3 without disagreement was 'No'.
5. Any number of 'Yes' votes for QIs within a domain could be included; if there were no 'Yes' vote in a domain, then the highest ranking 'Undecided' vote would be included; if there were no 'Undecided' and no 'Yes' votes, then no QI would be included in that domain. The domain would be excluded.
6. Included in final suite: Only results from the second round of QI voting were to be counted towards recommended QIs.

At the conclusion of the panel workshop, a few additional days were provided to allow panellists time to finalise their voting. The results were analysed, and the panel was notified of the outcome and given a full list of the recommended indicators.

Resident and public involvement

No residents or their representatives were involved in this project.

Results

Primary outcome

Twenty-five quality indicators (25) were identified for the ACDC benchmarking suite for residential care. Seven of the nine Australian mandatory QIs were recommended as inclusions in this suite. Two new domains were identified: End of life (which was an existing area of interest for interRAI but new QIs were recommended); and Social Engagement with existing QI recommendation from another interRAI sector.

Domains of care

Utilising the existing QIs, and batching them by theme, 14 domains were identified as potentially relevant to the process. These were presented in Panel Workshop 1 (PW1).

During the discussion, there were recommendations for changes to the domains and sub-domains. For example: a domain to be moved into another domain as a sub-domain (Vaccinations); change domain names (Changed behaviours); add sub-domains (non-Medication approaches to treating depression, added to Depression); and new Domains suggested (Sleep) (Table 3).

Table 3. Variations in domains following recommendations of the panel

ORIGINAL	WORKSHOP	CHANGE	FINAL
Behavioural disorders	PW1	New name	Changed behaviours
Cognition	No change		Cognition
Depression	PW1	New name	Mood state
	PW2	Add sub-domain: non-pharmacological interventions	
	PW3	Delete sub-domain: non-pharmacological interventions	
Elimination and continence	No change		Elimination and continence
Falls, fractures and injuries	No change		Falls, fractures and injuries
Function: ADL limitations and abilities	No change		Function: ADL limitations and abilities
Hospitalisations	PW2	Revised QIs to score using LTCF variables	Hospitalisations
Infections	PW1	New sub-domain	Infections
Vaccinations	PW1	Deleted as a domain; Added as a sub-domain to Infections	-
Medication-related issues	PW1	Note added 'Medications can be used as form of restraint'	Medication-related issues
	PW3	Add sub-domain: non-pharmacological interventions	
	PW4	Delete sub-domain: non-pharmacological interventions	
Pain	No change		Pain
Pressure injuries	PW1	New name	Skin integrity
Physical restraints	No change		Physical restraints
Weight loss and nutrition	No change		Weight loss and nutrition
-	PW1	Add new domain	End of life
	PW2	Two sub-domains: inadequate medication to control pain; caregiver distress	
	PW3-4	Three sub-domains: Palliative care program; advance care directives; recognition of spiritual and cultural needs at end of life	
-	PW4	Upgrade sub-domain to domain: non-pharmacological interventions	Social Engagement

Modifications continued to be made to the domains and sub-domains as the workshops progressed. When the panel made a new recommendation, a search of the literature and web was conducted to ascertain if an interRAI QI or relevant set of variables existed. If none were available, the panel was advised that the recommendation was to be listed for future work. If something suitable was identified, the relevant item was added for voting in the next round, and either retained or voted out. In some cases, another search was required to find a slightly different sub-domain or QI with similar attributes, until the panel was satisfied with the new domain or sub-domain. This was the case for both End of Life and Social Engagement domains.

Sub-domains

Panel members were asked to vote on 54 sub-domains under 14 domains. In the first round of voting, prior to Panel Workshop 2 (PW2), 43 sub-domains were voted in using the RAND/UCLA consensus method. After the workshop in the second round of voting, 32 sub-domains were confirmed, with each domain having at least one sub-domain included for consideration of QIs (Table 4).

Table 4. Summary of validity ratings for sub-domains from round 2

DOMAIN	SUB-DOMAINS	VALID	Median 1-3	Median 4-6	Median 7-9	Agreement	Disagreement
Changed behaviours	2	1	0	1	1	1	1
Cognition	3	1	1	1	1	2	1
Mood state	3	2	0	1	2	2	1
Elimination and continence	6	3	3	0	3	5	1
Falls, fractures and injuries	4	3	1	0	3	4	0
Function	7	2	3	2	2	5	2
Hospitalisations	2	1	0	0	2	1	1
Infections	4	3	0	0	4	3	1
Medication-related issues	6	3	0	3	3	3	3
Pain	4	2	1	1	2	3	1
Skin integrity	4	2	0	2	2	3	1
Physical restraint	2	2	0	0	2	2	0
Weight loss and nutrition	5	3	2	0	3	5	0
End of life	2	0	1	0	1	1	1

Quality indicators

From the original summary of QI literature, the research team batched the interRAI QIs into Domains and Sub-domains. In some instances, there was only one example from the international literature of a QI for a specific sub-domain. In other cases, a sub-domain may have 5 or 6 QI examples, as it is a commonly used QI in many countries. Panel Workshop 3 (PW3) and 4 (PW4) were used to discuss and nominate by voting a QI from each of the sub-domains. The panel completed round 1 voting for all the QIs before PW3. At PW3 they discussed and voted for eight sub-domains (Changed behaviours – to Infections). Results of the round 2 votes were provided prior to PW4 and discussed at the workshop, along with the results of the round 1 votes for the remaining sub-domains (Medication-related issues – to End of Life). Voting took place in the workshop and was finalised within the week.

Two Australian mandatory QIs were not endorsed by the panel:

- Percentage of care recipients with one or more pressure injuries; and
- Percentage of care recipients who were prescribed nine or more medications

Australian mandatory QIs

A total of 46 QIs were presented to the panel for consideration, across 32 sub-domains. Following the Round 1 voting, 23 QIs were nominated, with 8 of the Australian mandatory QIs preliminarily recommended. In the PWs 3 and 4, the results of Round 1 were discussed, and the Round 2 voting was carried out.

After PW4, when the results were calculated, 25 QIs were included in the final suite with 7 of the Australian mandated QIs recommended (Figure 2; Table 5; Table 7). The two Australian mandatory QIs not endorsed were:

- Percentage of care recipients with one or more pressure injuries; and
- Percentage of care recipients who were prescribed nine or more medications.

Australia currently has two pressure injury QIs for aged care. The concept measured in these two QIs is: each care recipient with one or more pressure injuries. The first is a total of care recipients, and the second is a sub-total of care recipients for each stage of pressure injury. The panel felt that only one QI for pressure injuries was required at this time, and that as these were very similar, there was more value associated with the more detailed staging of pressure injuries QI. The vote for this QI had a median of 2, with significant disagreement indicated by a spread of votes at either end of the rating scale.

There was robust discussion regarding the nine or more medications QI. While the median was 8, there was a broad range of votes from 1 to 9, but still showing disagreement. There was some concern about the clinical utility of a count of medications in this vulnerable population. This QI was not endorsed.

For the purposes of the benchmarking consortium the results of all mandatory Australian QIs will be reported for discussion, but the recommendations of the ACDC expert panel for national reporting does not include these two QIs.

Recommended quality indicators

The following 25 QIs are the recommended QIs that were voted in by the ACDC panel (Table 5), with details regarding their definitions drawn from the manual utilised in the discussions and voting during the workshops[10]. Details regarding votes for the QIs (Round 1 and Round 2) are listed in Appendix 3.

Figure 2 outlines the project process and the number of QIs at various stages, along with domains and sub-domains. A total of 355 QIs were derived from the ROSA literature work. Additional QIs were identified in targeted internet searches (via Google) to locate grey literature and health care-oriented websites. Non-interRAI QIs were removed along with interRAI homecare QIs, those relating to short stay, and one LTCF QI which could not be calculated with the assessment tool (wait time to admission). Two additional claims data QIs for hospital and emergency department were re-defined using LTCF variables and retained.

Table 5. ACDC Residential care interRAI quality indicator suite

Domain; Sub-Domain	Short Title; Published QI	Origin; Format
CHANGED BEHAVIOURS Movement in behavioural symptoms	Declined behavioural symptoms • Residents whose behaviour symptoms were worse on target assessment compared with prior assessment	Derived from: CIHI Canada [UQRBEH101] Syntax available: interRAI SharePoint [UQRBEH111] Incidence
COGNITION Cognitive impairment	Declined cognitive ability • Percent of residents whose cognitive ability has worsened	Derived from: New Zealand [UQRCOG104] Comparable with: Canada [UQRCOG101] Syntax available: interRAI SharePoint [UQRCOG110] Incidence
MOOD STATE Mood symptoms of depression	Declined mood symptoms of depression • Percentage of residents whose mood from symptoms of depression have worsened	Derived from: Canada [UQRDEP109] Comparable with: Alberta Canada; Ontario Canada; USA Incidence
ELIMINATION AND CONTINENCE Change in continence status	Declined bladder continence • Percent of residents with worsening bladder continence	Derived from: New Zealand [UQRINC114] Comparable with: Canada CIHI Syntax available: interRAI SharePoint [UQRINC125] Incidence
ELIMINATION AND CONTINENCE Change in continence status	Declined bowel continence • Percent of residents with worsening bowel continence	Derived from: New Zealand [UQRINC113] Syntax available: interRAI SharePoint [UQRINC127] Incidence
ELIMINATION AND CONTINENCE Faecal impaction	Prevalence of faecal impaction • Residents with faecal impaction on most recent assessment	Derived from: Finland [UQRINC120] Prevalence

[10] Martin-Khan M, Bird D, Caughey G, Gray L (2021), Voting Manual – Quality indicators for residential aged care facilities (RACF), Versions 1-4, Brisbane: The University of Queensland.

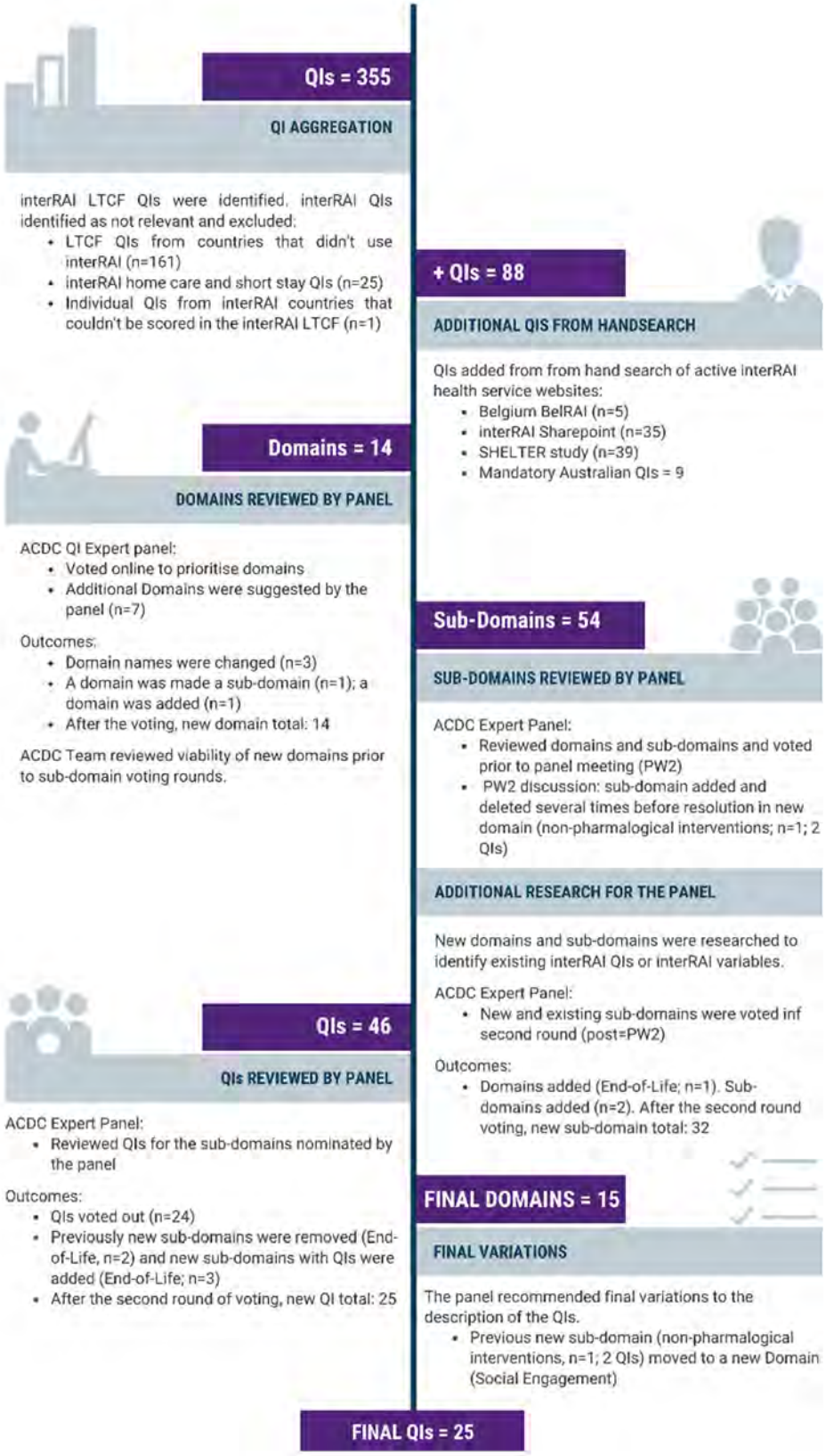
Domain; Sub-Domain	Short Title; Published QI	Origin; Format
FALLS, FRACTURES, AND INJURIES [AUS] Falls	Prevalence of falls◊ • Percentage of care recipients who experienced one or more falls	Derived from: Australia [UQRFAL112] Comparable with: New Zealand; Finland Prevalence
FALLS, FRACTURES, AND INJURIES [AUS] Falls with major injury	Prevalence of falls with major injury ◊ • Percentage of care recipients who experienced one or more falls resulting in major injury	Derived from: Australia [UQRFAL111] Comparable with: USA Prevalence
FUNCTION Change in status of mid-loss ADL function	Worsened or remained dependent in mid-loss ADLs • Percent of residents who declined status on mid-loss ADL functioning transfer, locomotion or remain completely dependent in mid-loss ADLs	Derived from: New Zealand [UQRFUN113] Comparable with: Canada [UQRFUN105] Syntax available: interRAI SharePoint [UQRFUN134] Incidence
FUNCTION Change in ability to locomote independently	Declined in ability to locomote independently • Percent of residents who have declined in their ability to locomote	Derived from: New Zealand [UQRFUN116] Comparable with: USA [UQRFUN102] Syntax available: interRAI SharePoint [UQRFUN131] Incidence
HOSPITALISATIONS Emergency department visits	Prevalence of emergency department visits • The percentage of residents with one or more emergency department visits recorded on the target assessment	Derived from: USA Modified [UQRHOS102] Prevalence
INFECTIONS Infections	Prevalence of infections • Percentage of residents who have had one or more infections	From: Canada [UQRINF106] Comparable to: SHELTER [Frijters 2013; UQRINF107] Syntax available: interRAI SharePoint [UQRINF110] Prevalence
INFECTIONS Influenza vaccination	Prevalence of influenza vaccination • Influenza vaccination in last 12 months	From: SHELTER [Frijters 2013; UQRVAC103] Comparable to: USA [UQRVAC101] Prevalence
INFECTIONS Pneumococcal vaccination	Assess and appropriately given Pneumococcal vaccine • Percentage of long-stay residents whose pneumococcal vaccine status is up to date	From: USA [UQRVAC102] Prevalence

Domain; Sub-Domain	Short Title; Published QI	Origin; Format
MEDICATION-RELATED ISSUES [AUS] Antipsychotic drug use	Antipsychotics◊ • Percentage of care recipients who received antipsychotic medications	From: Australia [UQRMED117] Comparable to: USA [UQRMED101]; SHLETER, [UQRMED102] Prevalence
MEDICATION-RELATED ISSUES Antipsychotics without a diagnosis	Prevalence of antipsychotics without a diagnosis • Percentage of residents on antipsychotics without a diagnosis of psychosis	From: Canada [UQRMED106] Comparable to: Finland [UQRMED108]; ALBERTA CANADA [UQRMED116]; Canada Ontario [UQRMED115]; Iceland, [UQRMED107] Syntax available: interRAI SharePoint [UQRMED119] Prevalence
PAIN Moderate or severe pain	Prevalence of moderate or severe pain • The percentage of residents who experienced moderate pain daily or any severe pain in the seven days preceding their most recent assessment	From: Canada Ontario [UQRPAI107] Comparable to: USA [UQRPAI101] Prevalence
SKIN INTEGRITY [AUS] Pressure injuries◊	Prevalence of pressure injuries reported against 6 stages ◊ • Care recipients with one or more pressure injuries reported against each of the six pressure injury stages: Stage 1 Pressure Injury Stage 2 Pressure Injury Stage 3 Pressure Injury Stage 4 Pressure Injury Unstageable Pressure Injury Suspected Deep Tissue Injury	From: Australia [UQRPRE115] Syntax: interRAI SharePoint [UQRPRE116] [Unclear if it's staging] Prevalence
PHYSICAL RESTRAINTS [AUS] Physical restraint	Prevalence of physical restraint use ◊ • Percentage of care recipients who were physically restrained	From: Australian [UQRRST109] Somewhat comparable to: New Zealand [UQRRST105]; Canada CIHI UQRRST102 Syntax available: interRAI SharePoint [UQRRST110] Prevalence
WEIGHT LOSS AND NUTRITION [AUS] Significant unplanned weight loss	Prevalence of significant unplanned weight loss◊ • Percentage of care recipients who experienced significant unplanned weight loss (5% or more)	From: AUSTRALIA [UQRNUT112] Comparable to: Iceland [UQRNUT103] Syntax: No variable for 'unplanned' Incidence

Domain; Sub-Domain	Short Title; Published QI	Origin; Format
WEIGHT LOSS AND NUTRITION [AUS] Consecutive unplanned weight loss	Consecutive unplanned weight loss ◊ • Percentage of care recipients who experienced consecutive unplanned weight loss	From: AUSTRALIA [UQRNUT113] Comparable to: FINLAND UQRNUT102]; USA [UQRNUT101]; New Zealand [UQRNUT104] Syntax available: interRAI SharePoint [UQRNUT114] Incidence
WEIGHT LOSS AND NUTRITION Dehydration	Prevalence of dehydration • Residents with dehydration	From: FINLAND [UQRNUT105] Comparable to: Iceland [UQRNUT106] Prevalence
END OF LIFE Palliative care program	Palliative care program • The proportion of residents with end stage disease with a personal palliative care program in place	From: Australian ACDC Panel [UQREND111] Syntax: See below for variables Prevalence
END OF LIFE Advance care directives	Advance care directives • The proportion of residents with advance care directives on file at the RACF	From: Australian ACDC Panel [UQREND112] Syntax: See below for variables Prevalence
SOCIAL ENAGEMENT Non-pharmacological interventions	Prevalence of Social Isolation • Percent of residents who are assessed as feeling socially isolated	From: Canada [UQREND103]; End of Life Care, Guthrie Comparable to: Canada [UQREND110, HC] Syntax: See below for variables Prevalence

◊ Australian government-mandated QI [AUS]

Figure 2. Project process and numbers at different stages showing QIs, domains and sub-domains[11]



[11] Martin-Khan M, Gray L (2021), Infographic - 25 interRAI LTCF quality indicators recommended for residential aged care facility benchmarking in Australia, Brisbane: The University of Queensland

Secondary outcome

The expert panel had the opportunity to recommend new domains, sub-domains, or quality indicators throughout the panel meeting process. If an existing interRAI QI from another assessment tool or an interRAI LTCF variable was not identified to enable the new QI to be included in this suite, the concept was withdrawn and put aside for future research.

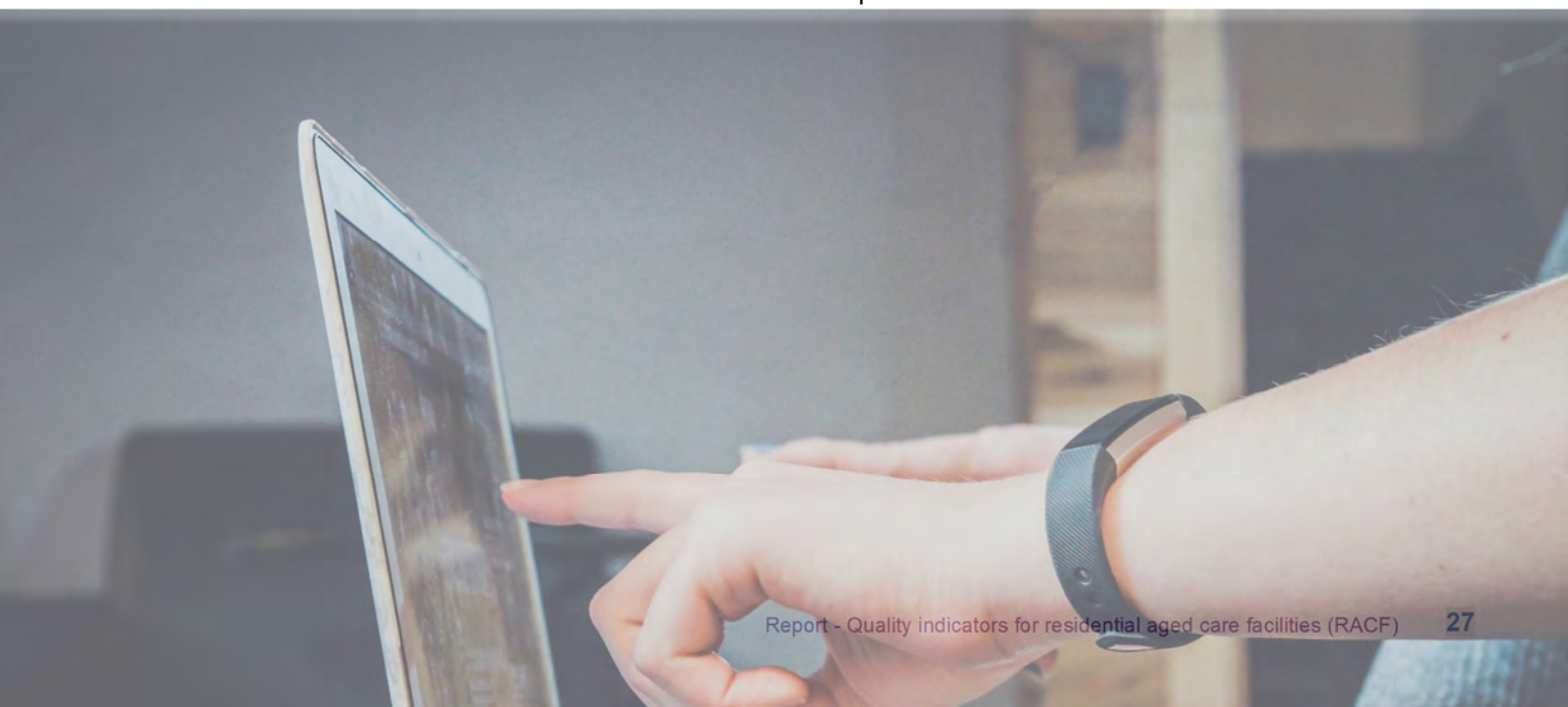
Domains of care

During the panel workshops, several domains, sub-domains, and quality indicators were recommended by the panel members. Two new care domains were able to be included in the QI suite: End-of-life care and Social Engagement.

We identified some existing work in other health sectors (i.e., palliative care) for palliative care QIs and the LTCF list had relevant variables. The End-of-Life Domain was added at PW1 and two corresponding sub-domains were added in PW2. In PW3, these were voted out and three more were added in. In PW4, two of the sub-domains were retained with two QIs being retained.

During the considerations of sub-domains, the panel identified the need for non-pharmacological interventions. Table 3 shows the movement of the new sub-domain through the domains ‘Depression’, ‘Medication’ onto a new Domain ‘Social Engagement’ as discussions were held in each PW to ensure consensus on how non-pharmacological interventions should be classified.

By the conclusion of the process, the panel had identified several areas that were key care areas, but we were unable to include. These were: self-reported quality of life, sleep, hearing and vision (though this is generally a process-oriented QI), frailty, dysphagia, and potentially oral & dental health. Quality of life and resident self-reported satisfaction indicators were seen as particularly important.



Conclusions and recommendations

The ACDC Project recognises that the lack of standardised data in residential care makes understanding and comparing quality within and between organisations difficult. This sub-project has identified a suite of QIs which will be applied to the ACDC Project standardised data for the benchmarking consortium. These QIs have established validity as they are derived from internationally recognised variables included within an international standardised assessment.

A group of experts, recognised for their experience in residential care, met via videoconference for a series of workshops (n=4) to discuss and debate the merits of a range of QIs and to vote with a view to recommending a suite of indicators suitable for a benchmarking activity in Australia.

One aspect of the standardisation and sharing of valuable data is to identify a suite of quality indicators that are internationally validated, which can be applied to standardised data.

Recommendation 1

A total of 25 quality indicators were recommended across 15 domains of care, this included 7 of the currently mandated Australian QIs.

The domains of care and the QIs are described in detail in Table 5. The domains (n=QI #) are: Changed behaviours (n=1); Cognition (n=1); Mood state (n=1); Elimination and continence (n=3); Falls, fractures, and injuries (n=2); Function: ADL limitations and abilities (2); Hospitalisations (n=1); Infections (n=3); Medication-related issues (n=2); Pain (n=1); Skin integrity (n=1); Physical restraints (n=1); Weight loss and nutrition (n=3); End-of-Life (n=2); Social Engagement (n=1).

Recommendation 2

In addition to the recommended suite of QIs, the panel recommended some additional topics which may be considered for future study or consideration. These are:

1. Self-report quality of life
2. Sleep
3. Hearing & Vision
4. Oral & Dental
5. Frailty
6. Dysphagia

Key Terms

Abbreviation	Definition
CHSR	Centre for Health Service Research
RACF	Residential Aged Care Facilities
LTCF	Long Term Care Facilities
QI	Quality Indicator
UQ	The University of Queensland

Publications

Martin-Khan M, Bird D, Caughey G, Gray L (2021), Voting Manual – Quality indicators for residential aged care facilities (RACF), Versions 1-4, Brisbane: The University of Queensland.

Martin-Khan M, Bird D, Caughey G, Gray L (2021), Technical Manual - Quality indicators for residential aged care facilities (RACF), Version 1, Brisbane: The University of Queensland

Martin-Khan M, Bird D, Caughey G, Yin M, Morris T, Alan J, Donohoe S, Gray L (2021), Report - Quality indicators for residential aged care facilities (RACF), Brisbane: The University of Queensland

Martin-Khan M, Gray L (2021), Infographic - 25 interRAI LTCF quality indicators recommended for residential aged care facility benchmarking in Australia, Brisbane: The University of Queensland

Thank you

This study is supported by funding provided by the Digital Health Cooperative Research Centre and industry partners – the Bupa Foundation and the Australian Department of Health.

We would like to extend our sincere thanks and appreciation to the experts for participating in this research project. We are grateful to A/Professor Gillian Caughey, Associate Director, ROSA, for her collaboration and for sharing the work which she completed initially for the Royal Commission. This enabled an efficient base for us to proceed.

We would like to thank the project team of ACDC for their support of this sub-project, and in particular Dominque Bird who has managed to coordinate us all in a very short time.

Appendices

Appendix 1. Names and affiliations of panel members

Table 6. Names and affiliations of panel members

Name	Organisation	Expertise
Janine Carter	Uniting AgeWell	Industry – Aged Care
Filomena Ciavarella	Regis Aged Care	Industry – Aged Care
Stuart Donohoe	Bolton Clarke	Industry – Aged Care
Marlene Eggert	Leading Age Services Australia	Industry – Aged Care Peak Body
Jennifer Lawrence	Brightwater	Industry – Aged Care
Tom Morris	Hammond Care	Industry – Aged Care
Donna Wilkes	Masonic Care Tasmania	Industry – Aged Care
Mengyang Yin	Catholic Healthcare	Industry – Aged Care
Ann Muldowney	Continence Australia	Peak Body
Janie Thompson	Continence Australia	Peak Body
Janine Alan	Edith Cowan University	Academic
Elizabeth Beattie	Queensland University of Technology	Academic
Sue Gordon	Flinders University	Academic
Peter Hibbert	Macquarie University	Academic
Margaret McAndrew	Queensland University of Technology	Academic

Appendix 2. Detailed information for voting outcomes

The breakdown of voting outcomes for domains, sub-domains and QIs across the workshops form Panel Workshop 1 to Panel Workshop 4 (Table 7).

Table 7. Voting outcomes for domains, sub-domains and QIs across the workshops

DOMAINS	DOMAINS			SUB-DOMAINS			QIs			
	Initial	RND2	FINAL	Initial	RND 1	FINAL	Initial	**RND 1**	**FINAL**	**AUST.**
CHANGED BEHAVIOURS	1	1	1	2	2	1	2	1	1	
COGNITION	1	1	1	3	2	1	2	0	1	
MOOD STATE	1	1	1	3	2	2	2	1	1	
ELIMINATION AND CONTINENCE	1	1	1	6	4	3	6	2	3	
FALLS, FRACTURES AND INJURIES	1	1	1	4	3	3	4	2	2	2/2
FUNCTION	1	1	1	7	3	2	4	2	2	
HOSPITALISATIONS	1	1	1	2	2	1	1	1	1	
INFECTIONS^	1	1	1	4	4	3	3	3	3	
VACCINATIONS	1									
MEDICATION-RELATED ISSUES~	1	1	1	6	6	4	7	3	2	1/2
PAIN	1	1	1	4	4	2	2	1	1	
SKIN INTEGRITY	1	1	1	4	4	2	5	1	1	1/2
PHYSICAL RESTRAINTS	1	1	1	2	2	2	2	1	1	1/1
WEIGHT LOSS AND NUTRITION	1	1	1	5	4	3	3	3	3	2/2
END OF LIFE		1	1	2	1	3	3	2	2	
SOCIAL ENGAGEMENT			1						1	
	14	14	15	54	43	32	46	23	25	7/9

Appendix 3. QI Voting details (Round 1 and 2)

Voting results highlighting the results for two rounds of voting of QI selection including the votes (1-9) in total for the panel (in red across the top row of 1-9), and in the box next to the individual votes, reading clockwise from top left the results including: median, mean standard deviation from the median, Panel consensus (Agreement, Disagreement, Undecided), Voting result – Include, Exclude (Yes, No, Undecided).

Table 8. Voting details for QIs from Round 1 and Round 2 (PW3 and PW4)

QIs	Votes Calculated	1	2	3	4	5	6	7	8	9	RND 1	RND 2
CHANGED BEHAVIOURS												
Movement in behavioural symptoms	Declined behavioural symptoms							1		10	9 2	9 0
	Residents whose behaviour symptoms were worse on target assessment compared with prior assessment										+ Y 1	+ Y 1
	Improved behavioural symptoms	5	2			2				2	2 3	2 2
	Percent of residents who have improved behavioural symptoms										- U	+ N
COGNITION												
Incidence of cognitive impairment	Declined cognitive ability	1		1		1		3	1	4	9 3	7 2
	Percent of residents whose cognitive ability has worsened										- U	+ Y 1
	Improved cognitive ability	5	3	1		1	1				2 2	2 1
	Percent of residents whose cognitive ability has improved										+ N	+ N
MOOD STATE												
Prevalence of depression	Prevalence of depression	5	1	2	2		1				2 2	2 1
	Residents with symptoms of depression on most recent assessment										+ N	+ N
Declined mood symptoms of depression	Declined mood symptoms of depression							1	1	9	9 2	9 0
	Percentage of residents whose mood from symptoms of depression have worsened										+ Y 1	+ Y 1
ELIMINATION AND CONTINENCE												
Prevalence of incontinence in residents w/o toileting plan	Prevalence of incontinence in residents without a toileting plan	3	1	1	1	1		1		3	9 2	4 3
	Residents with frequent incontinence or occasionally incontinent in either bladder or bowel on most recent assessment without toileting plan										+ Y 1	- U
Change in continence status	Declined bladder continence		1					1	2	7	6 3	9 1
	Percent of residents with worsening bladder continence										- U	+ Y 1
	Improved bladder continence	6	3	1			1				2 3	1 1
	Percent of residents with improving bladder continence										+ N	+ N

Change in continence status	Declined bowel continence			1					2	2	6	8	3		9	1			
	Percent of residents with worsening bowel continence	1	2	3	4	5	6	7	8	9		-	U		+	Y	1		
	Improved bowel continence	7	2			2						2	3		1	1			
	Percent of residents with improving bowel continence	1	2	3	4	5	6	7	8	9		+	N		+	N			
Prevalence of faecal impaction	Prevalence of faecal impaction							1	1	9		9	1		9	0			
	Residents with faecal impaction on most recent assessment	1	2	3	4	5	6	7	8	9		+	Y	2	+	Y	1		
FALLS, FRACTURES AND INJURIES																			
Prevalence of falls	Prevalence of falls◊					2	1		1	7		9	2		9	1			
	Percentage of care recipients who experienced one or more falls	1	2	3	4	5	6	7	8	9		+	Y	1	+	Y	1		
	Prevalence of new fallers	6	2			2	1					2	2		1	1			
	Percentage of residents who fell in last 30 days who did not record a fall in last 30 days at prior assessment	1	2	3	4	5	6	7	8	9		+	N		+	N			
Prevalence of falls with major injury	Prevalence of falls with major injury ◊								1	10		9	0		9	0			
	Percentage of care recipients who experienced one or more falls resulting in major injury	1	2	3	4	5	6	7	8	9		+	Y	2	+	Y	2		
Incidents of new fractures	Incidents of new fractures	7	2		1	1						1	2		1	1			
	Residents with new fractures on most recent assessment	1	2	3	4	5	6	7	8	9		+	N		+	N			
FUNCTION																			
Change in status of mid-loss ADL function	Improved or remain independent in mid-loss ADLs	7	3			1						1	2		1	1			
	The percentage of residents who improved or remained independent in transferring and locomotion (mid-loss	1	2	3	4	5	6	7	8	9		+	N		+	N			
	Worsened or remained dependent in mid-loss ADLs		2						1	8		9	2		9	1			
	Percentage of residents whose mid-loss ADL functioning (Transfer and Locomotion) worsened or who remained completely dependent in mid-loss ADLs	1	2	3	4	5	6	7	8	9		+	Y	1	+	Y	1		
Change in ability to locomote independently	Declined in ability to locomote independently		2				1	1	1	6		9	2		9	2			
	Percent of residents who have declined in their ability to locomote	1	2	3	4	5	6	7	8	9		+	Y	2	+	Y	2		
	Improved ability to locomote independently	8	2	1								1	3		1	0			
	Percent of residents who have improved in their ability to locomote	1	2	3	4	5	6	7	8	9		-	U		+	N			

HOSPITALISATIONS

Prevalence of emergency department visits

Prevalence of emergency department visits										1	1	6	9	2		9	2		
The percentage of residents with one or more emergency department visits recorded on the target assessment	1	2	3	4	5	6	7	8	9	+	Y	1	+	Y	1				

INFECTIONS

Prevalence of infections

Prevalence of infections										1	1	9	9	1		9	0		
Percent of residents with infections	1	2	3	4	5	6	7	8	9	+	Y	1	+	Y	1				

Prevalence of influenza vaccination

Prevalence of influenza vaccination										1		1			2		1	6	
Influenza vaccination in last 12 months	1	2	3	4	5	6	7	8	9	+	Y	2	+	Y	2				

Prevalence of pneumococcal vaccination

Prevalence of pneumococcal vaccination										1		1			3	2	1	3	
Percentage of long-stay residents whose pneumococcal vaccine status is up to date	1	2	3	4	5	6	7	8	9	+	Y	3	+	Y	3				

MEDICATION-RELATED ISSUES

Prevalence of 9 or more medications ◊

Prevalence of 9 or more medications ◊										4				1		1	1	6	
Percentage of care recipients who were prescribed nine or more medications*	1	2	3	4	5	6	7	8	9	+	Y	1	-	U					

Prevalence of anti-psychotic drug use◊

Antipsychotics◊										2						3		8	
Percentage of care recipients who received antipsychotic medications	1	2	3	4	5	6	7	8	9	+	Y	2	+	Y	1				
Antipsychotics for high risk residents										7	1	1			2			2	
Use of antipsychotic(s) in residents identified as high risk of poor outcomes from the use of antipsychotic medication	1	2	3	4	5	6	7	8	9	-	U		+	N					
Antipsychotics for low risk residents										12	1								
Use of antipsychotic(s) identified as low risk of poor outcomes from the use of antipsychotic medication	1	2	3	4	5	6	7	8	9	+	N		+	N					

Prevalence of antipsychotics without a diagnosis

Prevalence of antipsychotics without a diagnosis															1		3	9	
Percentage of residents on antipsychotics without a diagnosis of psychosis	1	2	3	4	5	6	7	8	9	+	Y	3	+	Y	2				

SOCIAL ENAGEMENT

Non-pharmacological interventions

Prevalence of little/ no activity		8	2							2	1	1	3		1	2
Percent of residents who have had little or no time involved in activities	1	2	3	4	5	6	7	8	9			+	N		+	N
Prevalence of Social Isolation		5								5	3	8	3		8	3	1
Percent of residents who are assessed as feeling socially isolated	1	2	3	4	5	6	7	8	9			-	U		-	U

Where a domain has no Y vote, the highest U (undecided) vote is taken. If all N, none are taken.

PAIN

Prevalence of moderate or severe pain

Prevalence of moderate or severe pain		2								4	7	9	1		9	2
The percentage of residents who experienced moderate pain daily or any severe pain in the seven days preceding their most recent assessment	1	2	3	4	5	6	7	8	9			+	Y	1	+	Y	1

Prevalence of inadequate pain

Inadequate pain management		4	3	1							5	2	3		2	3
Percent of residents with daily moderate or worse pain	1	2	3	4	5	6	7	8	9			-	U		-	U

SKIN INTEGRITY

Prevalence of pressure injuries◊

Prevalence of pressure injuries◊		5	2								6	8	3		2	4
Percentage of care recipients with one or more pressure injuries	1	2	3	4	5	6	7	8	9			-	U		-	U
Prevalence of pressure injuries each graded 1-6 ◊										3	10	9	0		9	0
Percentage of care recipients with pressure injuries, reported against six pressure injury stages	1	2	3	4	5	6	7	8	9			+	Y	1	+	Y	1

New or worsened pressure injuries

Prevalence of new pressure injury		9	3		1							2	3		1	1
Percent of residents with newly occurring Pressure Ulcer Stage 2 to 4	1	2	3	4	5	6	7	8	9			+	N		+	N
Prevalence of new or worsened pressure injury		4					1	3	1	4		7	3		7	3
The percentage of residents who had a new or worsened pressure ulcer since their previous assessment	1	2	3	4	5	6	7	8	9			-	U		-	U
Prevalence of a worsened pressure injury		9	3	1								1	2		1	0
Percent of residents with worsening pressure sores	1	2	3	4	5	6	7	8	9			+	N		+	N

PHYSICAL RESTRAINTS

Prevalence of physical restraint

Prevalence of physical restraint use ◊										3	10	9	1		9	0
Percentage of care recipients who were physically restrained	1	2	3	4	5	6	7	8	9			+	Y	1	+	Y	1

Prevalence of daily physical restraints	Prevalence of daily physical restraints		9	1	1		1				1		2	3		1	1		
	Percentage of residents who were physically restrained daily as indicated on their target assessments	1	2	3	4	5	6	7	8	9			+	N		+	N		

WEIGHT LOSS AND NUTRITION

Prevalence of significant unplanned weight loss	Prevalence of significant unplanned weight loss◊									2	11		9	0		9	0		
	Percentage of care recipients who experienced significant unplanned weight loss (5% or more)	1	2	3	4	5	6	7	8	9			+	Y	1	+	Y	1	
Consecutive unplanned weight loss	Consecutive unplanned weight loss ◊		3						1	1	8		8	2		9	2		
	Percentage of care recipients who experienced consecutive unplanned weight loss	1	2	3	4	5	6	7	8	9			+	Y	2	+	Y	2	
Prevalence of dehydration	Prevalence of dehydration								1	1	11		9	1		9	0		
	Residents with dehydration	1	2	3	4	5	6	7	8	9			+	Y	3	+	Y	3	

END OF LIFE

Palliative care program	Palliative care program								1	3	9		9	1		9	0		
	The proportion of residents with end stage disease with a personal palliative care program in place	1	2	3	4	5	6	7	8	9			+	Y	1	+	Y	1	
Advance care directives	Advance care directives								1	5	7		8	3		9	1		
	The proportion of residents with advance care directives on file at the RACF	1	2	3	4	5	6	7	8	9			+	Y	2	+	Y	2	
Recognition of spiritual and cultural needs at end of life	Recognition of spiritual and cultural needs at end of life																		
	The proportion of residents with end stage disease who have been approached or participated in activities which support their cultural or spiritual end of life needs		7	1		1	2			1	1		2	3		1	2		
		1	2	3	4	5	6	7	8	9			-	U		+	N		

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CRICOS Provider Number 00025B