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Expansion of the residential aged care quality indicators

Evidence review summary report

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ROSA

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Executive summary

A consortium consisting of PricewaterhouseCoopers (PwC), the Centre for Health Services Research at the University of Queensland (UQ CHSR) and the Registry of Senior Australians (ROSA) at the South Australian Health and Medical Research Institute (SAHMRI) has been engaged by the Australian Government Department of Health (the Department) to assist in the development of new quality indicators for residential aged care. The project to develop new quality indicators is intended to guide the further expansion of the National Aged Care Mandatory Quality Indicator Program (QI Program).

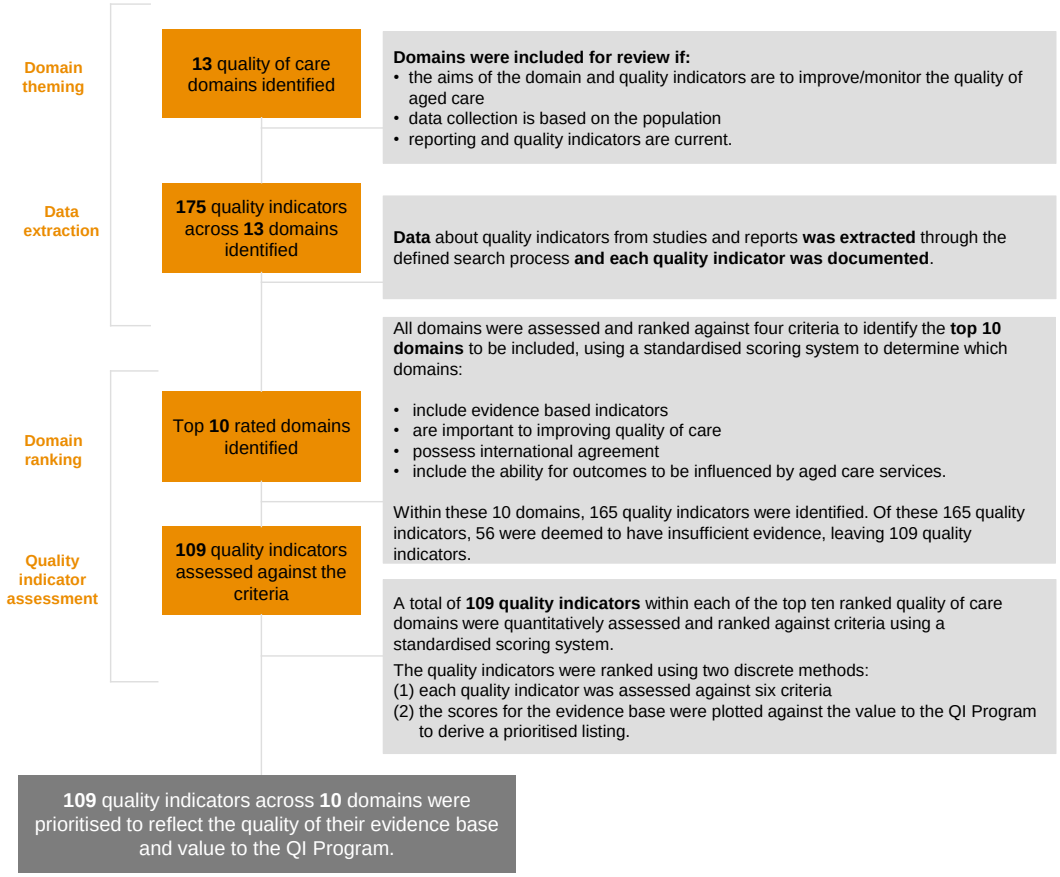
A rapid, targeted review of national and international literature has been undertaken to identify evidence-based quality of care domains and quality indicators for possible expansion of the QI Program for residential aged care. The domains and quality indicators identified were then distilled for consideration in order to take a more targeted list to consultation with aged care stakeholders and technical experts, to inform those which should be piloted in residential aged care services.

Evidence review and assessment

A multi-step process has been undertaken to scan and identify relevant quality of care domains and quality indicators from published and grey literature. In line with an analytic framework developed for the project, the identified quality of care domains and individual quality indicators have been prioritised and ranked based on the sufficiency and quality of their evidence base and their potential value to the QI Program.

The domain of consumer experience and quality of life has been excluded from this review due work previously completed in this area by a separate Department appointed Consortium. Existing quality indicators within the QI Program (pressure injuries, physical restraint, unplanned weight loss, falls and major injury and medication management as it pertains to antipsychotic medications use and polypharmacy) have also been excluded. Figure 1 summarises the number of quality of care domains and quality indicators that were identified at each stage of the evidence review process.

Figure 1: Number of quality of care domains and quality indicators identified by stage



This review identified 175 quality indicators across the following 13 quality of care domains (listed in alphabetical order):

- Behavioural symptoms
- Cognition
- Continence
- Depression
- Function and Activities of Daily Living (ADLs)
- Hospitalisation
- Infection control
- Mortality
- Medications (not already included in QI Program)
- Pain
- Palliative care
- Service delivery and care planning
- Wait times.

Each quality of care domain was ranked based on a quantitative assessment using the following four criteria:

- high quality evidence-based indicators were identified in this domain
- international agreement that the domain is important
- residential aged care services can influence care and consumer experience in this domain
- monitoring this domain is important for high quality care and consumer experience.

Based on this quantitative assessment, the top 10 ranked quality of care domains have been put forward as those most appropriate for consideration in the pilot:

1. Function and Activities of Daily Living (ADLs)
2. Medications (not already included in QI Program)
3. Continence
4. Infection control
5. Depression
6. Behavioural symptoms
7. Hospitalisation
8. Pain
9. Service delivery and care planning
10. Wait times.

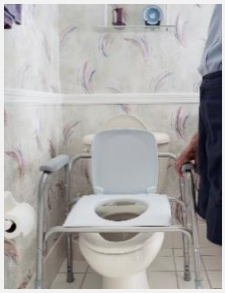
A total of 165 quality indicators were identified for the top 10 ranked quality of care domains. Each of the quality indicators were assessed against the US National Quality Forum criteria modified for the Australian aged care and quality indicator context with two additional criteria proposed by the consortium and agreed to by the Department. A standardised scoring scale was assigned by evaluating the quality indicator against the following six criteria:

- importance
- scientific acceptability
- feasibility
- usability
- attribution
- value to the QI Program.

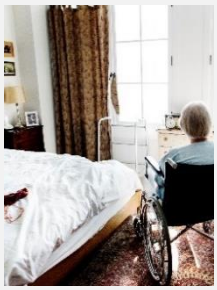
Quality indicators within each domain were then ranked in order of priority based on their evidence (eg the first five criteria) and value to the QI Program using a prioritisation matrix. The executive summary presents the top 10 ranked quality of care domains (in order of ranking) and their associated quality indicators (Table 1). Please note that the terms ‘clients’ and ‘patients’ are used interchangeably throughout the document as they are aligned to the terminology used in their source jurisdiction. Unique identifying names have been assigned to each quality indicator to help differentiate those that are very similar. These unique names are at times different to the specific names used in their source documentation or jurisdiction.

Table 1: Highest ranked domains and their prioritised quality indicators

Domains	Domain description and quality indicators
1. Function and ADLs Chapter 4	Activities of daily living (ADLs) are categorised as basic and instrumental (IADLS). Basic ADLs include the fundamental skills needed to manage basic physical needs such as personal hygiene, dressing, toileting/continence, transferring or ambulating, and eating. IADLS are more complex tasks such as managing finances, preparing meals and communication. High and medium needs to conduct activities of daily living (ADL) are reported by over eighty per cent of people living in residential aged care. A decline in physical function, which is marked by a decreased ability to perform basic ADLs, is often a reason for individuals to obtain aged care services. The prioritised quality indicators for this domain include: 1.1 Residents who had improvement of function in some basic ADLs 1.2 Residents who declined in their ability to locomote 1.3 Residents who improved in their ability to locomote 1.4 Residents who experienced a decline in independence of locomotion 1.5 Residents who worsened or remained dependent in early-loss ADLs (published annually with quarterly data) 1.6 Residents whose need for help with late-loss ADLs has increased 1.7 Residents who worsened or remained dependent in early-loss ADLs (published annually with data for the past four years) 1.8 Residents who worsened or remained dependent in mid-loss ADLs 1.9 Residents who improved or remained independent in mid-loss ADLs 1.10 Residents who have declined in ADLs 1.11 Residents who declined in mid-loss ADL functioning or remain completely dependent in mid-loss ADLs 1.12 Residents who improve in mid-loss ADL functioning, or remain completely independent in mid-loss ADLs 1.13 Residents who improved or remained independent in early-loss ADLs (data published annually) 1.14 Residents who had unexpected loss of function in some basic ADLs 1.15 Residents who improve in early-loss ADL functioning or remain completely independent in early-loss ADLs 1.16 Residents who declined in early-loss ADL functioning or remain completely dependent in early-loss ADLs 1.17 Residents who improved or remained independent in early-loss ADLs (data published annually with previous four years) 1.18 Residents who decline in late-loss ADLs (incidence) 1.19 Residents who decline in range of motion (incidence) 1.20 Residents with lack of nursing rehabilitation in late-loss ADLs 1.21 Residents with little or no activity (data collected 6-monthly) 1.22 Residents who are bedfast (in a 6 month period) 1.23 Residents who are bedfast (in a 4 month period) 1.24 Residents with little or no activity (data collected quarterly)

Domains	Domain description and quality indicators
2. Medications Chapter 5	Medications are some of the most common medical interventions and in 2019 Australia declared medicine safety as its tenth national health priority area. With the increasing prevalence of multimorbidity and associated polypharmacy in the growing older population, older people's medication related needs have become increasingly complex and have been associated with an increased risk of adverse events and poor health outcomes. There are several sub-domains within the medication domain including sedative load, inappropriate medication use and medication reviews. The prioritised quality indicators for this domain include: 2.1 Residents potentially experiencing a high sedative load 2.2 Residents who received an antianxiety or hypnotic medication (data collected quarterly) 2.3 Residents who received an antianxiety or hypnotic medication but do not have evidence of psychotic or related conditions 2.4 Residents who received an antianxiety or hypnotic medication (data collected six-monthly) 2.5 Residents who received an antianxiety or hypnotic medication (in the last 7 days) 2.6 Residents who received hypnotic medications three or more times (in the last 7 days) 2.7 Residents who received two or more hypnotic medications (in the last 7 days)
3. Continence  Chapter 6	Continence is the ability to control one's bladder and bowel elimination, and incontinence is the involuntary loss of bladder and bowel control. Incontinence is not a physiological part of the ageing process. Age-related changes together with frailty, cognitive decline, or impaired mobility, can put older adults at risk of incontinence. Incontinence is an important consideration as it increases the risk of poor health outcomes. The prioritised quality indicators for this domain include: 3.1 Residents with worsened bladder continence 3.2 Residents with worsening bladder continence 3.3 Residents with bladder or bowel incontinence (data collected quarterly) 3.4 Residents with bladder or bowel incontinence (data collected 6-monthly) 3.5 Residents with improving bladder continence 3.6 Residents who frequently lose control of their bowel or bladder 3.7 Residents with frequent bladder or bowel incontinence without a toileting plan 3.8 Residents with occasional or frequent bladder or bowel incontinence without a toileting plan 3.9 Residents with worsening bowel continence 3.10 Residents with improving bowel continence 3.11 Residents with in-dwelling catheters (data published quarterly) 3.12 Residents with in-dwelling catheters 3.13 Residents with in-dwelling catheters (data published 6-monthly) 3.14 Residents with in-dwelling catheters (in the past 7 days) 3.15 Residents with in-dwelling catheters (in the past 3 days) 3.16 Residents with faecal impaction (data collected 6-monthly) 3.17 Residents with faecal impaction (data published quarterly)

Domains	Domain description and quality indicators
4. Infection control Chapter 7	Infections are a significant cause of mortality and morbidity in older people, who often may not have the typical symptoms of infections. The lack of typical symptoms can make early detection of these conditions challenging. Older people, especially people living in residential aged care services are at high risk of infection and sepsis, partially due to age-related factors such as pathological changes to the immune system, malnutrition, incontinence, functional disability, impaired cognitive status, and presence of chronic diseases. The prioritised quality indicators for this domain include: 4.1 Staff who received the most recent influenza vaccine 4.2 Residents who received the most recent influenza vaccine (data collected annually) 4.3 Residents who received the most recent influenza vaccine (data collected quarterly) 4.4 Residents who were assessed and/or appropriately given the most recent influenza vaccine 4.5 Residents dispensed at least one antibiotic for systemic use 4.6 Residents prescribed at least one antimicrobial (on the collection day) 4.7 Residents who have received the pneumococcal vaccination 4.8 Residents who received the pneumococcal vaccination (in the last 12 months) 4.9 Residents whose pneumococcal vaccine status is up to date 4.10 Residents who had signs and/or symptoms of at least one suspected infection (on the collection day) 4.11 Residents who receive the herpes zoster vaccination 4.12 Residents who have had one or more infections 4.13 Residents who are offered and decline the most recent influenza vaccination 4.14 Residents who have had a Methicillin-resistant Staphylococcus aureus infection 4.15 Residents who have had a Clostridium difficile infection 4.16 Residents who have had a Vancomycin-resistant Enterococcus infection 4.17 Residents who are offered and decline the pneumococcal vaccine 4.18 Residents who did not receive the pneumococcal vaccine due to medical contraindication 4.19 Residents who did not receive the influenza vaccine due to medical contraindication 4.20 Residents who have had one or more urinary tract infections 4.21 Residents with a urinary tract infection 4.22 Residents who have had a urinary tract infection (in the last 30 days) (data collected quarterly) 4.23 Residents who have had a urinary tract infection (in the last 30 days)

Domains	Domain description and quality indicators
5. Depression  Chapter 8	Depression is a common and serious mood disorder that can affect all aspects of an individual's life. Individuals who suffer depression may experience persistent feeling of sadness and hopelessness and lose interest in activities they normally would enjoy. An estimated half of residents of all people living in residential aged care have depression. Depression symptoms can be managed, improved, or resolved through behavioural or pharmacological therapies. Aged care services are expected to detect and provide support to address changes and deterioration of mental, cognitive, or physical function, capacity, or condition of the consumers. The prioritised quality indicators for this domain include: 5.1 Long term care residents whose symptoms of depression worsened (data published quarterly) 5.2 Long term care residents whose symptoms of depression worsened (rolling four quarter average) 5.3 Residents whose symptoms of depression worsened 5.4 Residents who have had symptoms of depression (in the last two weeks) 5.5 Residents with mood decline and symptoms of depression (over the last seven days) 5.6 Residents who have declined in their mood from symptoms of depression 5.7 Residents with a Depression Rating Scale score of three or more and not receiving an antidepressant 5.8 Residents with a Depression Rating Scale score of three or more 5.9 Residents with mood decline and symptoms of depression and not receiving an antidepressant (over the last seven days)
6. Behavioural Symptoms Chapter 9	Behaviour and personality changes are often part of the progression of dementia. These symptoms can often include moodiness, anxiety, apathy, agitation, irritability sleeping problems, wandering, and confusion. Dementia is often associated with behavioural and psychosocial symptoms of dementia (BPSD). BPSD symptoms are often managed with pharmacological treatment and contribute to the over-reliance on antipsychotics in older people living in residential aged care. The prioritised quality indicators for this domain include: 6.1 Residents with worsened behavioural symptoms (data published quarterly) 6.2 Residents with improved behavioural symptoms (data published quarterly by levels of care) 6.3 Residents with worsened behavioural symptoms (data published quarterly by levels of care) 6.4 Residents who display inappropriate behaviour that affect others 6.5 Residents who have behavioural symptoms that affect others (data published six-monthly) 6.6 Residents with improved behavioural symptoms (data published quarterly) 6.7 Residents who have behavioural symptoms that affect others (data published quarterly) 6.8 Residents whose ability to communicate has worsened 6.9 Residents whose ability to communicate has improved

Domains	Domain description and quality indicators
7. Hospitalisation Chapter 10	Hospitalisations are admissions to hospitals to receive treatment, which can be planned (eg elective) or unplanned. Emergency department care is also provided in many hospitals, and this includes urgent care provision that may or may not result in hospital admissions. In 2018/19, 37 per cent of people living in Australian residential aged care services had at least one hospitalisation and 37 per cent at least one emergency department (ED) presentation. Common reason for hospitalisations in people living in residential aged care services are falls, respiratory related conditions, and acute infections. The prioritised quality indicators for this domain include: 7.1 Emergency Department presentation or hospitalisation for medication-related events 7.2 Emergency Department visits that did not result in outpatient or inpatient hospitalisation or hospice enrolment 7.3 Unplanned inpatient hospital admissions or outpatient observation stays while not enrolled in hospice 7.4 Residents who had an Emergency Department presentation or were hospitalised for delirium or dementia 7.5 Emergency Department presentation within 30 days of discharge from hospital
8. Pain Chapter 11	The 2020 International Association for the Study of Pain definition of pain is “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.” Pain affects a significant and increasing portion of older adults receiving aged care services. [1] Pain affects people’s functional capabilities, activities of daily living, quality of life, and overall disability. The pharmacological management of pain is common in older people, but older people are also more susceptible to the potential complications and side effects associated with pain medications, such as non-steroidal anti-inflammatory drugs (NSAIDs) and opioids. Adverse events include functional impairment, falls, respiratory depression, constipation, dependency from opioids as well as associated renal, gastrointestinal, and cardiovascular effects from NSAIDs. The prioritised quality indicators for this domain include: 8.1 Residents whose pain worsened (data published annually) 8.2 Residents whose pain worsened (data published quarterly) 8.3 Residents who had moderate daily pain or horrible/excruciating pain (data published annually) 8.4 Residents who had moderate daily pain or horrible/excruciating pain (data published quarterly) 8.5 Residents with daily pain (over last three days) 8.6 Residents that are chronic opioid users 8.7 Residents who experienced moderate pain daily or any severe pain (over the last 7 days) 8.8 Residents whose pain worsened (data published quarterly by levels of care) 8.9 Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (self-reported) 8.10 Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (observed)

[1] Abdulla et al, 2013 and Inacio et al, 2020.

Domains	Domain description and quality indicators
9. Service Delivery & Care Planning Chapter 12	The service delivery and care planning domain includes a series of services that intend to measure whether care is planned for, integrated with, and individualised for each person. According to the Australian Aged Care Quality Standards, aged care services are expected to demonstrate ongoing assessment and planning with their consumers. Care planning, specifically co-developed with clients and person centred, is recognised as a fundamental aspect of service delivery to residents of aged care facilities The prioritised quality indicators for this domain include: 9.1 Residents receiving rehabilitation relating to alleviation of reduced physical functionality not treated as part of hospitalisation 9.2 New long-term care residents who potentially could have been cared for at home 9.3 Number of resident beds in nursing homes and care homes 9.4 Number of referred hours of home help to citizens in nursing homes
10. Wait times Chapter 13	Wait times are the amount of time that individuals usually must wait between being assessed (or approved) for a service and receiving the service. Waiting periods for services are often used as indicators of system level stress, unmet needs, and/or access barriers. A shorter time between an aged care eligibility assessment (or application in other countries), service approvals, and entering care is preferred and long waiting times can indicate unmet needs for the community. The prioritised quality indicators for this domain include: 10.1 Median number of days wait time from submission of application or provision of consent to date of placement (whichever is longer)

Summary and discussion

The objective of the evidence review was to identify, assess and present the evidence base for quality of care domains and quality indicators suitable for application to residential aged care. This evidence base will assist to inform the domains and quality indicators to take to stakeholder consultations prior to the selection of quality indicators for pilot.

As outlined previously the evidence review and application of the analytic framework resulted in the top 10 domains, with 165 quality indicators assessed and ranked against six criteria, and then prioritised based on the assessment of the evidence base and value to the QI Program. Key considerations which may impact the quality indicators chosen to take to pilot are provided below.

Domains and quality indicators for pilot that support the quality improvement objective of the QI Program

It is anticipated that over time, the QI Program will continue to evolve in similar ways to other established quality indicator programs. Many internationally established government-led reporting schemes embrace standardised measurement, longitudinal data trends, risk adjustment methods, and benchmarking infrastructure.

The overall objectives of the QI Program are to:

- provide older people with more information about the quality of aged care services when making choices about their care
- support aged care services to measure, monitor, compare and improve the quality of their services
- provide the government with system-level measures of quality in aged care and an evidence-base to inform policy and regulation.

The pilot should include a selection of quality indicators that are able to be influenced, changed, or improved by residential aged care services, where their actions can change the outcome over time. Driving quality improvement can occur when the quality indicator is used within organisations or shared in an anonymised format among organisations.

These quality indicators can be used to monitor performance over time, with the assumption that the resident profiles are stable within an organisation or can be used among collaborating organisations to promote quality improvement discussions.

A key consideration identified during this review is that not all quality indicators can be influenced directly by aged care providers; this is evident in the 'attribution' criteria assessment results for the applicable quality indicators.

To support quality improvement as a key objective of the QI Program, quality indicators to take to pilot could focus on either 'improvement' or 'decline' type measurements, however decisions would be needed regarding which is more useful for the quality improvement objective of the QI Program.

Domains and quality indicators for pilot that support the consumer information objective of the QI Program

The pilot should include a selection of quality indicators that are meaningful to consumers and assist their understanding of the quality of care and service provided by the residential aged care service, and how this differs from other residential aged care services. The use of quality indicators for identifiable public reporting requires quality indicators that can detect differences in the performance of residential aged care services.

It is important for this purpose to select quality indicators to pilot which can be scored consistently within and between services, where there is likely to be a range of performance by services (eg no ceiling or floor effect or rare occurrences) and that the quality indicator can be risk adjusted to account for the variations in residents and services (potentially requiring additional data linked at the individual level). Not all quality indicators identified in this review would be meaningful for consumers to support informed decision making.

Use of quality indicators that are subject to copyright and licencing arrangements

Many of the quality indicators prioritised in this evidence review with high quality of evidence and high value for application to the QI Program, are derived from data elements (usually clinical observations) that are subject to copyright and licensing agreements.

Licenses would need be obtained to include these quality indicators in the pilot, as is the case for many quality indicators used in Canada, Finland, Iceland, New Zealand, and the USA (where interRAI systems are mandated).

Use of quality indicators that require multiple observations within a six-week pilot

Several quality indicators require multiple assessments over a longer period of time, potentially preventing appropriate assessment during the six-week pilot study. For example, a quality indicator that measures the functional decline over three months will require two points of data collection (one at the start of month one and one at the end of month three). For indicators where repeat measures are required, in a six-week pilot study, only the base (or initial) measure can be tested for ease of completion or prevalence of the issue, but the full quality indicator cannot be calculated.

The feasibility of data collection directly from aged care services for some quality indicators

Quality indicators selected for pilot are likely to require similar methods for data collection as the current QI Program eg directly from aged care providers on a quarterly basis. Several evidence-based quality indicators identified in this review use non-provider obtained data as the data source, potentially reducing data burden for residential aged care services in the pilot.

The potential data collection burden for aged care providers to participate in the quality indicator pilot needs to be considered. For some of the quality indicators outlined in this review, data does not currently exist in a format that would be easily accessible for services to report on during the pilot. To operationalise many of the prioritised quality indicators in the pilot, new data would need to be collected by residential aged care services and in some cases using new instruments or screening tools not routinely used in practice.

Data collection burden may vary depending on service characteristics (eg digital record keeping, service maturity, service size, infrastructure), data source required, number of observations or measurements needed, use of specific instruments/tools and if the data requires specific staff to collect (eg nursing staff).

Accounting for different consumer populations and types of services in the pilot

Several quality indicators identified in this review may need to be considered in light of different resident populations and different types of residential aged care services, if they are to be piloted. Several international quality indicator programs have incorporated risk adjustment for resident characteristics. The need to collect information on relevant diagnoses and underlying health profiles of the service's population should be considered to understand quality indicator performance for different services during the pilot.

The specific focus of quality indicators in a domain for the pilot

Many quality indicators identified in this review reflect slight variations in quality indicator definitions from different countries and has resulted in the inclusion of multiple quality indicators within the same domain that measure the same or very similar concepts. Some of these variations in definitions are attributable to international bodies using different versions of the same instruments. The value of measuring a specific concept needs to be considered when selecting quality indicators from the range identified in each quality of care domain to take to pilot.

The use of validated or standardised tools for measurement

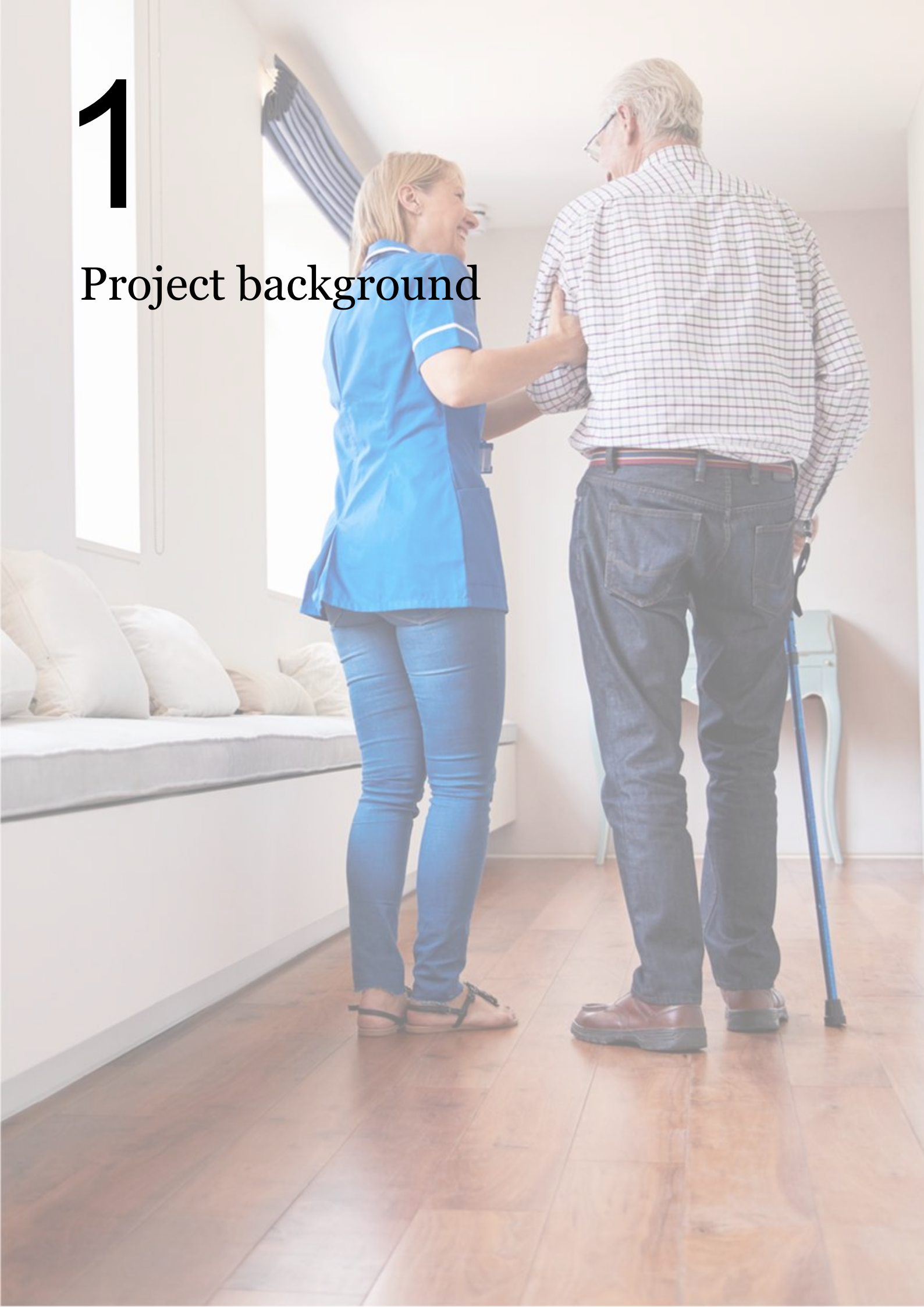
Several quality indicators identified in this review require the use of validated and/or standardised scoring instruments. These may require complex measurement (eg multi-item scales), specific training requirements for data collection and licensing and copyright arrangements. The selection of quality indicators for pilot will need to consider if there are existing validated or standardised instruments used in Australian residential aged care that could be used to collect the data for the quality indicators in the pilot, and/or if it is feasible to provide training on the use of specific instruments prior to the pilot in early 2022.

Augmenting the evidence review with advice from stakeholders

As part of the overarching project to develop new quality indicators for residential aged care, the next step will be to take the domains and quality indicators identified in the evidence review to consultations with aged care stakeholders. This feedback will help guide the potential quality of care domains and quality indicators for pilot and the further expansion of the QI Program.

1

Project background



Overview

A consortium consisting of PricewaterhouseCoopers (PwC), the Centre for Health Services Research at the University of Queensland (UQ CHSR) and the Registry of Senior Australians (ROSA) has been engaged by the Australian Government Department of Health (the Department) to assist in the development of new quality indicators for residential aged care. The project to develop new quality indicators is intended to guide the further expansion of the National Aged Care Mandatory Quality Indicator Program (QI Program).

The overall aims of the QI Program are to support:

- provide older people with more information about the quality of aged care services when making choices about their care
- support aged care services to measure, monitor, compare and improve the quality of their services
- provide the government with system-level measures of quality in aged care and an evidence-base to inform policy and regulation.

The project commenced in September 2021; The QI Program currently collects quarterly data from residential aged care services across five quality of care domains. Quality indicator data is published de-identified by the service and in aggregate by the Australian Institute of Health and Welfare (AIHW) at a national, state and territory level on the GEN Aged Care Data website.

The consortium has been engaged to identify, assess, and pilot evidence-based quality indicators across four quality of care domains, and examine the use of assessment tools for a consumer experience and quality of life (CEQOL) domain.

Purpose of this deliverable

This document constitutes the 'report for evidence review' deliverable under section 13 of the Work Order issued by the Department. The purpose of this report is to:

- synthesise the findings of the evidence review relating to quality of care domains and evidence-based quality indicators for residential aged care
- provide information to assist stakeholder consultation activities that will seek feedback on the potential domains and quality indicators for pilot to guide the further expansion of the QI Program.

Document scope

This summary report presents an overview of the approach taken for the evidence review, the assessment of the evidence and additional considerations to support consultation and implementation. Each chapter of this report focuses on one of the 10 highest ranked quality of care domains identified through the evidence assessment and the associated quality indicators identified for each domain. The following key elements have been detailed:

- an overview of each domain and identified quality indicators
- ranked quality indicators based on the outcomes of the assessment against specific criteria
- details and performance characteristic of quality indicators assessed as having a high quality of evidence and high value for application to the QI Program (Appendix C)
- a list of additional considerations for inclusion of the quality indicators within the QI Program
- key references for each domain (Appendix A).

2

Evidence review methodology

Objective of the evidence review

The objectives of the evidence review are to:

- identify common quality indicators for residential aged care, recommending at least 10 for further consideration in the context of the QI Program
- identify all existing quality indicators across the identified domains, specifically quality indicators that have established performance characteristics and the ability to improve quality of care in meaningful ways
- using an analytic framework, assess and rank the domains and associated quality indicators in order of preference for implementation in the Australian aged care context.

Overview of the evidence review methodology

The process involved members of the PwC, UQ CHSR and ROSA consortium comprising of clinicians, measurement scientists and policy experts, to appraise both quality of care domains and their associated quality indicators. The consortium members used a modified Delphi technique to appraise the domains and quality indicators to secure consensus by undertaking several steps including:

- co-design of an analytic framework with the Department to enable a systematic and consistent assessment of quality care domains and prioritisation of quality indicators
- defining clear parameters for the evidence review and developing the format for evidence synthesis
- initial scan of all quality indictors and themed domains
- extraction and summary of key data from the identified literature
- identification of the range of domains for existing quality indicators
- assessment of each domain against four criteria (eg international agreement, evidence-based indicators, importance, and ability of the service to influence)
- ranking of domains in order based on their assessment against the four criteria
- based on this quantitative assessment, the top 10 ranked quality of care domains have been put forward as those most appropriate for consideration in the pilot
- all quality indicators within the top 10 domains were assessed against the analytic framework criteria: feasibility, scientific acceptability, importance, attribution, usability (collectively termed 'evidence base') and the value to the QI Program
- prioritisation of quality indicators was undertaken based on the analytic framework assessment of their evidence base and their value to the QI Program.

The consortium members involved in the assessment provided individual assessments of domains and quality indicators based on analytic framework guidance. Aggregate scores were developed and individual scores that deviated two points from the median were identified. An extensive discussion was conducted with a particular focus on areas of disagreement (eg where a member’s score varied considerably from the group median score). After discussion, all members were offered the opportunity to rescore. Final scores were then collated to produce the final assessments and rankings. An overview of this methodology is presented in Figure 2 below and a detailed methodology is included in Appendix B.

Please note that the terms ‘clients’ and ‘patients’ are used interchangeably throughout the document as are aligned to the terminology used in their source jurisdiction. Unique identifying names have been assigned to each quality indicator to help differentiate those that are very similar. These unique names are at times different to the specific names used in their source documentation or jurisdiction.

Figure 2: Evidence review methodology

Step 1

Analytic framework design

Co-designed with the Department the analytic framework for the consistent assessment of:

- Domain ranking
- Quality indicator assessment
- Quality indicator prioritisation.

Step 2

Literature review parameters

Defined parameters to inform the search for international and national quality indicators including data from:

- Academic literature
- Grey literature
- Government reports organisation reports and websites.

Step 3

Domain theming

The full list of quality indicators was themed into representative quality of care domains.

Domains were included for review if:

- The domain and associated quality indicators aim to improve/monitor the quality of age care
- Data collection is based on the population
- Reporting and quality indicators are contemporary (e.g. last 10 years)

Step 4

Data extraction

Data about quality indicators from studies and reports were extracted through the defined search process (Step 2). Each quality indicator has been documented including:

- General descriptions
- Quality indicator type (structural, outcome, process)
- Numerator
- Denominator
- Exclusion criteria
- Risk adjustment
- Data collection type and frequency
- Reporting (public, facility level, rating systems)
- Licensing or approval requirements
- Recommended targets.

Step 5

Domain ranking

Domain were quantitatively assessed and ranked against the following criteria using a standardised scoring system:

1. The quality of care domain is critical to high-quality care and consumer experience
2. There is at least one evidence-based quality indicator available
3. There is international agreement that the domain is important
4. Services are able to influence care and experiences of the domain.

Step 6

Quality indicator assessment

Quality indicators within the top ten ranked quality of care Domain were quantitatively assessed and ranked against the following criteria using a standardized scoring system:

1. Feasibility (e.g. data burden)
2. Scientific acceptability (e.g. validity, biases)
3. Importance (to the aged care system)
4. Usability (e.g. understandable)
5. Attribution (ability of providers to improve), and
6. Value to the QI program (alignment with program goals).

Step 7

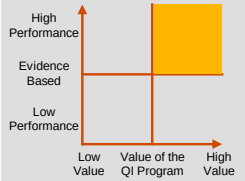
Prioritisation and reporting

A recommended ranked set of quality of care domains and quality indicators with the highest levels of evidence was developed through the use of the prioritization matrix.

Quality indicators were prioritised based on their assessment scores from Step 6 against:

- Evidence base (aggregate score from criteria 1-5)
- Value to the QI Program (score on criteria 6)

Prioritisation matrix



Data extraction and domain theming of quality indicators occurred concurrently and through iterative cycles until all quality indicators had been identified through extraction.

The analytic framework was applied in quantitative assessment of evidence review results to ensure consistent assessment.

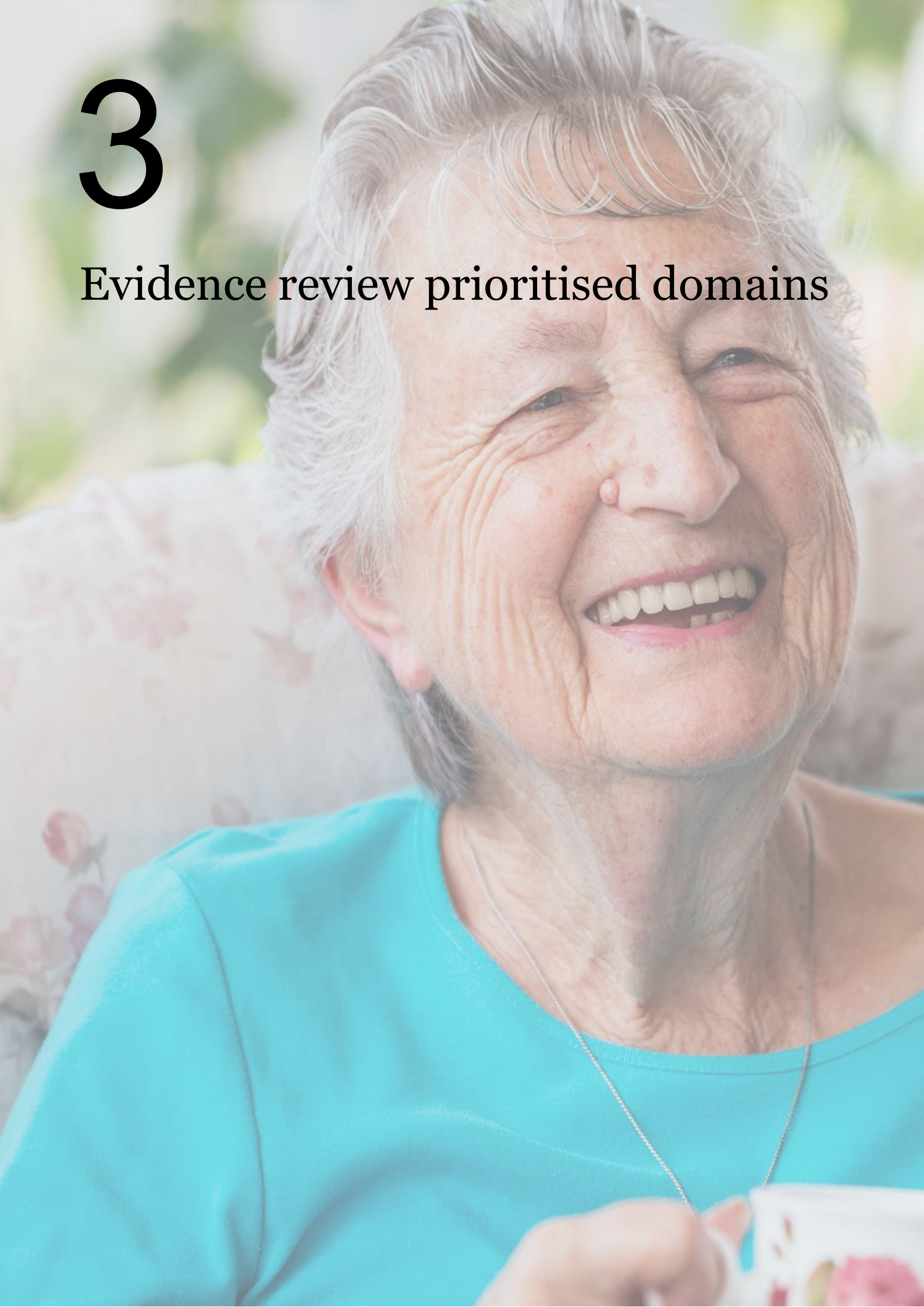
Parameters of the evidence review

The evidence review has some limitations requiring further consideration as outlined below:

- Whilst consumer experience and quality of life domains are evidenced in the literature, these domains were not included within the review process to reduce duplication with work the Department currently has underway.
- Existing quality indicators within the QI Program (pressure injuries, physical restraint, unplanned weight loss, falls and major injury and medication management in relation to antipsychotic medications and polypharmacy) were also excluded.
- The availability of published quality indicator information was in some instances noted as a limitation within this review, with important technical specifications required for calculation of the quality indicator such as numerator and denominator definitions, exclusion and risk adjustment criteria not reported. Identified quality indicators that lacked detailed specific technical specifications were excluded from a comprehensive assessment.
- The review was undertaken in a rapid time period, whilst every effort was made to leverage existing work on quality indicators in Australia, a longer time period for review may have identified other quality indicators in existence.
- Several quality indicators identified within the same domains, essentially included the same quality indicator with slight variations. This was due to subtle differences in data collection or reporting between countries likely due to the use of different versions of the same data collection instruments (eg interRAI vs interRAI LTCF).
- Several countries included measures of improvement and decline of the same quality indicator (for example, New Zealand has improvement in behavioural symptoms and decline in behavioural symptoms). These similarities potentially reduce the variance associated with ratings of similar quality indicators and should be noted when interpreting indicator scores.

3

Evidence review prioritised domains



Overview

This chapter presents the findings in relation to the evidence review of quality of care domains and the ranked assessment of these domains for the pilot and possible expansion of the QI Program in residential aged care.

Ranked quality of care domains

A total of 13 quality of care domains were identified through the literature review, with 175 associated quality indicators[2]. The existing domains in the QI Program for residential aged care services of pressure injuries, use of physical restraint, medications (polypharmacy and antipsychotics), falls and unplanned weight loss were excluded in the review. The domains of consumer experience and quality of life (CEQOL) were not included in the review so as not to duplicate work currently underway by another consortium in relation to these domains.

The consortium quantitively assessed each of the 13 identified domains based on the four agreed criteria. The domains were then ranked according to aggregate scoring against the criteria and the ranked list of quality of care domains is shown in Table 2. The first eight ranked domains were assessed highly on the existence of measurable quality indicators, international agreement of their importance, importance for quality and safety of care and able to be influenced by the service, with the final two domains (Service delivery and care plans and Wait times) having a more moderate assessment.

Based on this quantitative assessment, the top 10 ranked quality of care domains have been put forward as those most appropriate for consideration in the pilot and their identified quality indicators were assessed in full against the indicator criteria (refer to Figure 2: Step 6). The results are summarised in the following chapters of this report.

Each chapter presents:

- an overview of the domain and quality indicators identified for each domain
- the ranked quality indicators for the top 10 domains and their assessment against the analytic framework.
- the quality indicators prioritised with high quality of evidence and high value for application to the QI Program
- key considerations and limitations in using the quality indicators for pilot for an expanded QI Program
- details of quality of care domains outside the top 10 including ranking rationale and associated quality indicators
- relevant references associated with the evidence review of the domain.

Table 2: Quality of care domains aggregated score ranking against assessment criteria

			Domain assessment criteria				
Ranking	**Domain name**	**Quality indicators identified**	**Measurable quality indicators**	**International agreement**	**Service able to influence**	**Importance**	**Aggregate score**
1	Function and ADLs	24	●	●	●	●	●
2	Medication related (not already in use)	7	●	●	●	●	●
3	Continence	17	●	●	●	●	●
4	Infection (including antibiotics and vaccinations)	23	●	●	●	●	●

[2] This excludes the additional domain of consumer experience and quality of life where an additional 44 indicators have been identified.

			Domain assessment criteria				
Ranking	**Domain name**	**Quality indicators identified**	**Measurable quality indicators**	**International agreement**	**Service able to influence**	**Importance**	**Aggregate score**
5	Depression	9	🟢	🟢	🟢	🟢	🟢
6	Behavioural symptoms	9	🟢	🟢	🟢	🟢	🟢
7	Hospitalisations (including emergency department presentations)	5	🟢	🟢	🟢	🟢	🟢
8	Pain	10	🟢	🟢	🟢	🟢	🟢
9	Service delivery and care plans	4	🟡	🟡	🟢	🟢	🟢
10	Wait times	1	🟢	🟡	🟡	🟢	🟡
11	Cognition	7*	🟢	🟡	🟡	🟢	🟡
12	Palliative care	2*	🔴	🔴	🟢	🟢	🟡
13	Mortality	1*	🟡	🔴	🟡	🟡	🟡

Note: *Quality indicators did not progress to the next stage of assessment using analytic framework

🟢 High (median scores 7-9) 🟡 Moderate (median scores 4-6) 🔴 Low (median scores 1-3)

4

Functions and Activities of Daily Living (ADLs)

Definition of this domain

Activities of daily living (ADLs) are categorised as basic and instrumental (IADLS). Basic ADLs include the fundamental skills required to manage basic physical needs such as personal hygiene, dressing, toileting/continence, transferring or ambulating, and eating. IADLS are more complex tasks such as managing finances, preparing meals and managing transportation. High and medium needs to conduct activities of daily living (ADL) are reported by over 80 per cent of people living in residential aged care[3]. ADLs are essentially a measurement of independence. Measuring independence in ADLs is important as a decline often correlates with a decline in health, potentially resulting in poor health outcomes and care issues (eg hospitalisation, pressure injuries, pneumonia, constipation) and a lower quality of life. Residents who are less independent also require additional care.

Why it is important to monitor this domain

A decline in physical function, which is marked by a decrease ability to perform basic ADLs, is often a reason for individuals to obtain aged care services[4]. While functional decline can sometimes be normal due to ageing, and exacerbated by chronic conditions, cognitive impairment, and other co-existing conditions/factors, appropriate care provision should be able to slow or improve the rate of decline of physical functioning and ADL needs of its residents. Interventions that can minimise/prevent functional decline include physical activity, social interaction, physical, speech or occupational therapy[5].

According to the Australian Aged Care Quality Standards (Standard 3, requirement 3(d))[6], aged care services are expected to detect and provide support to address changes and deterioration of 'mental cognitive or physical function, capacity or condition of the consumers'.

Quality indicators for this domain

The evidence review identified 24 quality indicators for this domain. The quality indicators measure a range of concepts including specific types of ADLs, improvement or decline and unexpected decline. Many of the quality indicators require regular, repeated assessments of individual residents (eg incidence measures) conducted in a standardised manner, using validated measures. There was no consensus on the definitions of ADLs and the measurement tools used across the quality indicators identified. Of the 24 quality indicators identified, all were considered to have sufficient information to assess against the assessment criteria with results shown in Table 3.

The 24 quality indicators were also assessed against the prioritisation matrix, with 24 quality indicators assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 3). The performance characteristics of these prioritised quality indicators is outlined in Table 16 in Appendix C.

[3] AIHW 2021
[4] Gaugler et al 2007
[5] Paelese et al 2016
[6] ACQSC, 2021

Table 3: Quality indicator assessment results

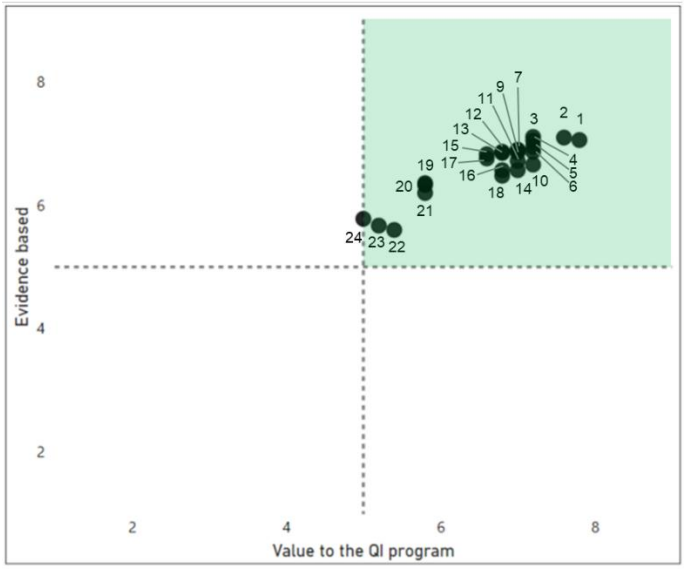
Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
1.1	Residents who had improvement of function in some basic ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.2	Residents who declined in their ability to locomote	🟡	🟢	🟢	🟢	🟢	🟢
1.3	Residents who improved in their ability to locomote	🟡	🟢	🟢	🟢	🟢	🟢
1.4	Residents who experienced a decline in independence of locomotion	🟡	🟢	🟢	🟢	🟢	🟢
1.5	Residents who worsened or remained dependent in early-loss ADLs (published annually with quarterly data)	🟡	🟢	🟢	🟢	🟢	🟢
1.6	Residents whose need for help with late-loss ADLs has increased	🟡	🟢	🟢	🟢	🟢	🟢
1.7	Residents who worsened or remained dependent in early-loss ADLs (published annually with data for the past four years)	🟡	🟢	🟢	🟢	🟢	🟢
1.8	Residents who worsened or remained dependent in mid-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.9	Residents who improved or remained independent in mid-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.10	Residents who have declined in ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.11	Residents who declined in mid-loss ADL functioning or remain completely dependent in mid-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.12	Residents who improve in mid-loss ADL functioning, or remain completely independent in mid-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.13	Residents who improved or remained independent in early-loss ADLs (data published annually)	🟡	🟢	🟢	🟢	🟢	🟢
1.14	Residents who had unexpected loss of function in some basic ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.15	Residents who improve in early-loss ADL functioning or remain completely independent in early-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢
1.16	Residents who declined in early-loss ADL functioning or remain completely dependent in early-loss ADLs	🟡	🟢	🟢	🟢	🟢	🟢

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
1.17	Residents who improved or remained independent in early-loss ADLs (data published annually with previous four years)	Moderate	High	High	High	High	High
1.18	Residents who decline in late-loss ADLs (incidence)	Moderate	Moderate	High	High	Moderate	High
1.19	Residents who decline in range of motion (incidence)	Moderate	Moderate	Moderate	High	High	Moderate
1.20	Residents with lack of nursing rehabilitation in late-loss ADLs	Moderate	High	Moderate	Moderate	High	Moderate
1.21	Residents with little or no activity (data collected 6-monthly)	Moderate	High	Moderate	Moderate	High	Moderate
1.22	Residents who are bedfast (in a 6 month period)	Moderate	Moderate	Moderate	High	Moderate	Moderate
1.23	Residents who are bedfast (in a 4 month period)	Moderate	Moderate	Moderate	High	Moderate	Moderate
1.24	Residents with little or no activity (data collected quarterly)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

High (median scores 7-9) Moderate (median scores 4-6) Low (median scores 1-3)

Figure 3: Prioritisation of quality indicators for this domain against matrix



Outlined indicators are of equal priority ranking

Licensing considerations

Priority	Quality indicator name
1	1.1. Residents who had improvement of function in some basic ADLs
2	1.2. Residents who declined in their ability to locomote
3	1.3. Residents who improved in their ability to locomote
4	1.4. Residents who experienced a decline in independence of locomotion
5	1.5. Residents who worsened or remained dependent in early-loss ADLs (published annually with quarterly data)
6	1.6. Residents whose need for help with late-loss ADLs has increased
7	1.7. Residents who worsened or remained dependent in early-loss ADLs (published annually with data for the past four years)
7	1.8. Residents who worsened or remained dependent in mid-loss ADLs
9	1.9. Residents who improved or remained independent in mid-loss ADLs
10	1.10. Residents who have declined in ADLs
11	1.11. Residents who declined in mid-loss ADL functioning or remain completely dependent in mid-loss ADLs
12	1.12. Residents who improve in mid-loss ADL functioning, or remain completely independent in mid-loss ADLs
13	1.13. Residents who improved or remained independent in early-loss ADLs (data published annually)
14	1.14. Residents who had unexpected loss of function in some basic ADLs
15	1.15. Residents who improve in early-loss ADL functioning or remain completely independent in early-loss ADLs
16	1.16. Residents who declined in early-loss ADL functioning or remain completely dependent in early-loss ADLs
17	1.17. Residents who improved or remained independent in early-loss ADLs (data published annually with previous four years)
18	1.18. Residents who decline in late-loss ADLs (incidence)
19	1.19. Residents who decline in range of motion (incidence)
20	1.20. Residents with lack of nursing rehabilitation in late-loss ADLs
21	1.21. Residents with little or no activity (data collected 6 monthly)
22	1.22. Residents who are bedfast (in a 6 month period)
23	1.23. Residents who are bedfast (in a 4 month period)
24	1.24. Residents with little or no activity (data collected quarterly)

Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- Varied definitions for ADLs are used and advice will need to be sought on the most suitable definition for the Australian context.
- Several quality indicators within this domain focus on similar ADL concepts, but measure either an improvement or decline in ADLs, there is an opportunity for stakeholder to advise on whether there is a preference to measure improvement or decline in ADLs.
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls). Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.
- Some of the quality indicators require the use of validated or standardised tools to assess ADLs, licenses to use these tools may be required.
- How quality indicators within this domain should be reported across residential aged care services providing different levels of care. Noting, aged care services providing high level care are likely to report a higher number of residents who are bedfast or have little activity. By comparison, aged care services supporting low level care are likely to have fewer residents who are bedfast or have little activity.

5

Medication

Definition of domain

Australia declared medicine safety as its tenth national health priority area in 2019 with medications being some of the most common medical interventions. With the increasing prevalence of multimorbidity and associated polypharmacy (the prescription of nine or more medications) in the growing older population, older people's medication related needs have become increasingly complex. Polypharmacy is associated with an increased risk of adverse events and poor health outcomes. The QI Program in Australia currently includes a medication management domain which includes quality indicators relating to antipsychotic medications and polypharmacy. However, the evidence review identified several additional medication sub-domains including sedative load, inappropriate medication use and medication reviews.

Why it is important to monitor this domain

With the increasing prevalence of multimorbidity (multiple chronic conditions) and associated polypharmacy (use of multiple medications) in the growing older population, older people's medication related needs have become increasingly complex[7]. This complex medication use is associated with an increased risk of adverse events and poor health outcomes. The evidence indicates a clear need to systematically and routinely monitor and assess medication-related quality of care.

The evidence review found several sub-domains within the medication domain that can be considered:

- **Sedative load/anti-anxiety or hypnotic medications or multiple psychotropic:** Psychotropic medications, which include antipsychotics, antidepressants and benzodiazepines, and other medications with sedative properties, are highly prevalent amongst residents in residential aged care. It is estimated that 61 per cent of residents regularly use a psychotropic medication and 84 per cent use a medication with sedating properties[8]. The use of psychotropic medications has been associated with a range of adverse impacts including higher risk of falls, fractures, hospitalisation, stroke, mortality[9], and cognitive and physical function impairments[10].The prescribing of multiple medications with sedative properties in older people is also common[11]. Some medications like benzodiazepines for example, are prescribed for their intended sedative action but others, like opioids and anti-epileptics have sedation as a prominent side-effect. Additionally, there are medications that are not generally viewed as sedative but can be associated with impaired motor function and potential for sedation (eg selective serotonin re-uptake inhibitors)[12]. The QI Program currently has an indicator related to use of antipsychotic medications that does not cover the use of sedative/hypnotic medications.
- **Inappropriate medication use**: Inappropriate medication use is the use of a medication where the risks associated with use outweighs the benefits, especially where more effective and safer alternatives are available[13]. There is some evidence that approximately half of the residents of residential aged care services use potentially inappropriate medications[14] which places residents at higher risk of adverse drug events, falls, fractures, hospitalisation, delirium, and mortality[15]. There are several tools/criteria that can identify the use of potentially inappropriate medications. The most used, include the Beers Criteria[16], and the STOPP/START criteria (Screening Tool of Older People's Prescriptions and Screening Tool to Alert to Right Treatment)[17].
- **Medication reviews:** Residents of aged care services are particularly vulnerable to medication-related problems when entering a facility. This is in part related to changes in care continuity (eg access to their usual general practitioner),[18] initiation of high-risk medications after facility entry[19], but also due to polypharmacy, potential medication

[7] Inacio et al 2021.
[8] Taipale et al, 2009
[9] See Sterke et al, 2012, RANZCP, 2006, Maust et al, 2015, and Douglas, 2018.
[10] Picton et al, 2018 and Ried et al, 1998.
[11] Taipale et al 2001
[12] Ferguson et al, 2001
[13] Spinewine et al, 2007
[14] Morin et al, 2016.
[15] Motter et al, 2018.
[16] American Geriatrics Society 2019.
[17] O'Mahony et al, 2015.
[18] Welberry e tal, 2021.
[19] Harrison et al, 2020.

discrepancies[20], including errors, during the transition[21]. Australian guidelines recommend a medication review to be provided as soon as possible after an individual enters a residential aged care service and when clinical circumstances change[22]. Despite these recommendations, only 43 per cent of residents received a medication review within 12 months of entering care[23].

Quality indicators for this domain

For this domain, 15 quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including types of antipsychotic medications, frequency of medications and number of medications. Many of the quality indicators require availability of service records (eg facility home records/individual charts, administrative records, medication charts). Of the 15 quality indicators identified, eight were considered to have insufficient information to assess against the assessment criteria. Seven quality indicators were assessed against the assessment criteria with results shown in Table 4.

The seven quality indicators were also assessed against the prioritisation matrix with all assessed as having a high quality of evidence and being of value to the QI Program (see Table 4). The performance characteristics of these prioritised quality indicators is outlined in Table 17 at Appendix C.

Table 4: Quality indicator assessment results

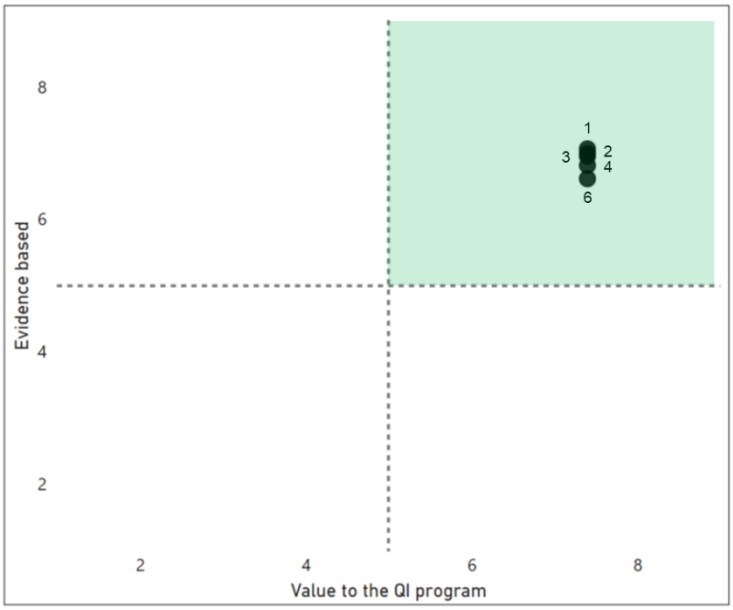
Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
2.1	Residents potentially experiencing a high sedative load	●	●	●	●	●	●
2.2	Residents who received an antianxiety or hypnotic medication (data collected quarterly)	●	●	●	●	●	●
2.3	Residents who received an antianxiety or hypnotic medication but do not have evidence of psychotic or related conditions	●	●	●	●	●	●
2.4	Residents who received an antianxiety or hypnotic medication (data collected six-monthly)	●	●	●	●	●	●
2.5	Residents who received an antianxiety or hypnotic medication (in the last 7 days)	●	●	●	●	●	●
2.6	Residents who received hypnotic medications three or more times (in the last 7 days)	●	●	●	●	●	●
2.7	Residents who received two or more hypnotic medications (in the last 7 days)	●	●	●	●	●	●

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

● High (median scores 7-9) ● Moderate (median scores 4-6) ● Low (median scores 1-3)

[20] Tjia et al, 2009.
[21] Elliott et al, 2012.
[22] See Australian Government Department of Health, 2012, Pharmaceutical Society of Australia, 2017, Australian Government Department of Health, RACGP, 2019.
[23] Sluggett et al, 2021.

Figure 4: Prioritisation of quality indicators for this domain against matrix



Priority	Quality indicator name
1	2.1. Residents potentially experiencing a high sedative load
2	2.2. Residents who received an antianxiety or hypnotic medication (data collected quarterly)
3	2.3. Residents who received an antianxiety or hypnotic medication but do not have evidence of psychotic or related conditions
4	2.4. Residents who received an antianxiety or hypnotic medication (data collected six-monthly)
4	2.5. Residents who received an antianxiety or hypnotic medication (in the last 7 days)
6	2.6. Residents who received hypnotic medications three or more times (in the last 7 days)
6	2.7. Residents who received two or more hypnotic medications (in the last 7 days)

Outlined indicators are of equal priority ranking

Licensing considerations

Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- There are existing quality indicators for medication management as part of the QI program (focused on use of antipsychotic medications and polypharmacy). If additional quality indicators were piloted from this domain, it may inhibit selecting a more holistic suite of quality indictors where measures compliment or offset each other (ie falls and restraint).
- Many of the quality indicators within this domain rely on the use of the residential aged care service's medical records. While this may be straightforward for services using electronic medication records, this may be a burden for services that use a paper-based medication record system.
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls). Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.
- Guidance information on Australian-specific medication names and types to classify antianxiety, hypnotic, or sedatives may be required.
- How quality indicators within this domain should be reported across residential aged care services providing different levels of care. Noting, aged care services providing high level care are likely to report a higher number of residents who prescribed such medications.
- The use of sedatives may be strongly influenced by the resident profile, particularly psychogeriatric and dementia specific facilities/programs, which will benefit from risk adjustment as part of program maturation more broadly.

6

Continence

Definition of domain

Continence is the ability to control one's bladder and bowel elimination, and incontinence is the involuntary loss of bladder and bowel control. Incontinence is not a physiological part of the ageing process and can often be successfully treated. Age-related changes together with frailty, cognitive decline, or impaired mobility, can put older adults at risk of incontinence[24]. Incontinence is an important consideration as having bowel and bladder control can prevent other poor health outcomes (eg infection, pressure injuries). Furthermore, when clients receive treatment for incontinence it can improve their well being (both dignity and assisting them socially). With the right treatment and assistance from health care professionals and service providers, continence can improve.

Why it is important to monitor this domain

Incontinence significantly contributes to the cost of residential care, accounting for ~30 per cent (equivalent to $4.8 billion) of the total Australian government subsidy for residential aged care[25]. There is limited Australian data on incontinence prevalence but some studies suggest that 74 per cent of people living in residential aged care services experience severe incontinence[26].

Quality indicators for this domain

For this domain, 24 quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including the use of catheters, bowel and/or bladder incontinence, worsening or improving continence and faecal impaction.

Many of the quality indicators require measures that must be collected regularly, repeatedly, and directly from residents (active surveillance). Some countries use process measures within this domain (eg continence management) instead of prevalence measures.

Of the 24 quality indicators identified, seven were considered to have insufficient information to assess against the assessment criteria, 17 indicators were assessed against the assessment criteria with results indicated in Table 5.

The 17 quality indicators were also assessed against the prioritisation matrix with 17 assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 5). The performance characteristics of these prioritised quality indicators is outlined in Table in Appendix C.

[24] See Lim, 2016 and Guinane et al, 2018.
[25] AIHW, 2013.
[26] AIHW, 2013.

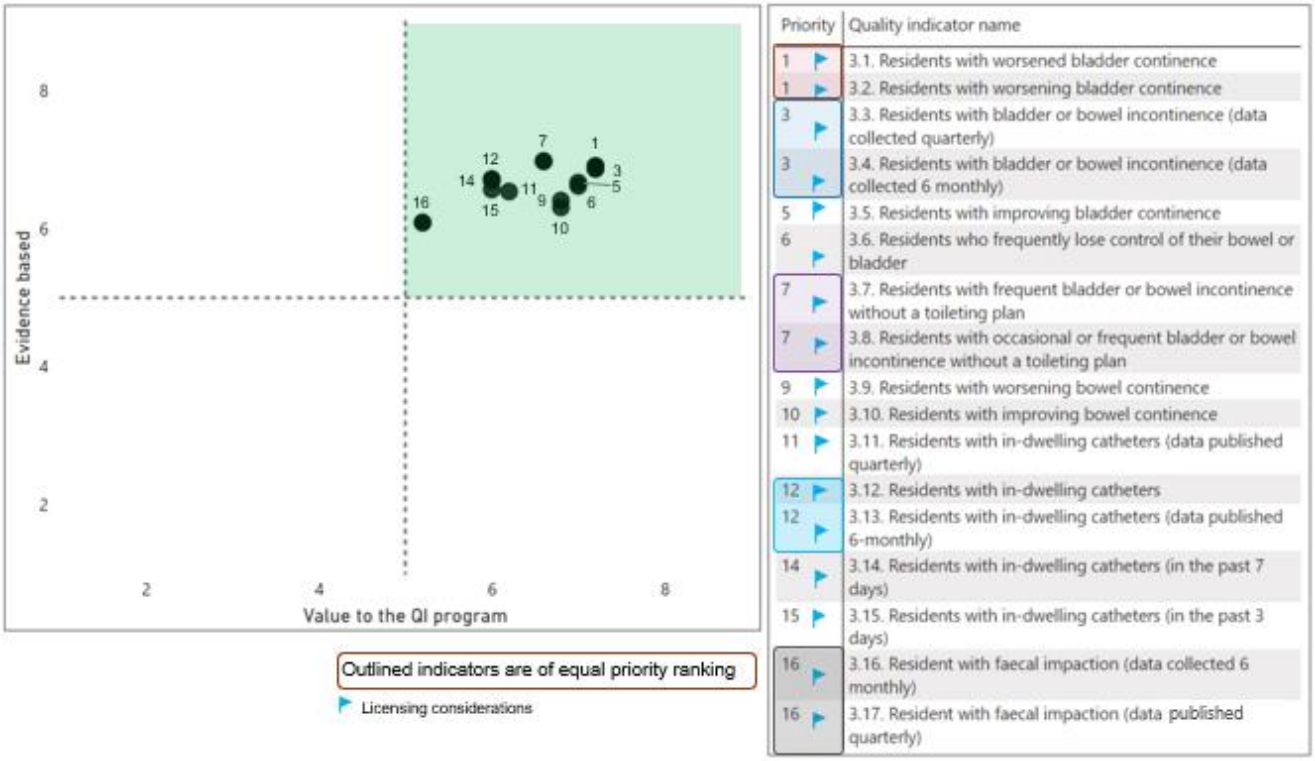
Table 5: Quality indicator assessment results

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
3.1	Residents with worsened bladder continence	Moderate	High	High	High	High	High
3.2	Residents with worsening bladder continence	Moderate	High	High	High	High	High
3.3	Residents with bladder or bowel incontinence (data collected quarterly)	Moderate	High	Moderate	High	High	High
3.4	Residents with bladder or bowel incontinence (data collected 6-monthly)	High	High	Moderate	High	High	High
3.5	Residents with improving bladder continence	Moderate	High	High	High	High	High
3.6	Residents who frequently lose control of their bowel or bladder	Moderate	Moderate	Moderate	High	High	High
3.7	Residents with frequent bladder or bowel incontinence without a toileting plan	Moderate	High	High	High	High	High
3.8	Residents with occasional or frequent bladder or bowel incontinence without a toileting plan	Moderate	High	High	High	High	High
3.9	Residents with worsening bowel continence	Moderate	Moderate	Moderate	High	Moderate	High
3.10	Residents with improving bowel continence	Moderate	Moderate	Moderate	High	Moderate	High
3.11	Residents with in-dwelling catheters (data published quarterly)	High	Moderate	Moderate	Moderate	Moderate	Moderate
3.12	Residents with in-dwelling catheters	High	Moderate	Moderate	High	High	Moderate
3.13	Residents with in-dwelling catheters (data published 6-monthly)	High	Moderate	Moderate	High	High	Moderate
3.14	Residents with in-dwelling catheters (in the past 7 days)	High	Moderate	Moderate	High	High	Moderate
3.15	Residents with in-dwelling catheters (in the past 3 days)	High	Moderate	Moderate	High	High	Moderate
3.16	Residents with faecal impaction (data collected 6-monthly)	Moderate	Moderate	Moderate	High	High	Moderate
3.17	Residents with faecal impaction (data published quarterly)	Moderate	Moderate	Moderate	High	High	Moderate

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

High (median scores 7-9) Moderate (median scores 4-6) Low (median scores 1-3)

Figure 5: Prioritisation of quality indicators for this domain against matrix.



Priority	Quality indicator name
1	3.1. Residents with worsened bladder continence
1	3.2. Residents with worsening bladder continence
3	3.3. Residents with bladder or bowel incontinence (data collected quarterly)
3	3.4. Residents with bladder or bowel incontinence (data collected 6 monthly)
5	3.5. Residents with improving bladder continence
6	3.6. Residents who frequently lose control of their bowel or bladder
7	3.7. Residents with frequent bladder or bowel incontinence without a toileting plan
7	3.8. Residents with occasional or frequent bladder or bowel incontinence without a toileting plan
9	3.9. Residents with worsening bowel continence
10	3.10. Residents with improving bowel continence
11	3.11. Residents with in-dwelling catheters (data published quarterly)
12	3.12. Residents with in-dwelling catheters
12	3.13. Residents with in-dwelling catheters (data published 6-monthly)
14	3.14. Residents with in-dwelling catheters (in the past 7 days)
15	3.15. Residents with in-dwelling catheters (in the past 3 days)
16	3.16. Resident with faecal impaction (data collected 6 monthly)
16	3.17. Resident with faecal impaction (data published quarterly)

Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- Several quality indicators within this domain focus on similar concepts in continence, but measure either improvement or decline in continence. There is an opportunity for stakeholders to advise on whether there is a preference to measure improvement or decline in continence. Is it more useful to measure point in time (point prevalence) or improvement/decline over time for people?
- The quality indicators cover a range of different concepts associated with continence. It is necessary to determine whether quality indicators should reflect multiple aspects of continence (bladder and bowel) or only one aspect (bladder or bowel).
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls). Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.

7

Infection control

Definition of domain

Infections are a significant cause of mortality and morbidity in older people. Older people, especially people living in residential aged care facilities are at high risk of infection and sepsis, partially due to age-related factors such as pathological changes to the immune system, malnutrition, incontinence, functional disability, impaired cognitive status, and presence of chronic diseases[27]. Older people may not display typical symptoms making early detection of infection challenging. Urinary tract infections (UTIs) are an infection of any part of the urinary tract, with bladder infections being most common. Some UTIs can be prevented through good hygiene, toileting processes and hydration.

Why it is important to monitor this domain

There are two sub-domains within this quality of care domain:

- **Rates of antibiotic use**: Related to infections are high rates of antibiotic used to treat infections, with high rates often associated with poor antimicrobial stewardship, high potential for disease transmission between residents, and regular transitions between care settings[28]. The 12 month prevalence of antibiotic use in residents of residential aged care services is 54-68 per cent with up to 70 per cent of this use considered to be potentially inappropriate[29].
- **Vaccine preventable infections:** In 2020, COVID-19 infected 2,336 residents of residential aged care services in Australia of which 710 people have died[30]. Since early 2021 COVID-19 vaccination has been available and as of September 2021 mandatory for RACFs workers and strongly encouraged for residents[31]. Other recommended vaccines for infections commonly affecting older people, include the flu vaccination to prevent influenza and the pneumococcal vaccination to prevent pneumonia[32].

Minimisation of infection-related risks throughout infection control (including offer and monitor vaccinations) and appropriate antibiotics use are both requirements of the Australian Aged Care Quality Standards (Standard 3, requirement 3(g))[33].

Quality indicators for this domain

For this domain, 27 quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including:

- 14 quality indicators related to infection control
- 13 quality indicators related to vaccinations.

Many of the quality indicators require data to be collected through active or passive (using existing data) surveillance. For those that can be done passively, measures require regular availability of service records (eg nursing home records/individual charts, administrative records, medical records). An alternative source of data for some quality indicators is the PBS. However, this data relates to prescription rather than administration of medicines and has significant limitations in the use of data for this purpose.

Of the 27 quality indicators identified, four were considered to have insufficient information to assess against the assessment criteria. 23 quality indicators were assessed against the criteria with results indicated in Table 6.

The 23 quality indicators were also assessed against the prioritisation matrix with 23 assessed as having a high quality of evidence and being of high value for application to the QI Program (see Table 6). The performance characteristics of these prioritised quality indicators is outlined in Table in Appendix C.

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27 Van Buul et al, 2012.
28 Van Buul et al, 2012
29 Raban et al, 2021.
30 Australian Government 2021.
31 Australian Government, 2021.
32 RACGP 2021
33 Australian Government, ACQSC.

Table 6: Quality indicator assessment results

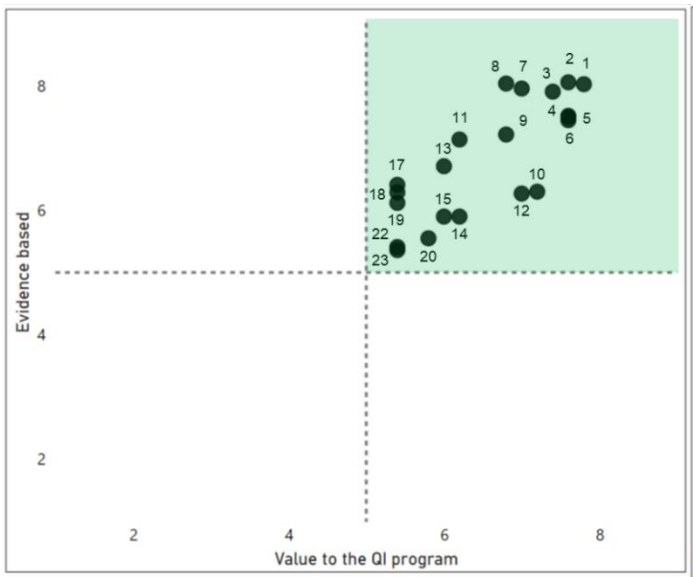
Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
4.1	Staff who received the most recent influenza vaccine	●	●	●	●	●	●
4.2	Residents who received the influenza vaccine (data collected annually)	●	●	●	●	●	●
4.3	Residents who received the influenza vaccine (data collected quarterly)	●	●	●	●	●	●
4.4	Residents who were assessed and/or appropriately given the most recent influenza vaccine	●	●	●	●	●	●
4.5	Residents dispensed at least one antibiotic for systemic use	●	●	●	●	●	●
4.6	Residents prescribed at least one antimicrobial (on the collection day)	●	●	●	●	●	●
4.7	Residents who have received the pneumococcal vaccination	●	●	●	●	●	●
4.8	Residents who received the pneumococcal vaccination (in the last 12 months)	●	●	●	●	●	●
4.9	Residents whose pneumococcal vaccine status is up to date	●	●	●	●	●	●
4.10	Residents who had signs and/or symptoms of at least one suspected infection (on the collection day)	●	●	●	●	●	●
4.11	Residents who receive the herpes zoster vaccination	●	●	●	●	●	●
4.12	Residents who have had one or more infections	●	●	●	●	●	●
4.13	Residents who are offered and decline the most recent influenza vaccination	●	●	●	●	●	●
4.14	Residents who have had a Methicillin-resistant Staphylococcus aureus infection	●	●	●	●	●	●
4.15	Residents who have had a Clostridium difficile infection	●	●	●	●	●	●
4.16	Residents who have had a Vancomycin-resistant Enterococcus infection	●	●	●	●	●	●
4.17	Residents who are offered and decline the pneumococcal vaccine	●	●	●	●	●	●
4.18	Residents who did not receive the pneumococcal vaccine due to medical contraindication	●	●	●	●	●	●
4.19	Residents who did not receive the influenza vaccine due to medical contraindication	●	●	●	●	●	●

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
4.20	Residents who have had one or more urinary tract infections	●	●	●	●	●	●
4.21	Residents with a urinary tract infection	●	●	●	●	●	●
4.20	Residents who have had a urinary tract infection (in the last 30 days) (data collected quarterly)	●	●	●	●	●	●
4.23	Residents who have had a urinary tract infection (in the last 30 days)	●	●	●	●	●	●

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

● High (median scores 7-9) ● Moderate (median scores 4-6) ● Low (median scores 1-3)

Figure 6: Prioritisation of quality indicators for this domain against matrix



Outlined indicators are of equal priority ranking

Licensing considerations

Priority	Quality indicator name
1	4.1. Staff who received the most recent influenza vaccine
2	4.2. Residents who received the most recent influenza vaccine (data collected annually)
3	4.3. Residents who received the most recent influenza vaccine (data collected quarterly)
4	4.4. Residents who were assessed and/or appropriately given the most recent influenza vaccine
5	4.5. Residents dispensed at least one antibiotic for systemic use
6	4.6. Residents prescribed at least one antimicrobial (on the collection day)
7	4.7. Residents who have received the pneumococcal vaccination
8	4.8. Residents who received the pneumococcal vaccination (in the last 12 months)
9	4.9. Residents whose pneumococcal vaccine status is up to date
10	4.10. Residents who had signs and/or symptoms of at least one suspected infection (on the collection day)
11	4.11. Residents who receive the herpes zoster vaccination
12	4.12. Residents who have had one or more infections
13	4.13. Residents who are offered and decline the most recent influenza vaccination
14	4.14. Residents who have had a Methicillin-resistant Staphylococcus aureus infection
15	4.15. Residents who have had a Clostridium difficile infection
15	4.16. Residents who have had a Vancomycin-resistant Enterococcus infection
17	4.17. Residents who are offered and decline the pneumococcal vaccine
18	4.18. Residents who did not receive the pneumococcal vaccine due to medical contraindication
19	4.19. Residents who did not receive the influenza vaccine due to medical contraindication
20	4.20. Residents who have had one or more urinary tract infections
20	4.21. Residents with a urinary tract infection
22	4.22. Residents who have had a urinary tract infection (in the last 30 days) (data collected quarterly)
23	4.23. Residents who have had a urinary tract infection (in the last 30 days)

Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- Attribution for various quality indicators may be difficult to determine. With quality indicators potentially influenced by various care providers, including health care providers (ie antibiotic prescribing) and the residential aged care service. It will be necessary to consider which quality indicators are within the direct influence of a residential aged care service.
- It is acknowledged that there is legislation in place related to staff vaccination and therefore consideration should be given as to whether inclusion of a quality indicator related to this is necessary.
- Consideration should be given as to the importance of aspects of infection control such as antibiotics, antimicrobials and urinary tract infections versus the measurement of vaccination rates.
- Data collection for most quality indicators relies on the use of resident's medication records. While this may be straightforward for services using electronic medication records, this may be a burden for services that use a paper-based medication record system.
- Several quality indicators focus on specific vaccinations (influenza, herpes zoster or pneumococcal). It is necessary to consider the value of measuring a single specific vaccination.
- Guidance information on Australian-specific medication names and types to classify medications (ie antimicrobials or antibiotics) may be required

8

Depression

Definition of domain

Depression is a common and serious mood disorder that can affect all aspects of an individual's life. Individuals who suffer depression may experience persistent feeling of sadness and hopelessness and lose interest in activities they normally would enjoy. An estimated half of all people living in residential aged care have depression. Depression symptoms such as fatigue, loss of interests, low mood and concentration problems can be managed, improved, or resolved through behavioural or pharmacological therapies.[34] Identifying depression in residents can be complicated by individual circumstances (eg loss of a spouse, chronic pain and illness, major life changes in moving to residential care and/or cognitive decline). Depression can negatively impact people's quality of life.

Why it is important to monitor this domain

According to the Australian Aged Care Quality Standards (Standard 3, requirement 3(d))[35], aged care services are expected to detect and provide support to address changes and deterioration of mental, cognitive, or physical function, capacity, or condition of the consumers.

Quality indicators for this domain

For this domain, 12 quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including medication use for depression (antidepressant), symptoms of depression, improved or worsened depression. Most depression quality indicators require regular, repeated, individual resident assessments (eg active surveillance), conducted in a standardised manner, using validated measures. Agreement on an appropriate depression instrument is essential given the wide range of areas, focus, and responder (individual vs clinician) they may cover. Quality indicator measures that monitor medication use related to depression could be measured using service records (eg nursing home records/medication charts, administrative records).

Of the 12 quality indicators identified, three were considered to have insufficient information to assess against the assessment criteria. Nine quality indicators were assessed against the assessment criteria with results indicated in Table 7.

The nine quality indicators were also assessed against the prioritisation matrix with all assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 7). The performance characteristics of these prioritised quality indicators is outlined in Table 20 in Appendix C.

Table 7: Quality indicator assessment results

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
5.1	Long term care residents whose symptoms of depression worsened (data published quarterly)	●	●	●	●	●	●
5.2	Long term care residents whose symptoms of depression worsened (rolling four quarter average)	●	●	●	●	●	●
5.3	Residents whose symptoms of depression worsened	●	●	●	●	●	●
5.4	Residents who have had symptoms of depression (in the last two weeks)	●	●	●	●	●	●

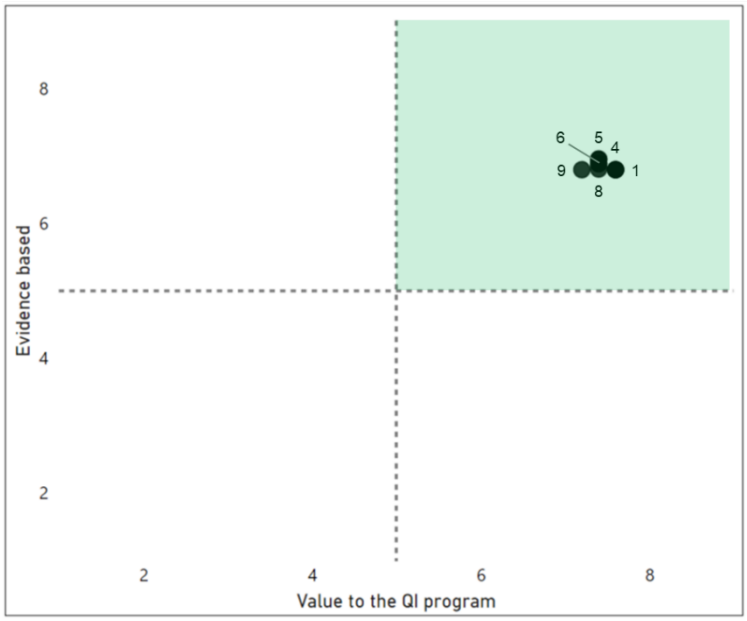
[34] Alexopoulos GS. Depression in the elderly. The Lancet 2005;365(9475):1961-1970.
[35] ACQSC, 2019.

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
5.5	Residents with mood decline and symptoms of depression (over the last seven days)	Moderate	High	High	High	High	High
5.6	Residents who have declined in their mood from symptoms of depression	Moderate	High	High	High	High	High
5.7	Residents with a Depression Rating Scale score of three or more and not receiving an antidepressant	Moderate	High	High	High	High	High
5.8	Residents with a Depression Rating Scale score of three or more	Moderate	High	High	High	Moderate	High
5.9	Residents with mood decline and symptoms of depression and not receiving an antidepressant (over the last seven days)	Moderate	High	High	High	High	High

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

High (median scores 7-9) Moderate (median scores 4-6) Low (median scores 1-3)

Figure 7: Prioritisation of quality indicators for this domain against matrix



Priority	Quality indicator name
1	5.1. Long term care residents whose symptoms of depression worsened (data published quarterly)
1	5.2. Long term care residents whose symptoms of depression worsened (rolling four quarter average)
1	5.3. Residents whose symptoms of depression worsened
4	5.4. Residents who have had symptoms of depression (in the last two weeks)
5	5.5. Residents with mood decline and symptoms of depression (over the last seven days)
6	5.6. Residents who have declined in their mood from symptoms of depression
6	5.7. Residents with a Depression Rating Scale score of three or more and not receiving an antidepressant
8	5.8. Residents with a Depression Rating Scale score of three or more
9	5.9. Residents with mood decline and symptoms of depression and not receiving an antidepressant (over the last seven days)

Outlined indicators are of equal priority ranking

Licensing considerations

Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- Varied definitions for depression, mood or depressive systems are used and advice is sought on the most suitable definition for the Australian context.
- Several quality indicators within this domain focus on similar concepts in depression, but measure either an improvement or a decline in depression, mood or depressive symptoms. There is an opportunity for stakeholders to advise on whether there is a preference to measure improvement, decline or both in depression, mood or depressive symptoms. Is it more useful to measure point in time (point prevalence) or improvement/decline over time for people?
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls). Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.
- Many of the quality indicators require the use of validated or standardised tools to assess depression. Licenses to use these tools may be required. If alternative, but similar quality indicators were to be developed for the pilot, a process of selection, implementation of measures and assessment requirements would be required. It may be preferable for residents to self-complete assessments, or the use of a proxy may be required (ie family member, carer, or both). Consideration is needed to determine when and how a proxy should be used to complete the assessment.

9

Behavioural Symptoms

Definition of this domain

Behaviour and personality changes are often part of the progression of dementia. These symptoms can often include moodiness, anxiety, apathy, agitation, irritability sleeping problems, wandering and confusion. Dementia is often associated with behavioural and psychosocial symptoms of dementia (BPSD).

Why it is important to monitor this domain

Over 50 per cent of residents of residential aged care services have dementia. It is estimated 77 per cent of people with dementia have medium or high care needs related to cognition and behaviour[36]. BPSD can be associated with poor staff training and availability as well as individual's pain, depression, and cognitive impairment[37]. These symptoms are often managed with pharmacological treatment and contribute to the over-reliance on antipsychotics in residential aged care residents, despite recommendations that first line of treatment be non-pharmacological[38]. Most interventions for BPSD have low to very low evidence.

Quality indicators for this domain

A total of 11 quality indicators for this domain were identified in the evidence review. The quality indicators measure a range of concepts including declining behavioural symptoms, ability to communicate and impact of behaviour on others. Many of the quality indicators require regular, repeated assessments of individual residents (active surveillance) conducted in a standardised manner, using validated measures. The quality indicators are particularly sensitive to individual resident characteristics (eg degree of cognitive impairment) making risk adjustment for use of these quality indicators essential.

Of the 11 quality indicators identified, three were considered to have insufficient information to assess against the assessment criteria indicated in Table 8.

The nine quality indicators were assessed against the prioritisation matrix with all assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 8). The performance characteristics of these prioritised quality indicators is outlined in Table 21 in Appendix C.

Table 8: Quality indicator assessment results

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
6.1	Residents with worsened behavioural symptoms (data published quarterly)	●	●	●	●	●	●
6.2	Residents with improved behavioural symptoms (data published quarterly by levels of care)	●	●	●	●	●	●
6.3	Residents with worsened behavioural symptoms (data published quarterly by levels of care)	●	●	●	●	●	●
6.4	Residents who display inappropriate behaviour that affect others	●	●	●	●	●	●
6.5	Residents who have behavioural symptoms that affect others (data published six-monthly)	●	●	●	●	●	●

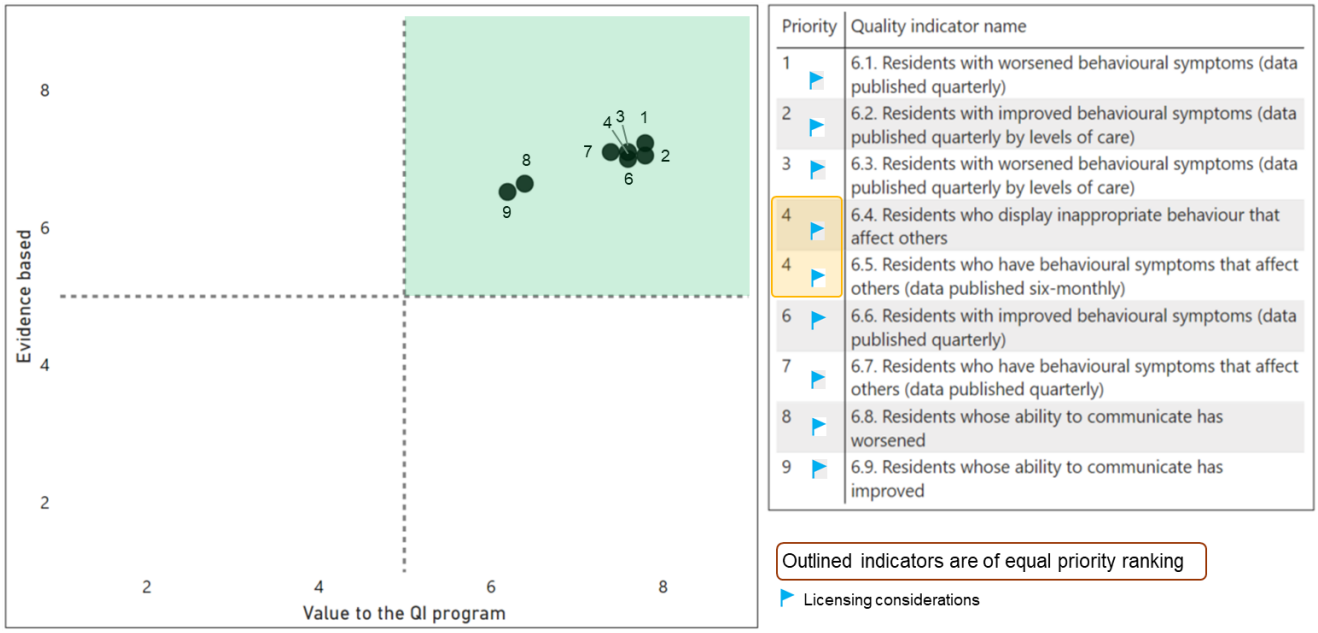
[36] AIHW, 2020.
[37] Laver et al, 2016. And Nazir et al, 2011.
[38] Laver et al, 2016 and Westaway et al, 2020.

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
6.6	Residents with improved behavioural symptoms (data published quarterly)	🟡	🟢	🟢	🟢	🟢	🟢
6.7	Residents who have behavioural symptoms that affect others (published quarterly)	🟡	🟢	🟢	🟢	🟢	🟢
6.8	Residents whose ability to communicate has worsened	🟡	🟢	🟡	🟢	🟡	🟡
6.9	Residents whose ability to communicate has improved	🟡	🟢	🟡	🟢	🟡	🟡

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

🟢 High (median scores 7-9) 🟡 Moderate (median scores 4-6) 🔴 Low (median scores 1-3)

Figure 8: Prioritisation of quality indicators for this domain against matrix



Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- Varied definitions, assessment tools and screening processes for behavioural symptoms are used and advice is sought on the most useful for the Australian context.
- Several quality indicators within this domain focus on similar concepts in behavioural symptoms, but measure either improvement or decline in problematic behaviour. There is an opportunity for stakeholders to advise on whether there is a preference to measure improvement or decline in behavioural symptoms. Is it more useful to measure point in time (point prevalence) or improvement/decline over time for people?
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls).

Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.

- Many of the quality indicators require the use of validated or standardised tools to assess behavioural symptoms. Licenses to use these tools may be required. If alternative, but similar quality indicators were to be developed for the pilot, a process of selection, implementation of measures and assessment requirements would be required. It may be preferable for residents to self-complete assessments, or the use of a proxy may be required (ie family member, carer, or both). Consideration is needed to determine when and how a proxy should be used to complete the assessment.
- Including quality indicators in the pilot that are related to behavioural symptoms should be considered in light of the existing quality indicators within the QI Program and any unanticipated changes in practice that may occur. For example, there may be pressure for services between reducing inappropriate use of antipsychotic medications without a diagnosis of psychosis (a current quality indicator) which may result in increased problematic behaviour (possibly a new quality indicator).
- Despite recent improvements to normalise mental health conditions, including depression, these conditions continue to attract significant stigma. Consideration needs to be given to how this stigma is considered within a service if screening all residents for depression.

10

Hospitalisations

Definition of domain

Hospitalisations are admissions to hospitals to receive treatment, which can be planned (ie elective) or unplanned. Emergency department care is also provided in many hospitals, and this includes urgent care provision that may or may not result in hospital admission. In 2018 – 19, 37 per cent of people living in Australian residential aged care services had at least one hospitalisation and 37 per cent at least one emergency department (ED) presentation.[39] Common reasons for hospitalisations in people living in residential aged care services are falls, respiratory related conditions, and acute infections. Many hospitalisations are considered potentially preventable with preventative health interventions, early disease management, or potential better access to certain care within the residential aged care service.

Why it is important to monitor this domain

Unintended consequences of hospitalisations in this cohort include increased cognitive and functional decline, falls, hospital-acquired infections, as well as considerable distress and reduced quality of life[40]. On the other hand, many transfers to hospital are necessary for the well-being of residents, including treatment of major health conditions and injuries that are unavoidable among frail older people. Discriminating between avoidable and necessary transfers can be complex and may interfere with judgements about hospital transfer rates.

Quality indicators for this domain

For this domain, eight quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including ED presentations, hospitalisations (all causes) and hospitalisations for specific causes (eg medication adverse events or delirium. Many of the quality indicators require data collection through active or passive (using existing data) surveillance. Measures require availability of service records (eg nursing home records/individual charts, administrative records).

Of the eight quality indicators identified, three were considered to have insufficient information to assess against the assessment criteria. Five quality indicators were assessed against the assessment criteria with results indicated in Table 9.

The five quality indicators were also assessed against the prioritisation matrix with all assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 9). The performance characteristics of these prioritised quality indicators is outlined in Table 22 in Appendix C.

[39] Commonwealth of Australia. Royal Commission into Aged Care Quality and Safety. Research Paper 18: Hospitalisations in Australian Aged Care: 2014/15-2018/19.

[40] Dwyer et al, 2014 and Pedone et al, 2005.

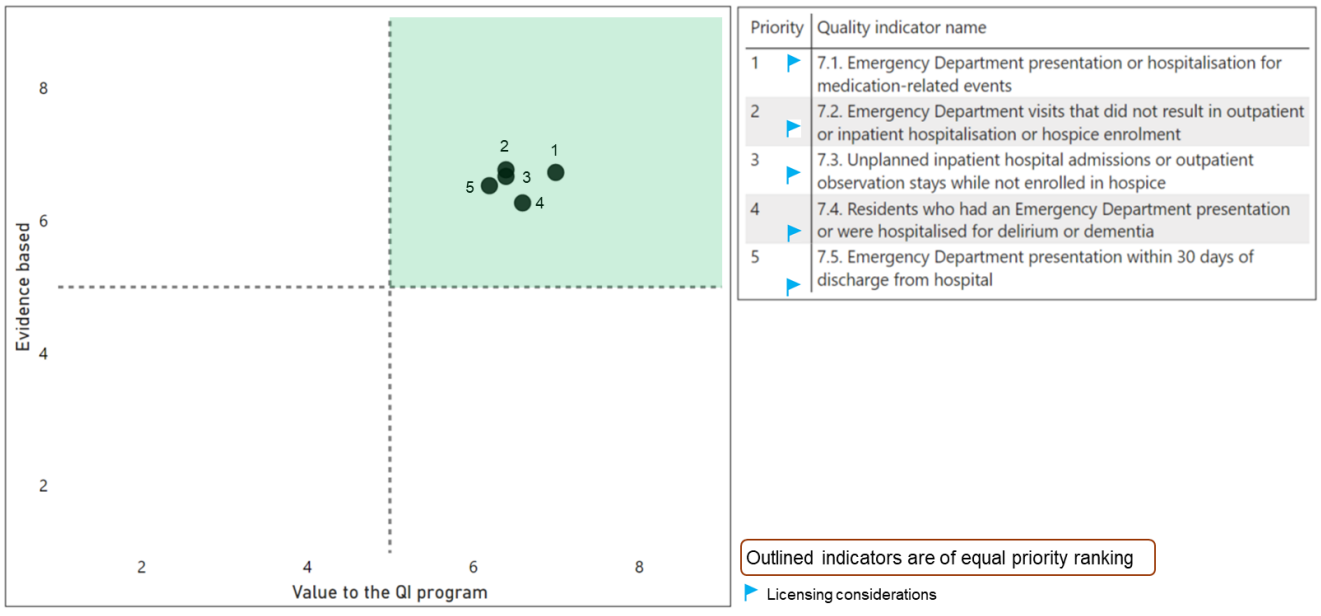
Table 9: Quality indicator assessment results

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
7.1	Emergency Department presentation or hospitalisation for medication-related events	●	●	●	●	●	●
7.2	Emergency Department visits that did not result in outpatient or inpatient hospitalisation or hospice enrolment	●	●	●	●	●	●
7.3	Unplanned inpatient hospital admissions or outpatient observation stays while not enrolled in hospice	●	●	●	●	●	●
7.4	Residents who had an Emergency Department presentation or were hospitalised for delirium or dementia	●	●	●	●	●	●
7.5	Emergency Department presentation within 30 days of discharge from hospital	●	●	●	●	●	●

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

● High (median scores 7-9) ● Moderate (median scores 4-6) ● Low (median scores 1-3)

Figure 9: Prioritisation of quality indicators for this domain against matrix



Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- How quality indicators within this domain should be reported across residential aged care services providing different levels of care. Noting, aged care services providing high level care are likely to report a higher number of residents who are admitted to hospital or visit an Emergency Department. By comparison, aged care services supporting low level care are likely to have fewer residents who are admitted to hospital or visit an Emergency Department.
- Most quality indicators use non-provider self-reported data regarding hospital admissions. This approach is not suitable given the pilot will collect primary data directly from residential aged care services.
- Quality indicators within this domain measure various aspects, such as Emergency Department of hospitalisation events, or the cause of hospitalisation (ie medication related or delirium/dementia). It is necessary to determine which aspects of the domain are most important. Emergency presentations may reflect existing risk protocols within residential care to seek Emergency Department care in certain circumstances to manage risk (eg in the event of a fall in a resident who is taking blood thinning medications). In the Australian aged care context, admissions may be more appropriate for measuring/monitoring for quality improvement or to inform consumer choice.

11

Pain

Definition of domain

The 2020 International Association for the Study of Pain definition of pain is “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.”[41] Pain affects a significant and increasing portion of older adults receiving aged care services.[42] Pain affects people’s functional capabilities, activities of daily living, quality of life, and overall disability.

Why it is important to monitor this domain

The pharmacological management of pain is common in older people, but older people are also more susceptible to the potential complications and side effects associated with pain medications, such as non-steroidal anti-inflammatory drugs (NSAIDs) and opioids. Adverse events include functional impairment, falls, respiratory depression, constipation, dependency from opioids[43] as well as associated renal, gastrointestinal, and cardiovascular effects from NSAIDs[44].

Quality indicators for this domain

For this domain, 13 quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including the existence of pain, worsening pain and use of opioid medications. Many of the quality indicators require regular, repeated, individual resident assessments (eg active surveillance), conducted in a standardised manner, using validated measures. Agreement on a pain assessment instrument must be achieved. Quality indicator measures that examine analgesic medication (eg opioids) require availability of service records (eg nursing home records/individual charts, administrative records).

Of the 13 quality indicators identified, three were considered to have insufficient information to assess against the assessment criteria. The remaining 10 quality indicators were assessed against the assessment criteria with results indicated in Table 10.

The 10 quality indicators were also assessed against the prioritisation matrix with all assessed as having a high quality of evidence and being of high value to the QI Program (see Figure 10). Program. The performance characteristics of these prioritised quality indicators is outlined in Table 23 in Appendix C.

Table 10: Findings of the assessment of each quality indicator assessment against criteria

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
8.1	Residents whose pain worsened (data published annually)	●	●	●	●	●	●
8.2	Residents whose pain worsened (data published quarterly)	●	●	●	●	●	●
8.3	Residents who had moderate daily pain or horrible/excruciating pain (data published annually)	●	●	●	●	●	●
8.4	Residents who had moderate daily pain or horrible/excruciating pain (data published quarterly)	●	●	●	●	●	●

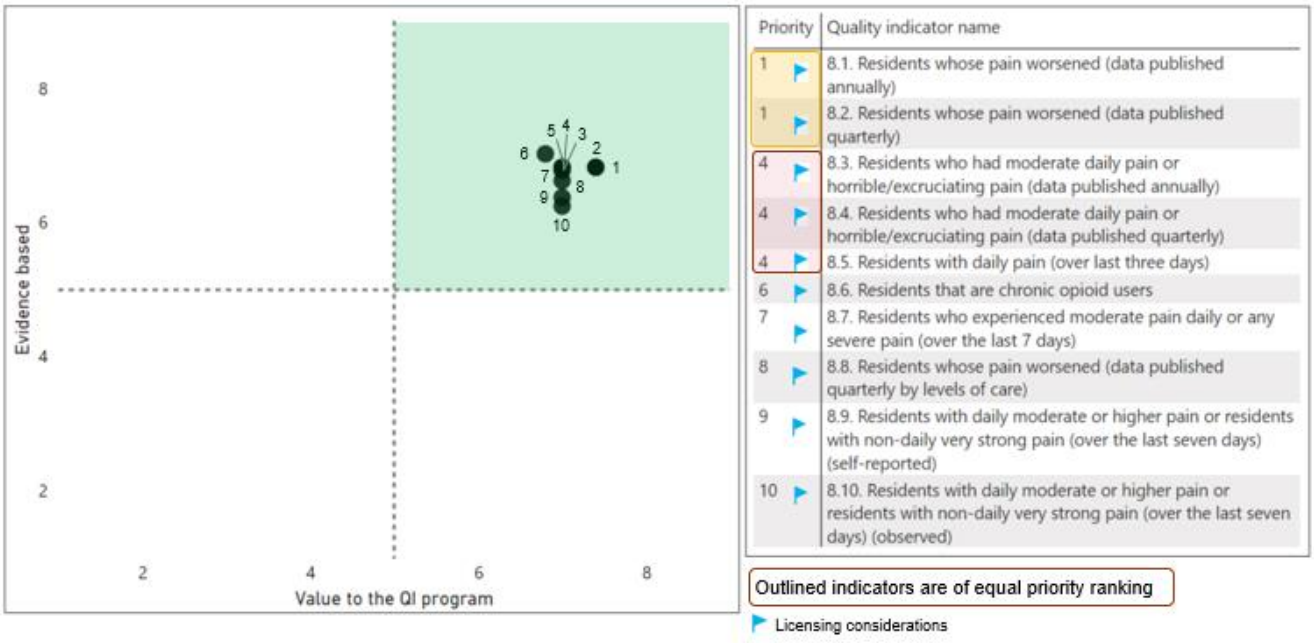
[41] Abdulla A, Adams N, Bone M, et al. Guidance on the management of pain in older people. Age Ageing 2013;42 Suppl 1:i1-57. DOI: 10.1093/ageing/afs200.
[42] Inacio MC, Visvanathan R, Lang C, et al. Pain in Older Australians Seeking Aged Care Services: Findings from the Registry of Older South Australians (ROSA). JAMDA 2020;21(1):132-133.
[43] Roxburgh et al, 2011.
[44] Risser et al, 2009 and Caughey et al, 2011.

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
8.5	Residents with daily pain (over last three days)	Moderate	High	High	High	High	High
8.6	Residents that are chronic opioid users	High	High	High	High	High	High
8.7	Residents who experienced moderate pain daily or any severe pain (over the last 7 days)	Moderate	High	High	High	High	High
8.8	Residents whose pain worsened (data published quarterly by levels of care)	Moderate	High	Moderate	High	High	High
8.9	Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (self-reported)	Moderate	High	Moderate	Moderate	High	High
8.10	Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (observed)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

High (median scores 7-9) Moderate (median scores 4-6) Low (median scores 1-3)

Figure 10: Prioritisation of quality indicators for this domain against matrix



Quality indicators pilot considerations

There are a number of considerations for the piloting of these quality indicators:

- Varied definitions and measurement tools for pain are used and advice is sought on the most useful for the Australian context.
- Several quality indicators within this domain focus on similar concepts in pain, but measure either improvement or decline in pain. There is an opportunity for stakeholders to advise on whether there is a preference to measure improvement or decline in pain.
- The QI Program currently uses prevalence measures to identify the proportion of care recipients at one time within a service who meet the quality indicator definition (ie percentage of care recipients who experienced one or more falls). Many of the quality indicators use incidence measures, requiring sequential assessments of residents to monitor their change in condition over time.
- Many of the quality indicators require the use of validated or standardised tools to assess pain. Licenses to use these tools may be required. If alternative, but similar quality indicators were to be developed for the pilot, a process of selection, implementation of measures and assessment requirements would be required. It may be preferable for residents to self-complete assessments, or the use of a proxy may be required (ie family member, carer, or both). Consideration is needed to determine when and how a proxy should be used to complete the assessment.
- How quality indicators within this domain should be reported across residential aged care services providing different levels of care. Noting, aged care services providing high level care are likely to report a higher number of residents who experience high levels of pain. By comparison, aged care services supporting low level care are likely to have fewer residents who experience high levels of pain.

12

Service delivery and Care Planning

Definition of domain

This domain encompasses services and other aspects of service delivery for individuals in residential aged care settings. For example, they include care planning, which is an assessment and plan conducted by the aged care provider to meet the needs of residents, or whether certain services identified in care plans (eg rehabilitation services after a specific health event) are being delivered.

Why is it important to monitor

Care planning, specifically co-developed with clients and person centred, is recognised as a fundamental aspect of service delivery to residents of aged care[45]. Care plans usually identify resident's needs and preferences to determine the staff and support required for them, how care will be continuously delivered, changed if needed, and communicated. However, while general care planning has been reported to be associated with improvements in resident's quality of care, it is difficult to discern the direct impact of care plans versus specific actions resulting from the planning, which has implications for the use of quality improvement measures in this domain[46].

This domain includes quality indicators measuring whether care is planned for, integrated with, and individualised for each resident. For example, care planning, risk assessment, and integrated care measures, examine whether residents' individualised needs have been assessed and care plans are developed, that incorporate an understanding of residents' goals and preferences to ensure the delivery of person-centred safe and effective care. According to the Australian Aged Care Quality Standards (Standard 2, requirement 3(a))[47], aged care services are expected to demonstrate ongoing assessment and planning with their consumers, which addresses consumers' needs, informs their care, coordinates their care with other organisations, is reviewed regularly when circumstances change, and are effectively communicated and documented.

Quality indicators for this domain

For this domain, 19 quality indicators were identified in the evidence review. The quality indicators cover a diverse range of concepts relating to service delivery and planning. Many of the quality indicators identified by the evidence review within this domain are process/structure measures. Quality indicator measures in this domain can be collected through active or passive (using existing data) surveillance. For those that can be done passively, measures require regular availability of service records (eg nursing home records/individual charts, administrative records).

Of the 19 quality indicators identified, 15 were considered to have insufficient information to assess against the assessment criteria. Four quality indicators were assessed against the assessment criteria with results indicated in Table 11.

The four quality indicators were also assessed against the prioritisation matrix with only one assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 11). The performance characteristics of this prioritised quality indicator is in Table 24 in Appendix C.

[45] Commonwealth of Australia, 2021.
[46] Lepore et al, 2018.
[47] Australian Government, 2021

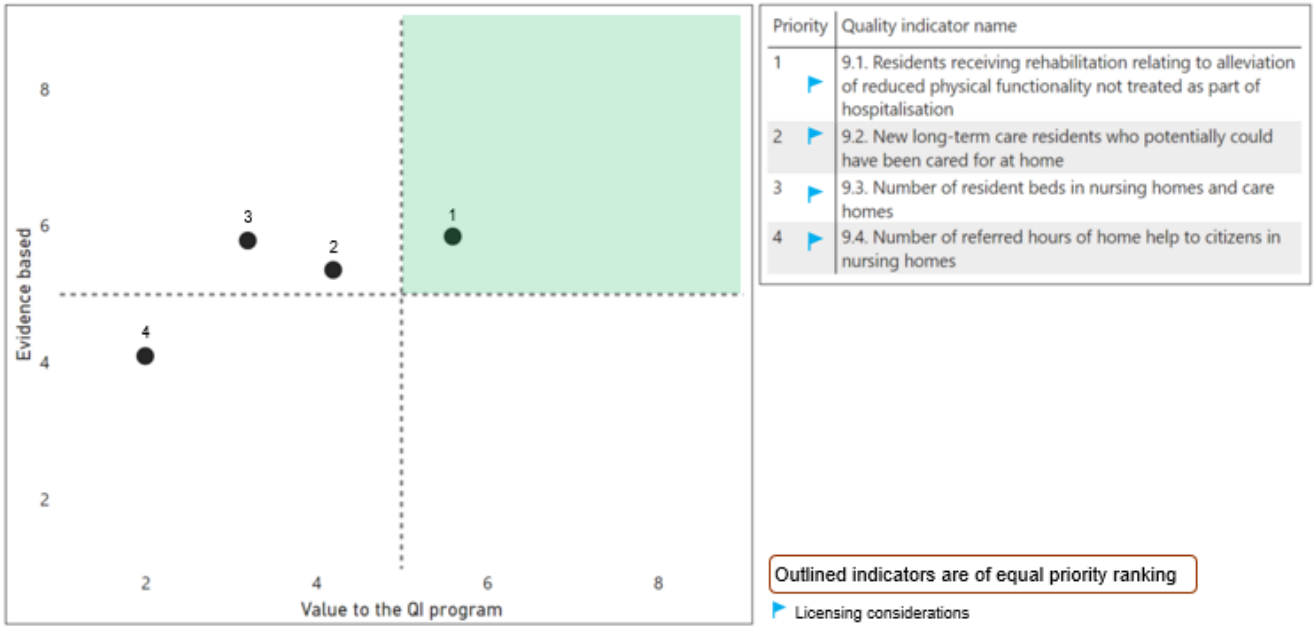
Table 11: Findings of the assessment of each quality indicator assessment against criteria

Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
9.1	Residents receiving rehabilitation relating to alleviation of reduced physical functionality not treated as part of hospitalisation	Moderate	High	Moderate	Moderate	High	Moderate
9.2	New long-term care residents who potentially could have been cared for at home	Low	High	Moderate	Moderate	Low	Moderate
9.3	Number of resident beds in nursing homes and care homes	High	Moderate	Moderate	Moderate	Low	Low
9.4	Number of referred hours of home help to citizens in nursing homes	Low	Moderate	Moderate	Moderate	Low	Low

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

High (median scores 7-9) Moderate (median scores 4-6) Low (median scores 1-3)

Figure 11: Prioritisation of quality indicators for this domain against matrix



Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- The quality indicators identified in this review relate to concepts of service delivery that have minimal application to the Australian context. Whilst the quality indicators may reflect valid and reliable measures in terms of scientific attributes, they may not be appropriate for the objectives of the QI Program to support quality improvement at the service level or to inform consumer choice.

13

Wait Times

Definition of domain

Wait times are the amount of time that individuals usually must wait between being assessed (or approved) for a service and receiving the service.

Why it is important to monitor this domain

Waiting periods for services are often used as quality indicators of system level stress, unmet needs, and access barriers[48]. Particularly within aged care, a shorter time between an aged care eligibility assessment (or application in other countries), service approvals, and entering care is preferred and long waiting times can indicate unmet needs for the community. In Australia, wait times for residential aged care services have increased, with the median time for entry into a residential service from assessment in 2019-20 being 148 days, compared to 121 days in 2017-18 [49].

Quality indicators for this domain

For this domain, five quality indicators were identified in the evidence review. The quality indicators measure a range of concepts including time taken for various types of services to be delivered. All quality indicators identified within this domain through the evidence review are process/structure measures, which require availability of assessment/applications for services and service records.

Of the five quality indicators identified, four were considered to have insufficient information to assess against the assessment criteria. Only one quality indicator was assessed against the assessment criteria with results in Table 12.

The single quality indicator was also assessed against the prioritisation matrix and was assessed as having a high quality of evidence and being of high value for application to the QI Program (see Figure 12). The performance characteristics of this indicators is outlined in Table 25 in Appendix C.

Table 12: Quality indicator assessment results

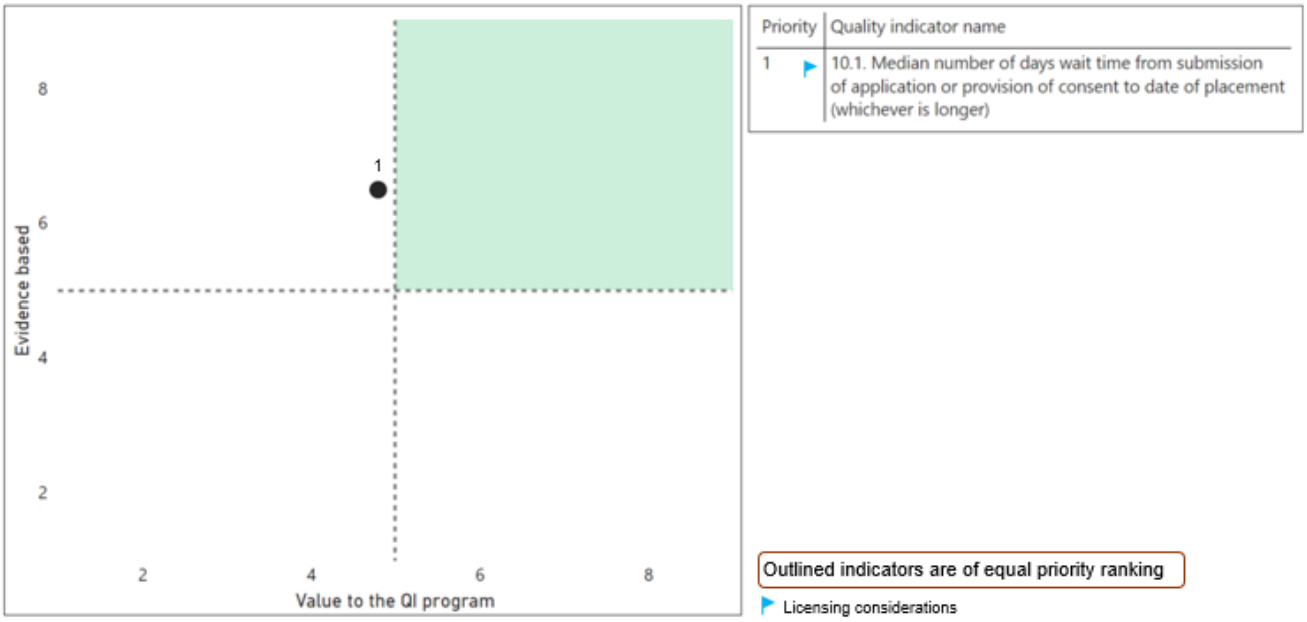
Unique ID	Quality indicator	Feasibility	Importance	Usability	Scientific acceptability	Attribution	Value to the QI Program
10.1	Median number of days wait time from submission of application or provision of consent to date of placement (whichever is longer)	●	●	●	●	●	●

Note: Feasibility, scientific acceptability, importance, and usability assessment criteria drawn from the US NQF.

● High (median scores 7-9) ● Moderate (median scores 4-6) ● Low (median scores 1-3)

[48] McIntyre & Chow, 2020.
[49] Productivity Commission, 2020.

Figure 12: Prioritisation of quality indicators for this domain against matrix



Quality indicators pilot considerations

There are several considerations for the piloting of these quality indicators:

- The quality indicators identified in this review relate to concepts that have minimal application to the Australian aged care context. Whilst the quality indicators may reflect valid and reliable measures in terms of scientific attributes, they may not be appropriate for the objectives of the QI Program to support quality improvement at the service level or to inform consumer choice. The quality indicator, whilst valuable as a useful overall 'system' measure is not one that can be directly influenced by residential aged care providers.

14

Cognition

Definition of domain

Cognitive impairment usually refers to an individual having memory and thinking problems, or difficulty in learning new things or concentrating.

Why it is important to monitor this domain

Cognitive impairment can be related to several aetiologies and is estimated to be present in 10-20 per cent of older adults. This is usually a precursor to dementia, which affects over 50 per cent of residents of aged care services and 20 per cent of home care package recipients[50]. Monitoring cognitive decline may lead to opportunities to delay and improve the cognitive declines[51]. However, there is no strong evidence to support a single intervention to prevent decline and dementia, which likely requires a multifaced approach along the life course[52].

According to the Australian Aged Care Quality Standards (Standard 3, requirement 3(d))[53], aged care providers are expected to detect and provide support to address changes and deterioration of 'mental, cognitive, or physical function, capacity or condition of the consumers'. There is controversy within the psychogeriatric field about the tools used to measure quality indicators in this domain and consensus for measures is required[54].

Domain ranking

This quality of care domain was ranked low in the list of 13 domains identified in this review. This domain ranked lower on the assessment of the ability of the aged care service to influence cognition and international agreement on the definition and measurement of quality indicators. It was assessed well on the existing of one or more evidence-based quality indicators and in relation to the importance of this domain for quality aged care.

Refer to Table 2 for ranking and assessment against domain criteria. Given the low ranking when assessed on these domains, the seven quality indicators identified that related to cognition did not progress to a full assessment against the quality indicator criteria and are not recommended for consideration in the pilot.

Quality indicators identified for this domain

Lisiting of quality indicators (in alphabetical order):

- residents whose cognitive ability improved
- residents whose cognitive ability improved (assessed on the Cognitive Performance Scale)
- residents whose cognitive ability worsened
- residents whose cognitive ability worsened (assessed on the Cognitive Performance Scale)
- residents with cognitive decline
- residents with cognitive disorders (in the last 30 days)
- residents with cognitive impairment (incidence).

The performance characteristics of these quality indicators are outlined in Table 26 in Appendix C.

[50] Langa and Levine, 2014, and Inacio et al, 2021.
[51] Petersen et al, 2018.
[52] Livingston et al, 2020.
[53] Australian Government, 2020
[54] Hirdes et al, 2019.

15

Palliative care

Definition of domain

Palliative care is care that is provided for individuals with life limiting illnesses.

Why it is important to monitor this domain

While only 1.3 per cent of people living in residential aged care services had an aged care assessment indicating their need for palliative care in the service, 15 per cent of residents die within 100 days of entering care and 46 per cent within three years[55]. Having appropriate care that is person-centre at the end of life can improve individuals' quality of life[56]. The preparation, use and maintenance of advance care directives in residential aged care, particularly for individuals with dementia, is one of the Australian National Palliative Care Strategies priorities under the goal of investment in a skilled workforce and system to deliver palliative care.

The Australian Aged Care Quality Standards have two requirements that refer to palliative care/end of life care. The first is regarding advance care planning and end of life planning assessment (Standard 2.3(b)) and the second refers to ensuring the needs and preferences of individuals are acknowledged and comfort and dignity preserved (Standard 3.3(c))[57].

Domain ranking

This quality of care domain was ranked low in the list of 13 domains identified in this review. This domain ranked lower on the assessment of the existing of one or more evidence-based quality indicators and international agreement on the definition and measurement of quality indicators in this domain. It was assessed well in relation to the importance of this domain for quality aged care and the ability of the service to influence.

Refer to Table 2 for ranking and assessment against domain criteria. Given the low ranking when assessed on these domains, the two quality indicators identified that related to palliative care did not progress to a full assessment against the quality indicator criteria and are not recommended for consideration in the pilot.

Quality indicators identified for this domain

Lisiting of quality indicators (in alphabetical order):

- residents who before death had a conversation in which they were informed about their situation
- residents who had an assessment of pain during their last week in life.

The performance characteristics of these quality indicators are outlined in Table 27 in Appendix C.

[55] Inacio et al, 2021.
[56] Australian Government, 2018.
[57] Australian Government, 2020.

16

Mortality

Definition of domain

Mortality is the number of deaths within a given population.

Why it is important to monitor this domain

Mortality rates can be used as an indicator of overall population health and quality of health care systems. The identification of deaths that are likely premature and potentially preventable for older people in aged care may provide a sensitive marker of suboptimal care. A 2018 Australian study reported the incidence of premature and potentially preventable deaths in residential aged care services has increased from 1.2/1000 admissions in 2001-02 to 5.3/1000 in 2011-12[58]. Strategies to prevent these potentially avoidable deaths together with a national policy framework and regulatory body to reduce harm in aged care has since been advocated for.

Domain ranking

This quality of care domain was ranked last in the list of 13 domains identified in this review. This domain ranked low on many criteria including the assessment of the existence of one or more evidence-based quality indicators, international agreement on the definition and measurement of the quality indicators in this domain, the importance of this domain for quality aged care and the ability of the service to influence.

Refer to Table 2 for ranking and assessment against domain criteria. Given the domains low ranking, the one quality indicator identified that related to mortality did not progress to a full assessment against the quality indicator criteria and is not recommended for consideration in the pilot.

Quality indicators identified for this domain

Lisiting of quality indicator (in alphabetical order):

13.1 residents who had a premature death.

The performance characteristics of this quality indicator is outlined in Table 28 in Appendix C.

[58] Ibrahim et al, 2018.

17

Summary and discussion

Summary and discussion

The objective of the evidence review is to identify, assess and present the evidence base for quality of care domains and quality indicators suitable for application to residential aged care. This evidence will inform the domains and quality indicators to take to consultation with stakeholders prior to the selection of quality indicators for pilot.

The evidence review identified 13 domains of quality of care and 175 quality indicators used for residential care across several countries. Each domain was assessed and ranked in terms of:

- the importance to monitor for quality
- the domain had at least one evidence-based quality indicator
- there is international agreement that the domain is important
- the residential aged care service can influence care and experiences in the domain.

As outlined previously, the evidence review and application of the analytic framework resulted in the top 10 domains, with 165 quality indicators assessed and ranked against six criteria, and then prioritised based on the assessment of the evidence base and value to the QI Program. Key considerations which may impact the quality indicators chosen to take to pilot have been identified, including:

- selecting domains and quality indicators for pilot that support the quality improvement objective of the QI Program
- selecting domains and quality indicators for pilot that support the consumer information objective of the QI Program
- use of quality indicators that are subject to copyright and licencing arrangements
- use of quality indicators that require multiple observations within a six-week pilot
- the feasibility of data collection directly from aged care services for some quality indicators
- accounting for different consumer populations and types of services in the pilot
- the preference for quality indicators that focus on improvement or decline
- the use of validated or standardised tools for measurement.

Each of these considerations for pilot is outlined in more detail below.

Domains and quality indicators for pilot that support the quality improvement objective of the QI Program

It is anticipated that over time, the QI Program will continue to evolve in similar ways to other established quality indicator programs. Many internationally established government-led reporting schemes embrace standardised measurement, longitudinal data trends, risk adjustment methods, and benchmarking infrastructure.

The overall objectives of the QI Program are to support:

- provide older people with more information about the quality of aged care services when making choices about their care
- support aged care services to measure, monitor, compare and improve the quality of their services
- provide the government with system-level measures of quality in aged care and an evidence-base to inform policy and regulation.

The pilot should include a selection of quality indicators that are able to be influenced, changed, or improved by residential aged care services, where their actions can change the outcome over time. Driving quality improvement can occur when the quality indicator is used within organisations or shared in an anonymised format among organisations.

These quality indicators can be used to monitor performance over time, with the assumption that the resident profiles are fairly stable within an organisation or can be used among collaborating organisations to promote quality improvement discussions.

A key consideration identified during this review is that not all quality indicators can be influenced directly by aged care providers, this is evident in the 'attribution' criteria assessment results for the applicable quality indicators.

To support quality improvement as a key objective of the QI Program, quality indicators to take to pilot could focus on either 'improvement' or 'decline' type measurements, however decisions would need regarding which is more useful for the quality improvement objective of the QI Program.

Domains and quality indicators for pilot that support the consumer information objective of the QI Program

The pilot should include a selection of quality indicators that are meaningful to consumers and assists their understanding of the quality of care and service provided and how this differs from other aged care services. The use of quality indicators for identifiable public reporting requires quality indicators that can detect differences in the performance of residential aged care services.

It is important for this purpose to select quality indicators to pilot which can be scored consistently within and between services, where there is likely to be a range of performance by services (eg no ceiling or floor effect or rare occurrences) and that the quality indicator can be risk adjusted to account for the variations in residents and services (potentially requiring additional data linked at the individual level). Not all quality indicators identified in this review would be meaningful for consumers to support informed decision making.

Use of quality indicators that are subject to copyright and licencing arrangements

Many of the quality indicators prioritised in this evidence review with high quality of evidence and high value for application to the QI Program, are derived from data elements (usually clinical observations) that are subject to copyright and licensing agreements.

Licenses would need be obtained to include these quality indicators in the pilot, as is the case for many quality indicators used in Canada, Finland, Iceland, New Zealand, and the USA (where interRAI systems are mandated).

Use of quality indicators that require multiple observations within a six-week pilot

Several quality indicators require multiple assessments over a longer period of time, potentially preventing appropriate assessment during the six-week project pilot period. For example, a quality indicator that measures the functional decline over three months will require two points of data collection (one at the start of month one and one at the end of month three). For indicators where repeat measures are required, in a six-week pilot study, only the base (or initial) measure can be tested for ease of completion or prevalence of the issue, but the full indicator cannot be calculated.

The feasibility of data collection directly from aged care services for some quality indicators

Quality indicators selected for pilot are likely to require similar methods for data collection as the current QI Program (eg directly from aged care providers on a quarterly basis). Several evidence-based quality indicators identified in this review use non-provider obtained data as the data source, potentially reducing data burden for residential aged care services in the pilot.

The potential data collection burden for aged care providers to participate in the quality indicator pilot needs to be considered. For some of the quality indicators outlined in this review, data does not currently exist in a format that would be easily accessible for services to report on during the pilot. To operationalise many of the prioritised quality indicators in the pilot, new data would need to be collected by residential aged care services and in some cases using new instruments or screening tools not routinely used in practice.

Data collection burden may vary depending on service characteristics (eg digital record keeping, service maturity, service size, infrastructure), data source required, number of observations or measurements needed, use of specific instruments/tools and if the data requires specific staff to collect (eg nursing staff).

Accounting for different consumer populations and types of services in the pilot

Several quality indicators identified in this review may need to be considered in light of different resident populations and different types of residential aged care services if they are to be piloted. Several international quality indicator programs have incorporated risk adjustment for resident characteristics. The need to collect information on relevant diagnoses and underlying health profiles of the service's populations should be considered to understand quality indicator performance for different services during the pilot.

The specific focus of quality indicators in a domain for the pilot

Many quality indicators identified for each domain during this review reflect slight variations in quality indicator definitions from different countries and has resulted in the inclusion of multiple quality indicators within the same domain that measure the same or very similar concepts. Some of these variations in definitions are attributable to international bodies using different versions of the same instruments. The value of measuring a specific concept needs to be considered when selecting quality indicators from the range identified in each domain to take to pilot.

The use of validated or standardised tools for measurement

Several quality indicators identified in this review require the use of validated and/or standardised scoring instruments. These may require complex measurement (eg multi-item scales), specific training requirements for data collection and licensing and copywrite arrangements. The selection of quality indicators for pilot will need to consider if there are existing validated or standardised instruments used in Australian residential aged care that could be used to collect the data for the quality indicators in the pilot, and/or if it is feasible to provide training on the use of specific instruments prior to the pilot in early 2022.

Augmenting the evidence review with advice from stakeholders

The evidence review has identified quality of care domains with quality indicators for each domain. Those with the highest evidence base and value to the QI Program have been prioritised and ranked.

As part of the overarching project to develop new quality indicators for residential aged care, the next step will be to to seek further advice through consultations with aged care stakeholders.

The objective of the consultation process is to enable all relevant parties the opportunity to provide verbal for written feedback on the potential domains and associated quality indicators identified in the evidence review. It will also provide an opportunity to gain feedback on CEQOL assessment tools identified by the Department. This feedback will help guide the potential domains and quality indicators for pilot and the further expansion of the QI Program.

Appendices

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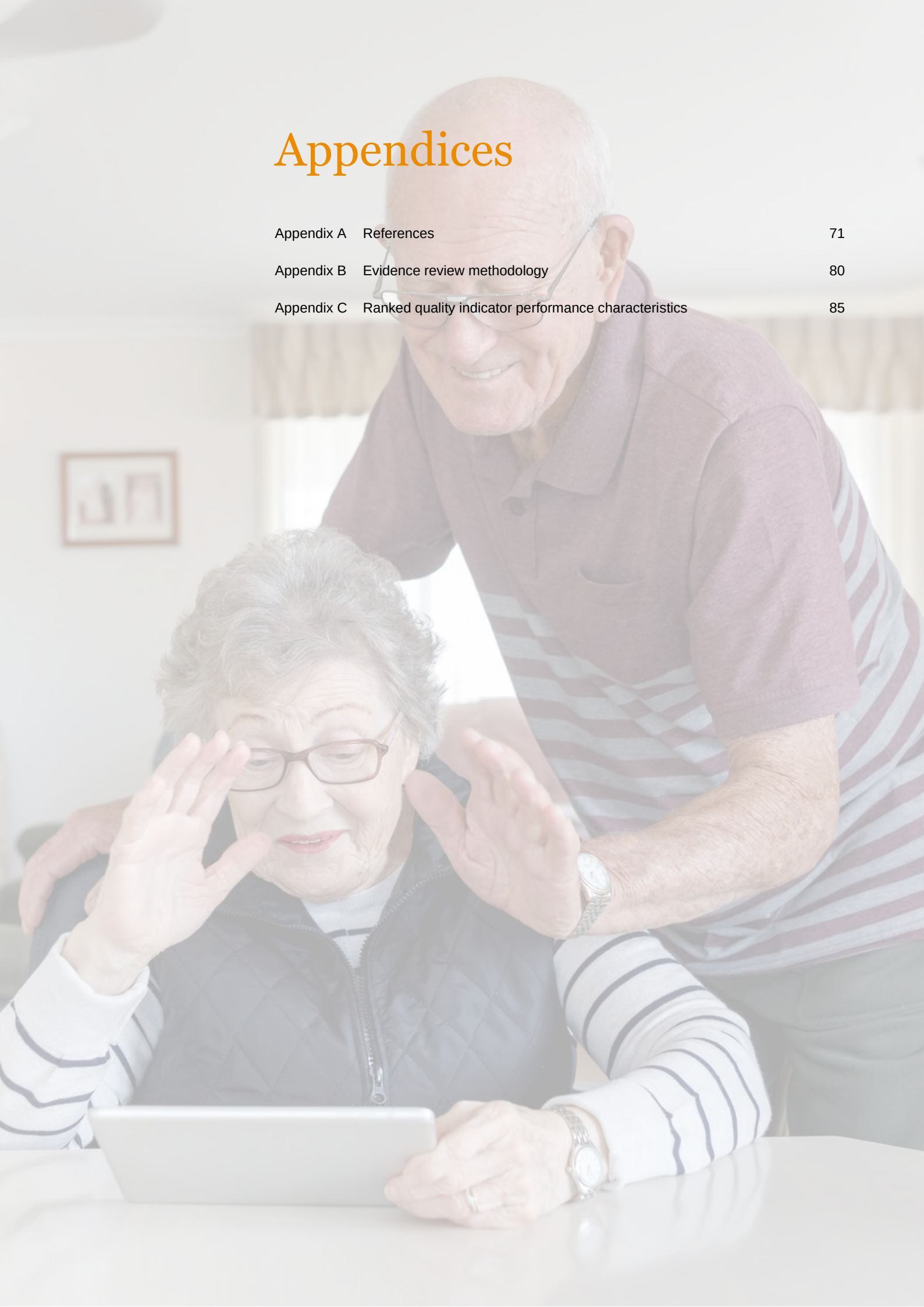

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Appendix B Evidence review methodology

Objective of the evidence review

The objective of the evidence review is to identify, assess and present the evidence base for quality of care domains and quality indicators for residential aged care services. This evidence will inform consultation with stakeholders on the domains and quality indicators to take to project pilot.

Process of evidence review

The process involved members of the PwC, UQ CHSR and ROSA consortium comprising of clinicians, measurement scientists and policy experts, to appraise and rank both domains of care and their associated quality indicators.

Note that the consortium members that were involved in the ranking process were exposed to the range of scores in aggregate form. An extensive discussion was conducted with a particular focus on areas of disagreement (eg where a member's score varied considerably from the group median score). After discussion, all members were offered the opportunity to rescore. Final scores were then collated to produce the final rankings.

The consortia members used a simplified Delphi technique to appraise the domains and quality indicators to secure consensus by undertaking the following steps:

1 **Defined and agreed analytic framework:** An analytical framework was developed for the assessment of quality of care domains and indicators for the project outlining how they would be ranked and prioritised (see next section of this appendix for details on ranking and prioritisation).

2 **Defined the literature review search parameters:** Working with the Department, a set of clear parameters for the review of evidence were developed. A range of search strategies were used to conduct a targeted review of international and national quality indicators and domains for residential aged care services including: academic literature, grey literature, international government and relevant organisation reports and websites. The literature review updated and extended previous work conducted by the Department and consortium members, including Research Paper 8 for the Royal Commission. The search parameters included:

   – academic literature: Bibliographic sources of MEDLINE (Ovid) were searched using Medical Subject Headings [MeSH] and keywords (title and/or abstract [tiab])

   – Quality Indicators, Health Care [MeSH] OR Quality Indicators, Health Care [tiab] OR quality measure [tiab] OR quality assessment [tiab] OR Healthcare quality indicator [tiab] OR Quality Indicators [tiab] OR quality indicator [tiab] OR health care quality [tiab] OR process assessment [tiab] OR treatment outcome [tiab] OR "quality of nursing care [tiab] OR care performance [tiab] OR care outcome [tiab]

   – residential aged care: (residential facilities [MeSH] OR homes for the aged [MeSH] OR long-term care [MeSH] OR nursing homes [MeSH] OR assisted living facilities [MeSH] OR skilled nursing facilities [MeSH] OR aged care facility [tiab] OR long-term care facility [tiab] OR assisted living [tiab] OR residential home [tiab

   – grey literature/website search: An internet search was conducted to search for relevant websites using the following keywords: "quality indicator, quality measure, quality in health care", AND "aged care, in-home aged care, nursing home, community aged care, community services", with the first 100 hits screened to maximise relevance.

   – country specific government websites were searched including CMS (Centres for Medicare and Medicaid Services; www.cms.gov), Health Data.gov (www.healthdata.gov), NICE (National Institute for Health and Clinical Excellence; www.nice.org.uk), European Society for Quality in Health Care (www.edqm.eu), European Directorate for the Quality Use of Medicines & Healthcare (www.esqh.net) and Canadian Institute for Health Information (www.cihi.ca). Reference lists of identified publications, reports and websites were also searched to identify relevant publications/sources of information.

3 **A scan of indicators and the domains:** An initial scan of all quality indicators was undertaken and then themed into domains. Identified domains were included in the report if they fulfilled the following criteria:

- the domain and associated quality indicators are aimed at monitoring/improving the quality of residential aged care services at the population level
- data collection for quality indicators in the domain is population-based
- quality indicators and reporting are current (last 10 years).

The initial scan formed the basis of the domain theming exercise undertaken by the consortia members. It is noted that this was an iterative thematic review from which a total of 17 quality indicators from 14 countries were identified and thematically grouped into 13 quality care domains. A full list of each domain is presented in Table 1.

4 **Extraction of data:** Key data was extracted and summarised from the identified studies, reports websites and included:

- general description of the indicators in place (country, name of indicator/system, domains,
- description of the type of indicator (eg structural, process, outcome)
- specifications of the indicator including numerator, denominator, exclusions, case-mix adjustment
- type and frequency of data collection
- framework/reporting of indicators (public reporting, facility-level reporting, rating systems)
- employment of indicators (eg measure absolute performance, comparative performance, quality improvement, inform standards, care planning, payment)
- recommended targets.

All indicators identified at this stage were logged into an Evidence Review Assessment Log.

5 **Assessment and ranking of the quality of care domains:** The range of care domains within the literature for which there are existing quality indicators were identified. Quality of care domains were ranked by the consortium against the criteria and the standardised scoring scale of 1-9 outlined in Table 13 below (with one indicating disagreement with the criteria, and nine indicating high agreement with the criteria).

Table 13: Domain ranking criteria and assessment rating scale

Review criteria	Assessment rating
The domain is important to monitor the delivery of high quality care and consumer experience	Rate on scale 1 (disagree/low) to 9 (agree/high)
There is high quality, evidence-based quality indicators for the domain	Rate on scale 1 (disagree/low) to 9 (agree/high)
There is international agreement that the domain is important	Rate on scale 1 (disagree/low) to 9 (agree/high)
Residential aged care services can influence care and consumer experience for the domain	Rate on scale 1 (disagree/low) to 9 (agree/high)

Ranking scores for each criterion were then quantified into an aggregate score for that domain providing an order of preference. Quality indicators from the top 10 ranked domains were then assessed in the next step of the review.

6 **Review and ranking of quality indicators against analytic framework criteria:** A bespoke set of criteria was developed to assess the quality indicators. The criteria were developed using the US National Quality Forum “Measure Evaluation Criteria and Guidance for Evaluating Measures of Endorsement” as a basis with modification for application in the Australian context. To develop the set of criteria, the team at ROSA reviewed eight quality indicator criteria assessments, that included a total of 10 domains. Three publications were identified which included a comparison of the assessment criteria. These criteria were developed for health-related quality indicators and are not specific to the aged care settings but have previously been used for aged care quality indicator assessment. Criteria were ranked in order

from most common to least common according to frequency by which they were included in each existing framework/reference.

Two additional criteria were included 'Value to the QI Program' and 'Attribution' as important in the context of this project. The indicators were quantitatively ranked using a standardised scale of 1-9 on the criteria in Table 13.

Table 14: Criteria to assess quality indicators

Criteria	Description of components (refined for this project and relate to residential aged care)
Importance*	• Is the concept important to measure? • Is the quality indicator evidence-based? • Does the concept apply to a significant proportion of the residents/consumers in the Australian residential aged care setting?
Scientific Acceptability *	• Is the quality indicator accurately defined? • Is data/information upon which it is based reliable? • Does the quality indicator demonstrate face validity, construct validity, and predictive validity? • Is there systematic bias and can it be addressed with an adjustment? • Does the quality indicator detect meaningful differences in performance among and within services?
Feasibility*	• Is data collection and implementation feasible? • Is data readily available? • Can data be collected and/or the quality indicator scored with minimal burden?
Usability*	• Is the quality indicator meaningful, understandable, and useful to a range of audiences?
Value to QI Program	• Can monitoring this quality indicator assist residential aged care services measure, monitor, compare and improve the quality of their service? • Can monitoring this quality indicator provide older people with information about the quality of residential aged care services when they are making choices about their care? • Can monitoring this quality indicator provide the Government with information to support the quality of care across the aged care system in Australia?
Attribution	• Is there an opportunity for improvement through the actions of the residential aged care services?

Quality indicators from at least 10 of the highest ranked domains were assessed against each of the criteria description and a rating applied. The ratings provided four categories as per Table 14. Ranking scores for each criterion were quantified into an aggregate score for each quality indicator – providing an order of preference for quality indicators in each domain.

Table 15: Rating scale for assessment of indicators

Rating	Description
High (7-9)	Based on the information reviewed, there is high confidence that the criterion is met
Moderate (4-6)	Based on the information reviewed, there is moderate confidence that the criterion is met
Low (1-3)	Based on the information reviewed, there is low confidence that the criterion is met
Insufficient (10)	There is insufficient information available to assess whether the criterion has been met. This may include absent, incomplete, irrelevant, or non-specific information)

For each assessed quality indicator, the following information (if publicly available) was documented:

- domain to which the indicator relates
- description of the quality indicator (definition)
- numerator (size of patient population the quality indicator would apply to)
- the size of the population from which the numerator was derived from (including reported exclusionary criteria)
- characteristics that would influence the inclusion of the quality indicator in the pilot
- how case mix adjustment will be applied to the quality indicator
- the data sources required to calculate the quality indicator and whether the data collection instruments are subject to licencing agreements
- how the quality indicator data would be collected and the frequency of the collection
- where the quality indicator is currently used (eg sector, country, or quality indicator system)
- recommended targets or benchmarks for the quality indicator
- additional links to further information regarding the quality indicator if applicable
- key references for the quality indicator
- the consortia's assessment of the quality indicator against the agreed analytic framework criteria.

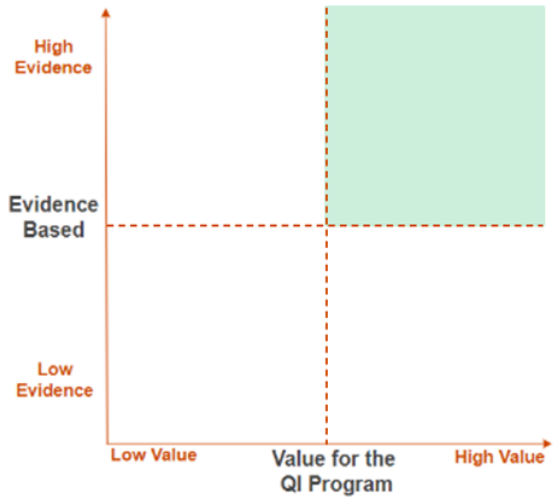
Prioritisation: Quality indicators for each domain were assessed against a prioritisation matrix. Indicators were prioritised based on their evidence and value given the objectives of the QI Program. Evidence' was a combined average of the scores for the first five criteria (feasibility, importance scientific acceptability, usability, attribution) and value to the QI Program was the average score for this criterion. Indicators were ranked based on their level of evidence and level of value to the QI Program to assist in the final selection of indicators for further consultation and pilot testing.

Quality indicators were prioritised using a matrix that situates each quality indicator against the level of evidence and the value to the QI Program:

- value for the QI Program axis refers to the rating for quality indicators against the value in applying it to the Australian QI Program
- evidence-based axis reflects the culminative assessment of the evidence-based of the quality indicators based on the assessment criteria of importance, feasibility, scientific acceptance, usability, and attribution.

The aim was to prioritise quality indicators that demonstrate high value for application to the QI Program and high rating against the assessment criteria (see Figure 13) for recommendation to the Department.

Figure 13: Prioritisation matrix for the quality indicator evidence review



No quality indicator was 'ruled out' based on the data collection burden for residential aged care services, licensing agreements, or other enablers or barriers to implementation.

Outputs of the prioritisation framework reflect the consortium's assessment of each quality indicator against the prioritisation matrix. Using this prioritisation matrix allowed the identification of the quality indicators (and their domains) that are most likely to be evidence-based and of value to an expanded QI Program into residential aged care services.

Appendix C Ranked quality indicator performance characteristics

Table 16: Function and ADLs

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.1	Residents who had improvement of function in some basic ADLs	Percent of residents who had an improvement of function in some basic daily activities	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Basic ADLs: bed mobility, transfer toilet, eating, toilet use Improvement: ≥2 ADLs have improved by 1 point, or ≥1 ADLs have improved by 2 points	Numerator: If two or more ADLs (bed mobility, transfer toilet, eating, toilet use) have improved by one point, or one or more ADLs have improved by two points Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.2	Residents who declined in their ability to locomote	Percent of residents who have declined in their ability to locomote	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings.	Locomote: How the person moves between locations (includes use of assistance devices such as walkers, wheelchair). Declined: Scored higher in locomotion dependence compared to previous assessment. Scored from 0	Numerator: If locomotion has declined Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia,

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				Assessment measures include key domains of function, mental and physical health, social support, and service use.	(independent) to 6 (total dependence).	against national average and prior quarter.		the reporting quarter.	hospital, psychogeriatric.
1.3	Residents who improved in their ability to locomote	Percent of residents who have improved in their ability to locomote	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Locomote: How the person moves between locations (includes use of assistance devices such as walkers, wheelchair). Improved: Scored lower in locomotion dependence compared to previous assessment. Scored from 0 (independent) to 6 (total dependence).	Numerator: If locomotion has improved Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.4	Residents who experienced a decline in independence of locomotion	Percent of long-stay residents who experienced a decline in independence of locomotion during the target period	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Locomotion: locomotion on unit – how a person moves between locations on same floor (walking or wheeling) Decline: An increase (higher score worse locomotion) of one or more points on the “locomotion on unit: self-performance” item between the target and prior assessment.	Numerator: Long-stay residents who have a decline in locomotion Denominator: Long-stay residents (except those with exclusions) Five Star Quality Rating System (includes 7 QIs). Publicly available online Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted	☑ MDS 3.0	☑	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						QM values for most recent three quarters CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)			
1.5	Residents who worsened or remained dependent in early-loss ADLs (published annually with quarterly data)	Percentage of residents who worsened or remained dependent in dressing, personal hygiene, and toilet use (early-loss ADLs)	 Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Early loss ADLs: dressing, personal hygiene, toilet use Worsened: If the ADLs stay as total dependent, or the sum of the ADLs worsen. Dependent: Assessed as completely dependent in both assessments	Numerator: Residents with worsened early-loss ADL compared with their previous assessment OR Residents who were completely dependent in early-loss ADLs on both target and prior assessment. Denominator: All residents (minus exclusions) Publicly reported yearly on CCRS Nationally and by Province/Territory (uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment).	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑
1.6	Residents whose need for help with late-loss ADLs has increased	Percent of long-stay residents whose need for help with late-loss ADLs has increased	 USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Late loss ADLs: The four late-loss ADL items are self-performance bed mobility, transfer, eating, and toileting. Increased: An increase in ≥2 points in one late-loss ADL item or 1 point increase in coding points in ≥2 late-loss ADL items.	Numerator: Long-stay residents that indicate the need for help with late-loss ADLs has increased when the assessments are compared. Denominator: All long-stay residents, except those with exclusions	☑ MDS 3.0	☑	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						Five Star Quality Rating System (includes 7 QIs). Publicly available online Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters CASPER Reporting Quality Measure Reports. National, state, facility and resident level (providers)			
1.7	Residents who worsened or remained dependent in early-loss ADLs (published annually with data for the past four years)	Percentage of residents who worsened or remained dependent in dressing, personal hygiene, and toilet use (early-loss ADLs)	 Canda (Alberta)	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Early-loss ADLs: dressing, personal hygiene, and toilet use Worsened: If the ADLs stay as dependent, or the sum of the ADLs worsen. Dependent: Assessed as completely dependent in both assessments	Numerator: Residents with worsened early-loss ADL self-performance compared with previous assessment OR Residents who were completely dependent in early-loss ADLs on both target and prior assessment. Denominator: All residents (minus exclusions) Publicly reported yearly by province, displaying previous 4 years and national rate.	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑
1.8	Residents who worsened or remained dependent in mid-loss ADLs	Percentage of residents who worsened or remained dependent in transferring and locomotion	 Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Mid-loss ADLs: transfer and locomotion (transfer self-performance, walk in corridor self-performance, locomotion on unit self-performance)	Numerator: Residents with worsened mid-loss ADL self-performance compared with their previous assessment OR Residents who were completely dependent in mid-	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
		(mid-loss ADLs) since the prior assessment			Worsened: Increased score on mid-loss ADLs (higher score, more dependence) compared to previous assessment Independent: score of mid-loss ADLs is dependent on both assessments	loss ADLs on both target and prior assessment. Denominator: All residents (minus exclusions) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.		prior assessment	
1.9	Residents who improved or remained independent in mid-loss ADLs	Percentage of residents who improved or remained independent in transferring and locomotion (mid-loss ADLs)	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Mid-loss ADLs: transfer and locomotion (transfer self-performance, walk in corridor self-performance, locomotion on unit self-performance) Improved: Decreased score on mid-loss ADLs (lower score, less dependence) compared to previous assessment Independent: score of mid-loss ADLs is 0 (independent) on both assessments	Numerator: Residents with improved mid-loss ADL self-performance on their target assessment compared with their previous assessment OR Residents who were independent in mid-loss ADLs on both target and previous assessment Denominator: All residents (minus exclusions) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.10	Residents who have declined in ADLs	Percent of residents who have declined in ADLs	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	ADL long form: bathing, bathing transfer, personal hygiene, dressing upper body, dressing lower body, walking, locomotion, transfer toilet, toilet use, bed mobility, eating. Declined: Higher ADL long form score compared to previous assessment. Scored from 0-28 with higher scores indicating more impairment of self-sufficiency in ADL performance.	Numerator: ADL long form has worsened Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ Inter-RAI-LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.11	Residents who declined in mid-loss ADL functioning or remain completely dependent in mid-loss ADLs	Percent of residents who declined status on mid-loss ADL functioning or remain completely dependent in mid-loss ADLs	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Mid loss ADL functioning: toilet transfer, walking, locomotion (includes use of assistance devices) Declined: If the three ADLs (transfer toilet, walking, locomotion) stay as total dependent, or the sum of the three ADLs worsened. Scored from 0 (independent) to 6 (total dependence). Total dependence: full performance by others during all episodes.	Numerator: If the three ADLs (transfer toilet, walking, locomotion) stay as total dependent, or the sum of the three ADLs worsened Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.12	Residents who improve in mid-loss ADL functioning or remain completely independent in mid-loss ADLs	Percent of residents who improve status on mid-loss ADL functioning or remain completely independent in mid-loss ADLs	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Mid-loss ADL functioning: toilet transfer, walking, locomotion (includes use of assistance devices) Improve: If the three ADLs (transfer toilet, walking, locomotion) stay as either 0 or 1, or the sum of the three ADLs improve Scored from 0 (independent) to 6 (total dependence). Completely independent: no physical assistance, setup, or supervision in any episode.	Numerator: If the three ADLs (transfer toilet, walking, locomotion) stay as either 0 or 1, or the sum of the three ADLs improve Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.13	Residents who improved or remained independent in early-loss ADLs (data published annually)	Percentage of residents who improved or remained independent in dressing, personal hygiene, and toilet use (early-loss ADLs)	Canda	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Early-loss ADLs: dressing, personal hygiene, and toilet use Improved: If the ADLs stay as independent, or the sum of the ADLs improve. Independent: Assessed as completely independent in both assessments	Numerator: Residents with improved early-loss activities of daily living (ADL) self-performance compared with their previous assessment OR Residents who were independent in early-loss ADLs on both target and previous assessment Denominator: All residents (minus exclusions) Publicly reported yearly on CCRS Nationally and by Province/Territory (uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment).	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.14	Residents who had unexpected loss of function in some basic ADLs	Percent of residents who had an unexpected loss of function in some basic daily activities	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Basic ADLs: bed mobility, transfer toilet, eating, toilet use) Unexpected loss: ≥2 ADLs have worsened by 1 point, or ≥1 ADLs have worsened by 2 points	Numerator: If two or more ADLs (bed mobility, transfer toilet, eating, toilet use) have worsened by one point, or one or more ADLs have worsened by two points Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.15	Residents who improve in early-loss ADL functioning or remain completely independent in early-loss ADLs	Percent of residents who improve status on early-loss ADL functioning (dressing and personal hygiene) or remain completely independent in early-loss ADLs	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Early-loss ADLs: dressing upper body, dressing lower body, personal hygiene (incl toilet use) Improve: If the three ADLs (dressing upper body, dressing lower body, personal hygiene) stay as either 0 or 1, or the sum of the three ADLs improve. Scored from 0 (independent) to 6 (total dependence). Completely independent: no physical assistance, setup, or supervision in any episode.	Numerator: If the three ADLs (dressing upper body, dressing lower body, personal hygiene) stay as either 0 or 1, or the sum of the three ADLs improve Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.16	Residents who declined in early-loss ADL functioning or remain completely dependent in early-loss ADLs	Percent of residents who declined status on early-loss ADL functioning (dressing and personal hygiene) or remain completely dependent in early-loss ADLs	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Early-loss ADLs: dressing upper body, dressing lower body, personal hygiene (incl toilet) Declined: If the three ADLs (dressing upper body, dressing lower body, personal hygiene) stay as total dependent, or the sum of the three ADLs worsen. Total dependence: full performance by others during all episodes.	Numerator: If the three ADLs (dressing upper body, dressing lower body, personal hygiene) stay as total dependent, or the sum of the three ADLs worsen Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI-LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
1.17	Residents who improved or remained independent in early-loss ADLs (data published annually with previous four years)	Percentage of residents who improved or remained independent in dressing, personal hygiene, and toilet use (early-loss ADLs) since the previous assessment	Canada (Alberta)	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Early-loss ADLs: dressing, personal hygiene, and toilet use Improved: Decreased score on early-loss ADLs (lower score, less dependence) compared to previous assessment Independent: score of early-loss ADLs is 0 (independent) on both assessments	Numerator: Residents with improved early-loss activities of daily living (ADL) self-performance on their target assessment compared with their previous assessment OR Residents who were independent in early-loss ADLs on both target and previous assessment Denominator: All residents (minus exclusions) Publicly reported yearly by province, displaying previous 4 years and national rate.	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.18	Residents who decline in late-loss ADLs (incidence)	Incidence of decline in late loss ADLs	Finland	RAI-MDS 2.0 Data collected every 6 months Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with a decline in late loss ADLs (bed mobility, eating, transfers, and toilet use) Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☑	☑
1.19	Residents who decline in range of motion (incidence)	Incidence of decline in range of motion	Finland	RAI-MDS 2.0 Data collected every 6 months Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with decline in range of motion Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☑	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.20	Residents with lack of nursing rehabilitation in late-loss ADLs	Prevalence of residents with lack of nursing rehabilitation in late-loss ADLs.	Finland	RAI-MDS 2.0 Data collected every 6 months Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with lack of nursing rehabilitation in late-loss ADLs. Denominator: All long term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☒	☑
1.21	Residents with little or no activity (data collected 6-monthly)	Prevalence of little or no activity	Finland	RAI-MDS 2.0 Data collected every 6 months Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with little or no activity Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☒	☑ Individual and facility characteristics

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.22	Residents who are bedfast (in a 6 month period)	Prevalence of bedfast residents.	Finland	RAI-MDS 2.0. Data collected every 6 months (for the most recent 90 days). The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents that are bedfast Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0	☒	☑
1.23	Residents who are bedfast (in a 4 month period)	Prevalence of bedfast residents	Iceland	RAI-MDS 2.0. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents who are bedfast Denominator: All residents Reporting is unknown. Data are stored in a central MDS database by the Icelandic Ministry of Welfare.	☑ RAI-MDS.	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
1.24	Residents with little or no activity (data collected quarterly)	Prevalence of little or no activity	Iceland	RAI-MDS 2.0. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with little or no activity Denominator: All residents Reporting is unknown. Data are stored in a central MDS database by the Icelandic Ministry of Welfare	☑ RAI-MDS	☒	☒

Table 17: Medication

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
2.1	Residents potentially experiencing a high sedative load	Proportion of long-term residents potentially experiencing a high sedative load (SL≥3)	Australia	Claims based data. (PBS medication data). Assessed in 91-day period in 12 months reporting period	High sedative load (score ≥3): calculated by summing the sedative rating of all medications a person receives. Specifically, the medications: primary sedatives (eg conventional antipsychotics, antidepressants, anxiolytic, hypnotics, and sedatives) which derive a score of 2 and medications with sedation as a prominent side-effect (eg atypical antipsychotics, antiemetics, opioids) which derive a score of 1. Calculated by from sedative load medications dispensed within a period of 91 days. For more detail re individual medications see DOI: 10.1093/intqhc/mzaa078.	Numerator: Number of long-term residents who had at least one potential period of high sedative load (SL≥3) medication use Denominator: Number of long-term residents To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only)	☑ Approval from DoH PBS would be needed	☒	☑
2.2	Residents who received an antianxiety or hypnotic medication (data collected quarterly)	Prevalence of antianxiety or hypnotic medication use	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Antianxiety medication: medications that eliminate or reduce anxiety (WHO ATC code N05B) Hypnotic medication: medications that inhibit the receiving of sensory impressions in the cortical centres of the brain, thus causing partial or complete unconsciousness. Includes sedatives (WHO ATC codes N05C)	Numerator: Long-stay residents who received: 1. Antianxiety medications or 2. Hypnotic medications Denominator: Long-stay residents, except those with exclusions CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)	☑ MDS 3.0	☒	☒

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
2.3	Residents who received an antianxiety or hypnotic medication but do not have evidence of psychotic or related conditions	Percentage of long-stay residents who are receiving antianxiety medications or hypnotics but do not have evidence of psychotic or related conditions	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Antianxiety medication: medications that eliminate or reduce anxiety (WHO ATC code N05B) Hypnotic medication: medications that inhibit the receiving of sensory impressions in the cortical centres of the brain, thus causing partial or complete unconsciousness. Includes sedatives (WHO ATC codes N05C) Psychotic or related conditions include schizophrenia, psychotic disorder, manic depression (bipolar disease), Tourette's syndrome, Huntington's disease, hallucinations, delusions, anxiety disorder, post-traumatic stress disorder.	Numerator: Long-stay residents who received: 1. Antianxiety medications or 2. Hypnotic medications, who do not have psychotic or related conditions. Denominator: Long-stay residents, except those with exclusions CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)	☑ MDS 3.0	☒	☒
2.4	Residents who received an antianxiety or hypnotic medication (data collected six-monthly)	Prevalence of anti-anxiety or hypnotic drug use	Iceland	RAI-MDS 2.0. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths,	Antianxiety medication: WHO ATC code N05B Hypnotic medication: WHO ATC codes N05C	Numerator: Residents using an anti-anxiety or hypnotic drug Denominator: All residents Reporting is unclear	☑ RAI-MDS	☒	☒

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				needs and potential risks to inform individualised care planning and monitoring					
2.5	Residents who received an antianxiety or hypnotic medication (in the last 7 days)	Prevalence of antianxiety/ hypnotic medication use	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Antianxiety medication: WHO ATC code N05B Hypnotic medication: WHO ATC codes N05C	Numerator: Residents using an antianxiety/hypnotic medication use in the previous seven days Denominator: All long-term residents Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☒	☑
2.6	Residents who received hypnotic medications three or more times (in the last 7 days)	Prevalence of hypnotic medication use three or more times/ week	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period.	Hypnotic medication: WHO ATC codes N05C (received a hypnotic medication ≥3 times in past week)	Numerator: Residents using a hypnotic medication three or more times/week Denominator: All long-term residents	☑ RAI-MDS 2.0.	☒	☑

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.		National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average			
2.7	Residents who received two or more hypnotic medications (in the last 7 days)	Prevalence of 2 or more hypnotic drugs in past week	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Hypnotic medication: WHO ATC codes N05C (two or more unique medications within N05C class)	Numerator: Residents using two or more hypnotic drugs in past week Denominator: All residents Reporting is unknown	☑ RAI-MDS.	☒	☒

Table 18: Continence

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
3.1	Residents with worsened bladder continence	Percentage of residents with worsened bladder continence	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facilities (LTCF) Data collected every 90 days	Bladder continence: control over involuntary spillage of urine (nb. bladder incontinence includes any level of dribbling or wetting of urine) Worsening: frequency of bladder incontinence increased (increase in score from previous assessment). Scored on a scale of 0 (continent; stays dry with or without urinary management device) to 4 (incontinent: no control of bladder, multiple daily episodes all or almost all of the time)	Numerator: Residents whose bladder incontinence worsened (frequency of bladder incontinence increased) compared with prior assessment Denominator: All residents (minus exclusions) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
3.2	Residents with worsening bladder continence	Percent of residents with worsening bladder continence	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Bladder continence: control over involuntary spillage of urine (nb. bladder incontinence includes any level of dribbling or wetting of urine) Worsening: Increase in score from previous assessment. Scored on a scale of 0 (continent; stays dry with or without urinary management device) to 4 (incontinent: no control of bladder, multiple daily episodes all or almost all of the time)	Numerator: Worsening bladder continence Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
3.3	Residents with bladder or bowel incontinence (data collected quarterly)	Prevalence of bowel/bladder incontinence	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents who have been incontinent of bowel or bladder Denominator: All long-term residents. National Institute of Health and Welfare provides reports at the facility level and benchmarking to	☑ RAI-MDS 2.0	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				risks to inform individualised care planning and monitoring.		comparable facilities and the national average			
3.4	Residents with bladder or bowel incontinence (data collected 6 monthly)	Prevalence of bladder or bowel incontinence	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with bladder or bowel incontinence Denominator: All residents Reporting of QIs unclear	☑ RAI-MDS.	☒	☑
3.5	Residents with improving bladder continence	Percent of residents with improving bladder continence	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Bladder continence: control over involuntary spillage of urine (bladder incontinence includes any level of dribbling or wetting of urine) Improving: Decrease in score from previous assessment. Scored on a scale of 0 (continent; stays dry with or without urinary management device) to 4 (incontinent: no control of bladder, multiple daily episodes all or almost all of the time)	Numerator: Improving bladder continence Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						average and prior quarter.			
3.6	Residents who frequently lose control of their bowel or bladder	Percent of long-stay residents who frequently lose control of their bowel or bladder	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Frequently or always incontinent of either bowel or bladder	Numerator: Long-stay residents that are frequently or always incontinence of the bladder Denominator: All long-stay residents, except those with exclusions Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)	☑ MDS 3.0	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
3.7	Residents with frequent bladder or bowel incontinence without a toileting plan	Prevalence of frequent bladder or bowel incontinence without a toileting plan	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with frequent bladder or bowel incontinence without a toileting plan Denominator: All residents Reporting of QIs unclear	☑ RAI-MDS	☒	☒
3.8	Residents with occasional or frequent bladder or bowel incontinence without a toileting plan	Prevalence of occasional or frequent bowel/bladder incontinence without toileting plan	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with occasional or frequent bowel/bladder incontinence without toileting plan. Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0.	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
3.9	Residents with worsening bowel continence	Percent of residents with worsening bowel continence	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Bowel continence: control of bowel function (including any leakage of stool or faecal material) Worsening: Increase in score from previous assessment. Scored on a scale of 0 (continent; stays continent with or without the use of an ostomy device) to 4 (incontinent: no control present)	Numerator: Worsening bowel continence Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
3.10	Residents with improving bowel continence	Percent of residents with improving bowel continence	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Bowel continence: control of bowel function (including any leakage of stool or faecal material) Improving: Decrease in score from previous assessment. Scored on a scale of 0 (continent; stays continent with or without the use of an ostomy device) to 4 (incontinent: no control present)	Numerator: Improving bowel continence Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						benchmark themselves against national average and prior quarter.			
3.11	Residents with in-dwelling catheters (data published quarterly)	Percent of residents with an indwelling catheter	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Indwelling catheter: catheter maintained within the bladder for continuous drainage of urine.	Numerator: Residents with a urinary collection device-indwelling catheter Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
3.12	Residents with in-dwelling catheters	Prevalence of indwelling catheters	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings.	Definitions not publicly available but likely similar to those reported using interRAI assessment. Indwelling catheter: catheter maintained within	Numerator: Residents with an indwelling catheter Denominator: All residents Reporting of QIs unclear Data is stored in a central	☑ RAI-MDS	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	the bladder for continuous drainage of urine.	MDS database by the Icelandic Ministry of Welfare			
3.13	Residents with in-dwelling catheters (data published 6-monthly)	Prevalence of in-dwelling catheters	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Definitions not publicly available but likely similar to those reported using interRAI assessment. Indwelling catheter: catheter maintained within the bladder for continuous drainage of urine.	Numerator: Residents who have an in-dwelling catheter in the past seven days Denominator: All long-term residents \National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average	☑ RAI-MDS 2.0	☒	☑
3.14	Residents with in-dwelling catheters (in the past 7 days)	Percentage of residents who have had an indwelling catheter in the last 7 days	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days.	Indwelling catheter: catheter maintained within the bladder for continuous drainage of urine.	Numerator: Long-stay residents an indwelling catheters Denominator: All long-stay residents, except those with exclusions Five Star Quality Rating System (includes 7 QIs).	☑	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						Publicly available online Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)			
3.15	Residents with in-dwelling catheters (in the past 3 days)	Percentage of residents with an indwelling catheter	 Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Indwelling catheter: catheter maintained within the bladder for continuous drainage of urine.	Numerator: Number of residents who had an indwelling catheter in the past 3 days Denominator: All residents Publicly reported yearly on CCRS Nationally and by province/territory (uses 4 rolling quarters of data	☑ Inter-RAI LTCF	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						for calculations to have a sufficient number of assessments for risk adjustment).			
3.16	Residents with faecal impaction (data collected 6-monthly)	Prevalence of faecal impaction	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents who have experienced faecal impaction. Denominator: All long term residents. National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS 2.0.	☒	☑
3.17	Residents with faecal impaction (data published quarterly)	Prevalence of faecal impaction	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with faecal impaction Denominator: All residents Data is stored in a central MDS database by the Icelandic Ministry of Welfare	☑ RAI-MDS	☒	☒

Table 19: Infection Control

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
4.1	Staff who received the most recent influenza vaccine	Staff uptake of annual influenza vaccination	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre	Definitions not publicly available.	Numerator: Number of staff who have received annual influenza vaccination Denominator: All residents Publicly reported at national level and facilities provided with own results and comparison to National averages.	Unknown	☑ Quarterly data	☒
4.2	Residents who received the most recent influenza vaccine (data collected annually)	Percent of long-stay residents who received the influenza vaccination during the most recent influenza season	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected once per 12-month influenza season (July 1 to June 30)	Definitions not publicly available.	Numerator: Residents who received the influenza vaccine during the most recent influenza season Denominator: All long-stay residents with a selected influenza vaccination assessment, except those with exclusions Not publicly available, provider preview only	☑ MDS 3.0	☒	☒
4.3	Residents who received the most recent influenza vaccine (data collected quarterly)	Resident uptake of annual influenza vaccination	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre	Definitions not publicly available.	Numerator: Residents who have received annual influenza vaccination Denominator: All residents. Publicly reported at national level and facilities provided with own results and comparison to National averages	Unknown	☒	☒
4.4	Residents who were assessed and/or appropriately	Percent of long-stay residents who are assessed and/or	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident	Assessed and appropriately given: residents meeting any of the following criteria:	Numerator: residents meeting any of the following criteria:	☑ MDS 3.0	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
	given the most recent influenza vaccine	appropriately given the influenza vaccination during the most recent influenza season		Assessment Instrument (RAI) Data collected once per 12-month influenza season (July 1 – June 30)	1.Received influenza vaccine during most recent influenza season, 2. Resident offered and declined the influenza vaccine; or 3. Resident ineligible due to medical contraindication (eg anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks)	1.Received influenza vaccine during most recent influenza season, 2. Resident offered and declined the influenza vaccine; or 3. Resident ineligible due to medical contraindication Denominator: All long-stay residents, except those with exclusions Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes.			
4.5	Residents dispensed at least one antibiotic for systemic use	Proportion of long-term residents dispensed an antibiotic	Australia	Claims based data. (PBS medication data)	Antibiotics for systemic use (See doi: 10.1093/intqhc/mzaa078)	Numerator: Number of long-term residents dispensed at least one antibiotic for systemic use Denominator: Number of long-term residents	☑	☒	☑
4.6	Residents prescribed at least one antimicrobial (on the collection day)	Proportion of residents present on the survey day who were prescribed at least one antimicrobial	Australia (Victoria)	Annually. Aged Care National Antimicrobial Prescribing Survey (ACNAPS)*: Official data collection and submission period for the 2019 AC NAPS was 1 June to 31 August 2019	Antimicrobial prescriptions included all antibiotics, antiviral, antifungal and anti-parasitic agents in all formulations. Hexamine hippurate, an antibacterial antiseptic, was included due to its common use for urinary tract infection prophylaxis. For	Numerator: residents who were prescribed an antimicrobial on the survey day; Residents who were prescribed an antimicrobial on survey day AND within previous month. Denominator: All residents (who completed survey). Publicly reported at national level and facilities provided	Unknown	☑ 1. Single-day point prevalence 2. Single-day point prevalence AND one month prior	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
					prescriptions for prn administration, data were also collected on whether the antimicrobial had been administered on the survey day or in the six days prior.	with own results and comparison to National averages			
4.7	Residents who have received the pneumococcal vaccination	Resident uptake of pneumococcal vaccination	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre	Definitions not publicly available.	Numerator: Number of residents who have had pneumococcal vaccination Denominator: All residents Quarterly data uploaded to online site at VICNISS Coordinating Centre. Publicly reported at national level and facilities provided with own results and comparison to National averages	Unknown	☒	☒
4.8	Residents who received the pneumococcal vaccination (in the last 12 months)	Percent of long-stay residents who received the pneumococcal vaccine during the 12-month reporting period	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Calculated once per 12 month reporting period.	Definitions not publicly available.	Numerator: Residents whose Pneumococcal vaccine status is up to date Denominator: All long-stay residents with a selected target assessment Not publicly available, provider preview only.	☑ MDS 3.0	☒	☒
4.9	Residents whose pneumococcal vaccine status is up to date	Percent of long-stay residents whose pneumococcal vaccine status is up to date	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI)	Assessed and appropriately given: 1. Up-to-date pneumococcal vaccine status; or 2. Were offered and declined; or 3. Were ineligible due to	Numerator: resident's meeting any of the following criteria: 1. Up-to-date pneumococcal vaccine status; or 2. Were offered and declined; or	☑ MDS 3.0	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				Calculated once per 12 month reporting period.	medical contraindication(s) (eg anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks)	3. Were ineligible due to medical contraindication. Denominator: All long-stay residents with a selected target assessment Five Star Quality Rating System (includes 7 QIs). Publicly available online Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)			
4.10	Residents who had signs and/or symptoms of at least one suspected infection (on the collection day)	Proportion of residents present on the survey day who had signs and/or symptoms of at least one suspected infection	Australia (Victoria)	Annually. Aged Care National Antimicrobial Prescribing Survey (ACNAPS)*: Official data collection and submission period for the 2019 AC NAPS was 1 June to 31 August 2019	Symptoms of infection: An electronic decision algorithm was applied to each suspected infection to determine whether the McGeer et al infection surveillance definitions were met. (Definitions of Infection for Surveillance in long-term care facilities, Am J Infect Control 19(1):1-7, 1991)	Numerator: Residents with at least one sign or symptom of infection on the survey day and if present, other signs and/or symptoms in the two days prior to the survey day Denominator: All residents (who have completed survey) Publicly reported at national level and facilities provided with own results and comparison to National averages	Unknown	☒	☒
4.11	Residents who receive the herpes zoster vaccination	Resident uptake of herpes zoster vaccination	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre	Definitions not publicly available.	Numerator: Residents who have received herpes zoster vaccination Denominator: All residents	Unknown	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						Publicly reported at national level and facilities provided with own results and comparison to National averages			
4.12	Residents who have had one or more infections	Number of residents who have had one or more infections	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Definitions not publicly available.	Numerator: Number of residents who have had at least one infection in the target assessment period Denominator: All residents Publicly reported yearly on CCRS Nationally and by province/territory (uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment).	☑ RAI-MDS 2.0 or interRAI LTCF	☒	☑
4.13	Residents who are offered and decline the most recent influenza vaccination	Percent of long-stay residents who were offered and declined the influenza vaccination during the most recent influenza season	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected once per 12-month influenza season (July 1 – June 30)	Definitions not publicly available.	Numerator: residents offered and declined the influenza vaccine during the most recent influenza season Denominator: All long-stay residents with a selected influenza vaccination assessment, except those with exclusions Not publicly available, provider preview only.	☑ MDS 3.0	☒	☒
4.14	Residents who have had a Methicillin-resistant Staphylococcus	Residents who have had a Methicillin-resistant Staphylococcus aureus infection.	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre.	Definitions not publicly available.	Numerator: Residents who have had a Methicillin-resistant Staphylococcus aureus infection. Denominator: All residents.	Unknown	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
	aureus infection					Publicly reported at national level and facilities provided with own results and comparison to National averages.			
4.15	Residents who have had a Clostridium difficile infection	Residents who have had a Clostridium difficile infection.	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre	Definitions not publicly available.	Numerator: Residents who have had a Clostridium difficile infection. Denominator: All residents Publicly reported at national level and facilities provided with own results and comparison to National averages.	Unknown	☒	☒
4.16	Residents who have had a Vancomycin-resistant Enterococcus infection	Residents who have had a Vancomycin-resistant Enterococcus infection.	Australia (Victoria)	Quarterly data uploaded to online site at VICNISS Coordinating Centre.	Definitions not publicly available.	Numerator: Residents who have had a Vancomycin-resistant Enterococcus infection Denominator: All residents Publicly reported at national level and facilities provided with own results and comparison to National averages.	Unknown	☒	☒
4.17	Residents who are offered and decline the pneumococcal vaccine	Percent of long-stay residents who were offered and declined the pneumococcal vaccine during the 12-month reporting period	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Calculated once per 12 month reporting period.	Definitions not publicly available.	Numerator: Residents who were offered and declined the vaccine Denominator: All long-stay residents with a selected target assessment Not publicly available, provider preview only.	☑ MDS 3.0	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
4.18	Residents who did not receive the pneumococcal vaccine due to medical contraindication	Percent of long-stay residents who did not receive, due to medical contraindication, the pneumococcal vaccine during the 12-month reporting period	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Calculated once per 12 month reporting period.	Medical contraindication: eg anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks.	Numerator: Residents who were: 1. Were ineligible due to medical contraindication(s) Denominator: All long-stay residents with a selected target assessment Not publicly available, provider preview only.	☑ MDS 3.0	☒	☒
4.19	Residents who did not receive the influenza vaccine due to medical contraindication	Percent of long-stay residents who did not receive, due to medical contraindication, the influenza vaccination during the most recent influenza season.	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected once per 12-month influenza season (July 1 – June 30)	Medical contraindication: eg anaphylactic hypersensitivity to eggs or other components of the vaccine, history of Guillain-Barré Syndrome within 6 weeks after a previous influenza vaccination, bone marrow transplant within the past 6 months	Numerator: Residents who were ineligible for the influenza vaccine during the most recent influenza season due to medical contraindication(s) Denominator: All long-stay residents with a selected influenza vaccination assessment, except those with exclusions Not publicly available, provider preview only.	☑ MDS 3.0	☒	☒
4.20	Residents who have had one or more urinary tract infections	Prevalence of urinary tract infections	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to	Urinary tract infection: infection of kidneys, ureters, bladder, or urethra.	Numerator: Residents who have had one or more urinary tract infections. Denominator: All residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS 2.0	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.					
4.21	Residents with a urinary tract infection	Percent of residents with a urinary tract infection	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Urinary tract infection: Primary diagnosis/ diagnoses for current stay or diagnosis present, receiving active treatment or diagnosis present, monitored but no active treatment	Numerator: Disease diagnosis of urinary tract infection Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ Inter-RAI-LTCF	☒	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric
4.22	Residents who have had a urinary tract infection (in the last 30 days) (data collected quarterly)	Percentage of long stay residents who have a urinary tract infection.	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days	Urinary tract infection: infection of kidneys, ureters, bladder, or urethra in past 30 days.	Numerator: Long-stay residents with a selected target assessment that indicates urinary tract infection within the last 30 days Denominator: All long-stay residents with a selected target assessment, except those with exclusions	☑ MDS 3.0	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters. 90 days. Five Star Quality Rating System (includes 7 QIs). Publicly available online.			
4.23	Residents who have had a urinary tract infection (in the last 30 days)	Prevalence of urinary tract infections.	 Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with faecal impaction Denominator: All residents Reporting of QIs unclear Data is stored in a central MDS database by the Icelandic Ministry of Welfare	☑ RAI-MDS 2.0	☒	☑

Table 20: Depression

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
5.1	Long term care residents whose symptoms of depression worsened (data published quarterly)	Percentage of residents whose mood from symptoms of depression have worsened.	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF). Data collected every 90 days	Depression is assessed based on RAI MDS 2.0 depression rating scale (DRS). DRS is calculated using seven different indicators of depression, anxiety and sad mood that may have been present in the last 30 days: 1 Negative statements 2 Persistent anger 3 Expression of unrealistic fears 4 Repetitive health complaints 5 Repetitive anxious complaints 6 Sad, pained, worried facial expression 7 Crying, tearfulness	Numerator: Residents with a higher Depression Rating Scale (DRS) score (worse depression) compared with prior assessment. Denominator: Number of LTC home residents whose depression symptoms could worsen (eg excludes residents who had a maximum DRS score on their previous assessment) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI-MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑
5.2	Long term care residents whose symptoms of depression worsened (rolling four quarter average)	Percentage of long-term care home residents whose mood from symptoms of depression worsened.	Canada (Ontario)	RAI-MDS 2.0. Collected 6 monthly with assessments for the most recent 90-day period prior The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables	Symptoms of depression: assessed using MDS Depression Rating Scale (DRS). Seven DRS items • Negative statements • Persistent anger • Expression of unrealistic fears • Repetitive health complaints	Numerator: Number of LTC home residents in a fiscal quarter with a higher DRS score compared to previous assessment. Denominator: Number of LTC home residents whose depression symptoms could worsen (eg excludes residents who had a maximum DRS score on their previous assessment)	☑ RAI-MDS	☑	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	• Repetitive anxious complaints • Sad, pained, worried facial expression • Crying, Tearfulness Worsened: higher DRS score compared to prior assessment	Public reporting 12 monthly by Facility, City, local health integration network (LHIN) Region.			
5.3	Residents whose symptoms of depression worsened	Percentage of residents whose mood from symptoms of depression have worsened since the prior assessment.	Canada (Alberta)	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Depression is assessed based on RAI MDS 2.0 depression rating scale (DRS). DRS calculated using seven different indicators of depression, anxiety and sad mood that may have been present in the last 30 days: 1 Negative statements 2 Persistent anger 3 Expression of unrealistic fears 4 Repetitive health complaints 5 Repetitive anxious complaints 6 Sad, pained, worried facial expression Crying, tearfulness	Numerator: Residents with a higher Depression Rating Scale (DRS) score (worse depression) compared with prior assessment. Denominator: All residents (minus exclusions). Reported publicly 12- monthly by province, displaying previous four years and national rate.	☑ RAI-MDS	☑	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
5.4	Residents who have had symptoms of depression (in the last two weeks)	Percentage of long-stay residents who have had symptoms of depression during the 2-week period preceding the assessment date.	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days	Depressive symptoms (from Resident Mood Interview): 1. Little interest or pleasure in doing things half or more of the days over the last two weeks or 2. Feeling down, depressed, or hopeless half or more of the days over the last two weeks	Numerator: residents with a selected target assessment where the target assessment (interview either by resident or staff) meets either of the following two conditions: 1. Little interest or pleasure in doing things half or more of the days over the last two weeks or 2. Feeling down, depressed, or hopeless half or more of the days over the last two weeks. Denominator: All long-stay residents with target assessment, minus exclusions Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters. CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)	☑ MDS 3.0	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
5.5	Residents with mood decline and symptoms of depression (over the last seven days)	Prevalence of symptoms of depression	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Residents must have had a persistent depressed, sad, or anxious mood for the last 7 days before the assessment and at least two symptoms of functional depression: (1) distress, (2) agitation or withdrawal, (3) waking in an unpleasant mood or unable to sleep, (4) suicidal or recurrent thoughts of death, and (5) weight loss.	Numerator: Residents must have had a persistent depressed, sad, or anxious mood for the last 7 days before the assessment and at least two symptoms of functional depression: (1) distress, (2) agitation or withdrawal, (3) waking in an unpleasant mood or unable to sleep, (4) suicidal or recurrent thoughts of death, and (5) weight loss. Denominator: All residents Reporting of QIs unclear.	☑ RAI-MDS.	☒	☒
5.6	Residents who have declined in their mood from symptoms of depression	Percent of residents who have declined in their mood from symptoms of depression	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use.	Mood from symptoms of depression: based on minimum data set (RAI MDS 2.0) depression rating scale. Includes 7 depression rating scale items: Negative statements Persistent anger Expression of unrealistic fears Repetitive health complaints Repetitive anxious complaints Sad, pained, worried facial expression Crying, tearfulness	Numerator: DRS has declined (MDS Depression Rating Scale) Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
					Score range 0–14: score of ≥3 may indicate a potential or actual problem with depression.				
5.7	Residents with a Depression Rating Scale score of three or more and not receiving an antidepressant	Prevalence of symptoms of depression without and antidepressant .	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Symptoms of depression: assessed using MDS Depression Rating Scale (DRS), with a score of ≥3. Antidepressant medication (WHO ATC N06A)	Numerator: Residents with a depression rating scale (DRS) score of three or more and not receiving an antidepressant. Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS 2.0	☒	☑
5.8	Residents with a Depression Rating Scale score of three or more	Prevalence of symptoms of depression	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment	Symptoms of depression: assessed using MDS Depression Rating Scale (DRS) and those with a score of ≥3	Numerator: Residents with a depression rating scale (DRS) score of ≥ 3. Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS 2.0	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.					
5.9	Residents with mood decline and symptoms of depression and not receiving an antidepressant (over the last seven days)	Prevalence of symptoms of depression without antidepressant therapy	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Symptoms of depression: persistent depressed, sad, or anxious mood last 7 days before assessment and ≥ 2 symptoms of functional depression: (1) distress, (2) agitation or withdrawal, (3) waking in an unpleasant mood or unable to sleep, (4) suicidal or recurrent thoughts of death, and (5) weight loss AND not receiving an antidepressant medication (WHO ATC N06A).	Numerator: Residents must have had persistent depressed, sad, or anxious mood last 7 days before assessment and ≥ 2 symptoms of functional depression: (1) distress, (2) agitation or withdrawal, (3) waking in an unpleasant mood or unable to sleep, (4) suicidal or recurrent thoughts of death, and (5) weight loss AND not receiving an antidepressant medication. Denominator: All residents Reporting of QIs unclear.	☑ RAI-MDS.	☒	☒

Table 21: Behavioural symptoms

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
6.1	Residents with worsened behavioural symptoms (data published quarterly)	Percentage of residents with worsened behavioural symptoms	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or Inter-RAI Long Term Care Facility (LTCF) Data collected every 90 days.	Behavioural symptoms: • Wandering • Verbally Abusive • Physically Abusive • Socially Inappropriate	Numerator: Residents with more behavioural symptoms present on their target assessment than on their prior assessment: Denominator: All residents (must have assessment in previous quarter) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI-MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑
6.2	Residents with improved behavioural symptoms (data published quarterly by levels of care)	Percent of residents who have improved behavioural symptoms	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Behavioural symptoms: wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate Improved: Sum of behavioural measures have improved (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate)	Numerator: Sum of behavioural measures have improved (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate) Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
6.3	Residents with worsened behavioural symptoms (data published quarterly by levels of care)	Percent of residents who have declining behavioural symptoms.	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Behavioural symptoms: wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate Worsened: Sum of behavioural measures have worsened (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate)	Numerator: Sum of behavioural measures have worsened (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate) Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
6.4	Residents who display inappropriate behaviour that affect others	Prevalence of residents with behavioural symptoms affecting others (inappropriate behaviour)	Iceland	RAI-MDS 2.0. Data collected every 120 days. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring	Behavioural symptoms affecting others: verbally abusive behaviour, physically abusive behaviour.	Numerator: Residents with behavioural symptoms affecting others (inappropriate behaviour), including any verbally abusive behaviour, physically abusive behaviour. Denominator: All residents Reporting of QIs unclear.	☑ RAI-MDS	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
6.5	Residents who have behavioural symptoms that affect others (data published six-monthly)	Prevalence of behavioural symptoms affecting others.	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Definitions not publicly available but likely similar to those reported using interRAI assessment.	Numerator: Residents with behavioural symptoms affecting others Denominator: All long-term residents National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS 2.0	☒	☑
6.6	Residents with improved behavioural symptoms (data published quarterly)	Percentage of residents whose behavioural symptoms improved	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF). Data collected every 90 days	Behavioural symptoms: – Wandering • Verbally abusive • Physically abusive • Socially inappropriate • Sexually inappropriate. Improved: Sum of behavioural measures have improved (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate)	Numerator: Residents with fewer behavioural symptoms (wandering, verbal abuse, physical abuse, socially inappropriate, sexual behaviour inappropriate) compared to prior assessment: Denominator: All residents (must have assessment in previous quarter) Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have	☑ RAI-MDS 2.0 or interRAI-LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						a sufficient number of assessments for risk adjustment.			
6.7	Residents who have behavioural symptoms that affect others (data published quarterly)	Percentage of long-stay residents who have behavioural symptoms that affect others during the target period	USA	Centres for Medicare and Medicaid Services (CMS) Minimum Data Set (MDS) 3.0 Resident Assessment Instrument (RAI) Data collected every 90 days	Behaviour symptoms affecting others: Affect others: 1. presence of physical behavioural symptoms directed towards others or 2. presence of verbal behavioural symptoms directed towards others or 3. presence of other behavioural symptoms not directed towards others or 4. rejection of care or 5. wandering	Numerator: Long-stay residents where any of the following conditions are true: 1. presence of physical behavioural symptoms directed towards others or 2. presence of verbal behavioural symptoms directed towards others or 3. presence of other behavioural symptoms not directed towards others or 4. rejection of care or 5. wandering Denominator: All residents with an assessment Five Star Quality Rating System (includes 7 QIs). Publicly available online. Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters. CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)	☑ MDS 3.0	☒	☒

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
6.8	Residents whose ability to communicate has worsened	Percent of residents whose ability to communicate has worsened	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Communicate: making self-understood and ability to understand others Worsened: Sum of making self-understood and ability to understand has increased (higher score worse communication) Making self-understood scored on scale 0 (understood, expresses ideas clearly without difficulty) to 4 (rarely or never understood). Ability to understand scored on a scale 0 (understands, clearly comprehends) to 4 (rarely or never understands)	Numerator: Making self-understood, and ability to understand others, has worsened Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
6.9	Residents whose ability to communicate has improved	Percent of residents whose ability to communicate has improved	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and	Communicate: making self-understood and ability to understand others Improved: Sum of making self-understood and ability to understand has decreased (lower score better communication) Making self-understood scored on scale 0 (understood, expresses ideas clearly without	Numerator: Making self-understood, and ability to understand others, has improved Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				physical health, social support, and service use	difficulty) to 4 (rarely or never understood). Ability to understand scored on a scale 0 (understands, clearly comprehends) to 4 (rarely or never understands)	against national average and prior quarter.			

Table 22: Hospitalisations

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
7.1	Emergency Department presentation or hospitalisation for medication-related events	Proportion of long-term residents who had an emergency department presentation or hospitalisation for medication-related events.	Australia	Claims based data. (Hospitalisation data (unplanned admissions and emergency department presentations).	Medication-related events: ED presentation or hospitalisation where medication-related event was the external cause type or principal discharge diagnosis (See doi: 10.1093/intqhc/mzaa078 for specific ICD-10AM codes)	Numerator: Number of long-term residents who had an emergency department presentation or hospitalisation where a medication-related event was the principal discharge diagnosis for the encounter or the external cause type for the encounter. Denominator: Number of long-term residents To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).	☑	☒	☑
7.2	Emergency Department visits that did not result in outpatient or inpatient hospitalisation or hospice enrolment	Number of all-cause outpatient emergency department (ED) visits. (Outpatient ED visits are ED visits that do not result in an	USA	Claims based data Analysed over 12-month period.	Outpatient ED visits are ED visits that do not result in an outpatient observation stay or inpatient hospital stay.	Numerator: All ED visits in the nursing home that did not result in outpatient or inpatient hospitalization and not enrolled in hospice. Denominator: All long-stay days in the	☑	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
		outpatient observation stay or inpatient hospital stay).				target period, divided by 1,000, minus exclusions. Five Star Quality Rating System (includes 7 QIs). Publicly available online. Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters. CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)			
7.3	Unplanned inpatient hospital admissions or outpatient observation stays while not enrolled in hospice	Number of unplanned inpatient admissions or all-cause outpatient observation stays.	 USA	Claims based data Analysed over 12-month period.	Hospitalisation: unplanned or all cause outpatient observation stays	Numerator: All unplanned inpatient hospital admissions or outpatient observation stays while residing in the nursing home and not enrolled in hospice. Denominator: The sum of all long-stay	☑	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						days in the target period, divided by 1,000. Five Star Quality Rating System (includes 7 QIs). Publicly available online. Nursing Home Compare. Publicly reported on CMS website of all Medicare and Medicaid US nursing homes. Reports the average adjusted QM values for most recent three quarters. CASPER Reporting Quality Measure Reports. National, state, facility, and resident level (providers)			
7.4	Residents who had an Emergency Department presentation or were hospitalised for delirium or dementia	Proportion of long-term residents who had an emergency department presentation or hospitalisation for delirium or dementia.	 Australia	Claims based data. (Hospitalisation data (unplanned admissions and emergency department presentations).	Delirium and/or dementia hospitalisation (See doi: 10.1093/intqhc/mzaa078 for specific ICD-10AM codes)	Numerator: Number of long-term residents with dementia having a hospitalisation/ emergency department presentation where principal diagnoses was dementia or delirium	☑	☒	☑ Age, sex, number of comorbidities.

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
						Denominator: Number of long-term residents with dementia To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).			
7.5	Emergency Department presentation within 30 days of discharge from hospital	Proportion of long-term residents who had an emergency department within 30 days of re-entry to residential aged care facility from hospital.	 Australia	Claims based data. (Hospitalisation data (unplanned admissions and emergency department presentations).	Hospitalisation episode excludes dialysis and other planned day procedures. ED presentation includes both admitted and non-admitted. (See doi: 10.1093/intqhc/mzaa078 for specific ICD-10AM codes)	Numerator: Number of aged care recipients who had an emergency department presentation within 30 days of entry/re-entry to residential aged care facility (>1 day after entry). Denominator: Number of residents who re-entered residential aged care facility after hospital discharge. To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).	☑	☒	☑

Table 23: Pain

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
8.1	Residents whose pain worsened (data published annually)	Percentage of residents whose pain worsened since the prior assessment	Canada (Alberta)	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) (CCRS) or Inter-RAI Long Term Care Facility (LTCF) (IIRS) Saskatchewan and New Brunswick implemented and started collecting data Inter-RAI LTCF).	Pain: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience. Worsened: Pain with a higher score from previous assessment	Numerator: Residents with greater pain compared with their prior assessment Denominator: All residents (must have assessment in previous quarter). Publicly 12 monthly by province, displaying previous four years and national rate.	☑ Inter-RAI LTCF	☑	☑
8.2	Residents whose pain worsened (data published quarterly)	Percentage of residents whose pain worsened	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF). Data collected every 90 days.	Pain: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience. Worsened: Pain with a higher score from previous assessment	Numerator: Residents with greater pain compared with their prior assessment Denominator: All residents (must have assessment in previous quarter). Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI-MDS 2.0 or interRAI LTCF	☑ Minimum 2 assessments 45 to 165 days between target and prior assessment	☑
8.3	Residents who had moderate daily pain or horrible/excruciatin	Percentage of residents who had pain.	Canada (Alberta)	RAI-MDS 2.0 interRAI Long Term Care Facility (LTCF). Data collected every 90 days.	Pain score: Two Pain Scale items. • Frequency of Pain • Intensity of Pain	Numerator: Number of residents who had moderate daily pain or horrible/excruciating pain at any frequency	☑ RAI MDS 2.0 or interRAI LTCF	☒	☑

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
	g pain (data published annually)				Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience.	Denominator: All residents Publicly 12-monthly by province, displaying previous four years and national rate.			
8.4	Residents who had moderate daily pain or horrible/excruciating pain (data published quarterly)	Percentage of residents who had pain.	 Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF) Data collected every 90 days	Pain score: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience. Worsened: Sum of pain scale score higher than previous assessment.	Numerator: Number of residents who had moderate daily pain or horrible/excruciating pain at any frequency Denominator: All residents Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ Inter-RAI LTCF	☒	☑
8.5	Residents with daily pain (over last three days)	Percent of residents with pain	 New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and	Pain score: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience.	Numerator: Daily pain in last 3 days or Pain Intensity Moderate-Severe or times when pain is horrible or excruciating Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against	☑ interRAI LTCF	☒	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				physical health, social support, and service use		national average and prior quarter.			
8.6	Residents that are chronic opioid users	Proportion of long-term residents that are chronic opioid users	Australia	Claims based data. (PBS medication data) 12-monthly	Chronic opioid (WHO ATC codes N02A) use is defined as continuous opioid use for at least 90 days, or for 120 non-consecutive days (See doi: 10.1093/intqhc/mzaa078 for specific WHO ATC codes of opioids)	Numerator: Number of long-term residents that are chronic opioid users. Denominator: Number of long-term residents, minus exclusions To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).	☑	☒	☑
8.7	Residents who experienced moderate pain daily or any severe pain (over the last 7 days)	Percentage of long-term care home residents who experienced moderate pain daily or any severe pain during the 7 days prior.	Canada (Ontario)	RAI-MDS 2.0. Data collected every 90 days.	Pain score: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores indicate a more severe pain experience. Worsened: Sum of pain scale score higher than previous assessment.	Numerator: Number of LTC home residents with moderate pain at least daily or horrible/ excruciating pain at any frequency documented on their targe assessment. Denominator: Number of LTC home residents Public reporting 12 monthly by Facility, City, local health integration network (LHIN) Region.	☑ RAI-MDS 2.0	☒	☑
8.8	Residents whose pain worsened (data published quarterly by levels of care)	Percent of residents with worsening pain	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs,	Pain score: Two Pain Scale items. • Frequency of Pain • Intensity of Pain Scored on a scale of 0 to 3. Higher scores	Numerator: Pain score has worsened Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels,

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
				strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	indicate a more severe pain experience. Worsened: Sum of pain scale score higher than previous assessment.	DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.		latest occurring in the reporting quarter.	resthome, dementia, hospital, psychogeriatric.
8.9	Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (self-reported)	Percentage of residents with daily moderate or higher pain intensity or residents with nondaily very strong pain intensity in the last 7 days	Switzerland	Nursing home resident assessment instrument (RAI-NH). Self-reported pain, 6 monthly data collection. The nursing home RAI includes a set of core assessment items, (MDS), for assessment and care screening and more detailed Resident Assessment Protocols in 18 areas that represent common problem areas or risk factors for nursing home residents.	Pain last 7 days: – Daily moderate, strong or very strong, unbearable pain OR - Nondaily very strong, unbearable pain	Numerator: All residents where the following pain was observed in the last 7 days: - Daily moderate, strong or very strong, unbearable pain OR - Nondaily very strong, unbearable pain Denominator: All long-term care residents Publicly reported.	☑ RAI-NH	☑ At admission and then 6-monthly.	☒
8.10	Residents with daily moderate or higher pain or residents with non-daily very strong pain (over the last seven days) (observed)	Percentage of residents who showed daily moderate or higher pain intensity or residents who showed nondaily very strong pain	Switzerland	Nursing home resident assessment instrument (RAI-NH). Observed pain assessment, 6 monthly data collection. The nursing home RAI includes a set of core assessment items, (MDS), for assessment	Pain last 7 days: – Daily moderate, strong or very strong, unbearable pain OR - Nondaily very strong, unbearable pain	Numerator: All residents where the following pain was observed in the last 7 days: - Daily moderate, strong or very strong, unbearable pain OR - Nondaily very strong, unbearable pain	☑ RAI-NH	☑ At admission and then 6-monthly.	☒

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
		intensity in the last 7 days		and care screening and more detailed Resident Assessment Protocols in 18 areas that represent common problem areas or risk factors for nursing home residents.		Denominator: All long-term care residents Publicly reported.			

Table 24: Service Delivery and care planning

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
9.1	Residents receiving rehabilitation relating to alleviation of reduced physical functionality not treated as part of hospitalisation	Rehabilitation relating to alleviation of reduced physical functionality not treated as part of hospitalisation	Denmark	Register. The municipalities' care systems (EOJ) is used to calculate the indicators. Statistics Denmark receives data either on a monthly or yearly basis.	Not publicly available	Not available Publicly reported at national, region and municipality level. 12 -monthly.	☑	☑	☒
9.2	New long-term care residents who potentially could have been cared for at home	Percentage of newly admitted long-term care residents who have a clinical profile similar to the profile of clients cared for at home with formal supports in place.	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF) 12-monthly (incidence).	Inclusions of clinical characteristics: - Cognitive Performance Scale = 0, 1 or 2 - ADL Hierarchy Scale = 0, 1 or 2 - No falls in the past 30 days -Not physically abusive in the past 7 days (RAI-MDS 2.0) or 3 days (interRAI LTCF) -Not verbally abusive in the past 7 days (RAI-MDS 2.0) or 3 days (interRAI LTCF) -Did not wander in the past 7 days	Numerator: Total number of newly admitted long-term care residents (incident cases) with a completed assessment that details clinical characteristics similar to those of home care clients who are living well in the community with formal supports. Denominator: Total number of newly admitted long-term care residents (with completed RAI-MDS 2.0 or interRAI LTCF assessments in a given year). Publicly reported every 90 days on CIHI Nationally and by province/territory, region, facility, corporation, sector. Uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment.	☑ RAI-MDS	☒	☑

Rank	Quality indicator- unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
9.3	Number of resident beds in nursing homes and care homes	Number of places in, respectively, nursing homes and care homes	Denmark	Part of social resource status. Collected 12-monthly	Not publicly available	Not available Publicly reported at national, region and municipality level. 12-monthly.	☑	☑	☒
9.4	Number of referred hours of home help to citizens in nursing homes	Number of hours of, respectively, personal, and practical help	Denmark	Register. The municipalities' care systems (EOJ) is used to calculate the indicators. Statistics Denmark receives data either on a monthly or yearly basis.	Not publicly available	Not available Publicly reported at national, region and municipality level. 12-monthly.	☑	☒	☒

Table 25: Wait times

Rank	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
10.1	Median number of days wait time from submission of application or provision of consent to date of placement (whichever is longer)	Median number of days residents waited to be placed in a long-term care home from the date of long-term care home application or consent to the date of placement, whichever is longer.	Canada (Ontario)	Data provided by Ministry of Health and Long-Term Care from Modernised Client Profile Database.		Numerator: The median time, in days, for each included placement from the earlier of long-term care home application date or consent date to date of placement. Includes residents (includes all priority categories) placed from hospitals (acute, rehab, CCC, etc), assisted living residences, cluster care residences, group homes, private dwelling, retirement homes, supportive housing and other. Denominator: N/a Public reporting by Facility, City, local health integration network (LHIN) Region, Time.	☑	☒	☒ Stratified by location of individual

Table 26: Cognition (in alphabetical order)

Number	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
11.1	Residents whose cognitive ability improved	Percent of residents whose cognitive ability has improved	New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Cognitive ability: measured using Cognitive Performance Scale (CPS) (RAI-MDS 2.0 CPS scores) items: • Comatose • Short-term memory • Cognition skills for daily decision-making • Expressive communication • Eating Scored on a scale of 0 (intact-no impairment) to 6 (very severe impairment) with higher scores indicative or more severe cognitive impairment. Improved: CPS score decreased (lower score, less impairment) compared with previous assessment	Numerator: CPS score has improved Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against national average and prior quarter.	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.
11.2	Residents whose cognitive ability improved (assessed on the Cognitive	Percentage of residents whose cognitive ability improved (assessed by Cognitive Performance Scale).	Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility Data collected every 90 days.	Cognitive ability: measured using Cognitive Performance Scale (CPS) (RAI-MDS 2.0 CPS scores) items: • Comatose • Short-term memory	Numerator: Residents with a higher Cognitive Performance Scale (CPS) score on their target assessment	☑ RAI-MDS 2.0 or interRAI-LTCF	☑	☑

Number	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
	Performance Scale)				• Cognition skills for daily decision-making • Expressive communication • Eating Scored on a scale of 0 (intact-no impairment) to 6 (very severe impairment) with higher scores indicative or more severe cognitive impairment. Improved: CPS score decreased (lower score, less impairment) compared with previous assessment	compared with their prior assessment. Denominator: All residents (must have assessment in previous quarter). Publicly reported yearly on CCRS Nationally and by province/territory (uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment).			
11.3	Residents whose cognitive ability worsened	Percent of residents whose cognitive ability has worsened	 New Zealand	interRAI Long-Term Care Facilities (LTCF) Data collected every 90 days. The interRAI LTCF assessment system evaluates the needs, strengths, and preferences of persons in chronic care and nursing home settings. Assessment measures include key domains of function, mental and physical health, social support, and service use	Cognitive ability: measured using Cognitive Performance Scale (CPS) (RAI-MDS 2.0 CPS scores) items: • Comatose • Short-term memory • Cognition skills for daily decision-making • Expressive communication • Eating Scored on a scale of 0 (intact-no impairment) to 6 (very severe impairment) with higher	Numerator: CPS score has worsened Denominator: All residents (minus exclusions) Reported nationally, by District Health Board (DHB) region, individual DHB, provider and facility level. Allows provider and DHBs to benchmark themselves against	☑ interRAI LTCF	☑ Minimum 2 assessments needed >90 days and <330 days apart, with latest occurring in the reporting quarter.	☒ Risk adjustment planned (2022) but currently reported by level of care: all care levels, resthome, dementia, hospital, psychogeriatric.

Number	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
					scores indicative or more severe cognitive impairment. Worsened: CPS score increased (higher score greater impairment) compared with previous assessment	national average and prior quarter.			
11.4	Residents whose cognitive ability worsened (assessed on the Cognitive Performance Scale)	Percentage of residents whose cognitive ability worsened (assessed by Cognitive Performance Scale).	 Canada	Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or interRAI Long Term Care Facility (LTCF) Data collected every 90 days.	Cognitive ability: measured using Cognitive Performance Scale (CPS) (RAI-MDS 2.0 CPS scores) items: • Comatose • Short-term memory • Cognition skills for daily decision-making • Expressive communication • Eating Scored on a scale of 0 (intact-no impairment) to 6 (very severe impairment) with higher scores indicative or more severe cognitive impairment. Worsened: CPS score increased (higher score greater impairment) compared with previous assessment	Numerator: Residents with a lower Cognitive Performance Scale (CPS) score on their target assessment compared with their prior assessment. Denominator: All residents (must have assessment in previous quarter). Publicly reported yearly on CCRS Nationally and by province/territory (uses 4 rolling quarters of data for calculations to have a sufficient number of assessments for risk adjustment).	☑ RAI-MDS 2.0 or interRAI-LTCF	☑	☑

Number	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
11.5	Residents with cognitive decline	Percentage of residents with cognitive decline	KOREA	Survey conducted on a quarterly basis by reviewing residents' charts, nurses' notes, and accident reports by trained nursing home staff.	Not publicly available	Numerator: not defined Denominator: not defined	☒	☒	☒
11.6	Residents with cognitive disorders (in the last 30 days)	Cognitive disorders in the last 30 days	JAPAN	Data collected by service providers (nurses or case managers) and client/family members. 30 days lookback period.	Not publicly available	Numerator: not defined Denominator: not defined	☒	☒	☒
11.7	Residents with cognitive impairment (incidence).	Incidence of cognitive impairment	Finland	RAI-MDS 2.0. Data collected every 6-monthly with assessments for the most recent 90-day period. The Resident Assessment Instrument Minimum Data Set Version 2.0 (RAI-MDS 2.0) is a comprehensive, standardised tool to assess residents in long-term care (LTC) settings. Assessment with this instrument enables detection of residents' strengths, needs and potential risks to inform individualised care planning and monitoring.	Not publicly available	Numerator: Residents that have cognitive impairment. Denominator: All long term residents. National Institute of Health and Welfare provides reports at the facility level and benchmarking to comparable facilities and the national average.	☑ RAI-MDS	☒	☑

Table 27: Palliative care (in alphabetical order)

Number	Quality indicator-unique wording	Quality indicator description	Quality indicator country	Type and frequency of data collection	Key definitions of terms	Calculation of quality indicator and reporting	Use permitted under licence	Multiple observation required	Risk adjusted
12.1	Residents who before death had a conversation in which they were informed about their situation	Share of persons deceased at age 65 or older who before death had a conversation in which they were informed about their situation.	SWEDEN	Official statistics (administrative data). Swedish Palliative Registry. Data collected by the municipalities yearly, derived from national surveys, administrative data, and registries.	Not publicly available.	Numerator: not defined Denominator: not defined Publicly annually at municipal level, county level and state. (Open Comparisons report annually online) showing providers' quality of care to the elderly based on the quality indicators along with grading of their performance. A relative comparison between municipalities is provided using a traffic light system.	☒	☒	☒
12.2	Residents who had an assessment of pain during their last week in life	Percentage of persons deceased at age 65 or older who had an assessment of pain during their last week in life.	SWEDEN	Official statistics (administrative data). Swedish Palliative Registry. Data collected by the municipalities yearly, derived from national surveys, administrative data, and registries.	Not publicly available	Numerator: not available Denominator: not available Publicly annually at municipal level, county level and state. (Open Comparisons report annually online) showing providers' quality of care to the elderly based on the quality indicators along with grading of their performance. A relative comparison between municipalities is provided using a traffic light system.	☒	☒	☒

Table 28: Mortality (in alphabetical order)

Number	Quality indicator	Quality indicator wording	Quality indicator Country	Type and frequency of data collection	Definitions	Calculation of reporting method	Use permitted under licence	Multiple observation required	Available risk adjustment algorithm
13.1	Residents who had a premature death	Proportion of long-term residents who had a premature death.	Australia	Claims based data. (National death index data). To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).	Premature mortality: main cause of death is 'external' and considered potentially avoidable. See doi: 10.1093/intqhc/mzaa078	Numerator: Number of long-term residents who had premature deaths, that is their main cause of death is 'external' and considered potentially avoidable. Denominator: Number of long-term residents To be published publicly annually at national level and provided privately to individual facilities at facility level (SA only).	☒	☒	☑

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