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Report

Deriving Australian Mandatory Quality Indicators from the interRAI Long Term Care Facility Assessment System

Introduction

For more than 30 years, interRAI, a not-for-profit international research collaborative, has developed and maintained a suite of clinical and person-centred assessment systems to support care for older and vulnerable people. Because of their proven validity and reliability, and their ability to support a wide range of clinical and administrative functions, interRAI assessment systems have been adopted world-wide in aged care, including Belgium, Canada, Finland, New Zealand, Singapore, Switzerland and the United States of America. Quality indicators (QIs) derived from the interRAI residential aged care systems form the basis of publicly reported indicators in a number of countries, including Canada and the USA[1].

In Australia, the National Aged Care Quality Improvement Program commenced on 1 July 2019 and was updated on 1 July 2021. The mandatory program requires Commonwealth-subsidised residential aged care services to provide quarterly reporting of QIs across 11 care areas — pressure injuries, physical restraint, unplanned weight loss, falls and major injury, medication management (polypharmacy and antipsychotics), activities of daily living, incontinence care, hospitalisation, workforce, consumer experience and quality of life[2].

Currently this data is collected from a number of sources and software platforms within aged care facilities. For many organisations, data is not sourced from existing clinical information, thus generating potentially avoidable data inefficiency and burden. InterRAI assessment systems are used widely outside of Australia to generate a plethora of QIs, without additional data burden.

The purpose of this research was to determine whether the Australian mandatory QIs could be collected using a single data source - the interRAI Long Term Care Facility (LTCF) Assessment.

Methods

The data requirements for each QI were tabulated and mapped where possible to items in the interRAI LTCF. interRAI items were categorised as a perfect match (the interRAI item was the same as mandatory QI item), equivalent match (with some modification of interRAI item), imperfect match (an interRAI item could be used to approximate the mandatory QI item) and no match available.

1. Osińska M, Favez L, Zúñiga F. Evidence for publicly reported quality indicators in residential long-term care: a systematic review. BMC Health Serv Res. 2022;22(1):1408. doi:10.1186/s12913-022-08804-7

2. Department of Health and Aged Care. National Aged Care Mandatory Quality Indicator Program Manual 3.0-Part A 2023. Available from: https://www.health.gov.au/resources/collections/national-aged-care-m2andatory-quality-indicator-program-manual.

Results

Apart from the Workforce QI (which reports on staff composition and turnover), and Consumer Experience and Quality of Life Surveys, there are 71 discrete data items that need to be collected at the care recipient level to score the remaining QIs. These can be divided into 37 clinical care items, while the remainder (34) are procedural and/or administrative in nature.

It is possible to closely approximate the 9 clinical care QIs (pressure injuries, physical restraint, unplanned weight loss, falls and major injury, medication management (polypharmacy and antipsychotics), activities of daily living, incontinence care, and hospitalisation) using 26 interRAI LTCF items (22 clinical care and 4 administrative items).

Of the 26 interRAI items, 14 were a perfect match, 11 were equivalent (e.g. substituting the 7 items of the ADL long form scale for the 10 items of the Barthel index to calculate the ADL QI), and one item (time to last hospital stay) was used to approximate mandatory QI questions about care recipient's absence from the service during the assessment period. Three items had no equivalent in the interRAI LTCF (Was the care recipient physically restrained exclusively through use of a secure area; Reason why weight not recorded (text); Category of IAD if present). Refer Appendix 1: LTCF fields to calculate mandatory QIs (excluding Workforce, Consumer Experience and Quality of Life).

Discussion

Australia's mandatory Quality Indicators for residential aged care can efficiently be calculated from the interRAI LTCF, if a few minor adjustments are made to either the Australian mandatory QI item or the equivalent interRAI item.

QI derivation from interRAI routine assessments enables them to be secured and scored without burden of additional data collection upon care providers. Up to 80 QIs (including many with appropriate risk-adjustment) can be derived from the interRAI LTCF when assessments are repeated after 3 months. (Refer Appendix 2: Table of aged care quality indicators calculated from interRAI LTCF).

In addition to calculating the QIs, the interRAI LTCF supports clinical assessment, care planning and resource allocation—thus adhering to the principle of 'collect once use many times'.

Collect once,
use many times

Appendix 1

Table of Mandatory QIs mapped to LTCF fields (excluding Workforce, Consumer Experience and Quality of Life)

QI	Field name/Question	LTCF variables required	Question No	InterRAI Count	Comments
General information	Care Recipient ID	Numeric Identifier	A8b	1	
	Date of Birth	Birthdate	A6		This data are not required by NQIP but are available in the LTCF (along with risk adjustment variables) and important in analysis.
	Sex (Gender)	Sex/Gender Identity	A2a		
	Facility	Facility/Agency Identifier	A9b	1	
	Date stay began	Date stay began	B2		
	Discharge from facility	Last Day of Stay	R1		
	Deceased	Residential/ living status after discharge	R2		
	Date of collection	Assessment reference date	A12	1	
	Was the Care Recipient absent from the service during the entire quarter	Time since last hospital stay	O4	1	Could we assume that reason for absence during entire quarter would be hospitalisation? E.g. if O4=0 (No hospitalisation in last 90 days).
	Did Care Recipient withhold consent for assessment during assessment period	Assessment reference date	A12		? Do we assume if there is an assessment date , that the resident consented to be assessed.
	Was the Care Recipient receiving end of life care	Hospice/palliative care program for end of life	O2o	1	
Pressure injury	Did Care Recipient have one or more pressure injuries	Most severe pressure injury	M1	1	Code indicates if PI present and stage of most severe PI- does not allow for more than 1 PI.
	For Care Recipients with one or more pressure injuries what were pressure injury stages	Most severe pressure injury			
	Did Care Recipient with one or more pressure injuries acquire any outside the service	Time since last hospital stay	O4		Again, could we assume that 'outside the service' would be if hospitalisation occurred. E.g., if O4=0 (No hospitalisation in last 90 days) then any PI occurred in the facility.
	For Care Recipient with one or more pressure injuries acquired outside the service, what were the stages pressure injury stages	Time since last hospital stay	O4		As above

QI	Field name/Question	LTCF variables required	Question No	InterRAI Count	Comments
Physical restraint	Was Care Recipient physically restrained	Restrictive devices	O8a,b,c	1	Codes for 3 types of restrictive devices (bed rails, trunk restraint, chair prevents rising) and time of use (less than daily etc.).
	Was Care Recipient physically restrained exclusively through use of a secure area		No equivalent in LTCF		
Unplanned weight loss	Did Care Recipient have a written strategy/record for intentional weight loss	Weight loss	Available in a MDS 3.0	1	MDS 3.0 codes for Weight Loss. Loss of 5% or more in the last month or loss of 10% or more in last 6 months. 0. No or unknown. 1. Yes, on physician-prescribed weight-loss regimen. 2. Yes, not on physician-prescribed weight-loss regimen.
	Did the Care Recipient have required weights recorded	Weight (kg)	L1b		Requires access to previous assessments.
	Reasons why weight not recorded		No equivalent in LTCF		
	Recorded weight	Weight (kg)	L1b	1	Recorded monthly.
Falls and Major Injury	Did the Care Recipient experience one or more falls at the service during the quarter	Falls	K1a,b	1	
	Did the Care Recipient experience one or more falls at the service resulting in major injury during the quarter	Fall with major consequences within last 90 days	K2	1	
Medication Management-Polypharmacy	Was the Care Recipient admitted to hospital on the collection date	Time since last hospital stay	O4		O4=5 (Now in hospital).
	Was the Care Recipient prescribed 9 or more medications	Total number of medications	N1	1	Number of different medications (prescription and over the counter), including eyedrops, taken regularly or on occasional basis in last 7 days.

QI	Field name/Question	LTCF variables required	Question No	InterRAI Count	Comments
Medication Management-Antipsychotics	Was the Care Recipient admitted to hospital for the entire 7-day assessment period	Time since last hospital stay	O4		O4=4 (in last 7 days).
	Did Care Recipient receive an antipsychotic medication	Medication list	N8a	1	
	Did Care Recipient receive an antipsychotic medication for a medically diagnosed condition of psychosis	Psychiatric diagnosis and/or Psychiatric conditions	J1y,z,aa,bb,cc and/or K3g,h,i	2	
Activities of Daily Living	Did the Care Recipient have an ADL assessment total score recorded for previous quarter	ADLLF Scale (7 items)	H1c,d,e,g,j,k l	7	Requires access to previous assessment.
	Care Recipient's previous quarter ADL assessment total score				Requires access to previous assessment.
	Care Recipient's current quarter ADL assessment total score (10 items)				Suggest using ADLLF Scale rather than mapping to Barthel Index.
Incontinence Care	Did the Care Recipient have incontinence	Bladder and Bowel Continence	I1, I4	2	
	Did the Care Recipient with incontinence experience IAD	Other skin conditions or changes in skin condition	M4	1	? Can use "Major skin problems" if bladder and/or bowel incontinent.
	If care Recipient experienced IAD what was the category		No equivalent in LTCF		
Hospitalisations	Did CR have one or more ED presentations	Hospital and Emergency Room Use	O5a,b,c	1	
	Did CR have one or more ED or hospital admissions				

InterRAI Count Key:
interRAI meets QI data requirements 100%
interRAI meets with some modification by either QI or interRAI
interRAI substitution option
No interRAI equivalent

Appendix 2

Table of aged care quality indicators calculated from interRAI LTCF

	QI Domain	QI Description
1	Demographics	The percentage of residents in the long-term care facility who are female.
2		The percentage of residents in the long-term care facility who are older than 85.
3		The percentage of residents in the long-term care facility who are younger than 65.
4	Mood and Behaviour	The percentage of long-term care residents whose mood from symptoms of depression worsened.
5		The percent of residents who improve their mood or remain free from symptoms of depression.
6		The percent of residents who have become more depressed or anxious.
7		The percentage of long-stay residents who have had symptoms of depression during the 2-week period preceding assessment.
8		The percent of residents with inappropriate behaviour (presence of verbal abuse, physical abuse, socially inappropriate behaviour)
9		The percentage of long-stay residents who have behaviour symptoms that affect others during the target period.
10		The percentage of long-term care residents whose behavioural symptoms improved.
11		The percentage of long-term care residents whose behavioural symptoms worsened (declined).
12	Pain	The percentage of long-term care residents with pain.
13		Percentage of care recipients who experienced daily moderate pain or any occurrence of severe pain
14		The percent of residents whose pain improved (lessened).
15		The percentage of long-term care residents whose pain worsened.
16	Falls	The percentage of long-term care residents who fell in the last 30 days.
17		The percent of long-stay residents who have experienced one or more falls with major injury reported in the target period
18		The percentage of long-stay residents who have had a fall during their episode of care.
19		The percentage of residents with a new fracture (including hip fracture)
20	Activities of Daily Living	The percentage of long-term care residents who improved in their ability to locomote.
21		The percentage of long-term care residents who worsened in their ability to locomote.
22		The percentage of long-term care residents who improved or remained completely independent in the activities of daily living (early-loss ADLs) dressing and personal hygiene.
23		The percentage of long-term care residents who improved or remained completely independent in transferring and locomotion (mid-loss ADLs).
24		The percentage of long-term care residents who improved in the activities of daily living (late-loss ADLs) bed mobility, transfers, eating and toileting.
25		The percentage of long-term care residents who worsened in self-performance of activities of daily living (increased ADL Long-Form Scale score)

26	Activities of Daily Living	Percent of residents who had an unexpected loss of function in some basic daily activities (bed mobility, transfers, eating, toileting)
27		The percentage of long-term care residents who worsened in the activities of daily living (late-loss ADLs) bed mobility, transfers, eating and toileting.
28		The percentage of long-term care residents who worsened or remained completely dependent in transferring and locomotion (mid-loss ADLs).
29		The percentage of long-term care residents who worsened in or remained completely dependent in the activities of daily living (early-loss ADLs) dressing and personal hygiene.
30		The percentage of residents who are bedfast.
31	Cardiac andRespiratory	The percentage of residents in the long-term care facility who have congestive heart failure.
32		The percent of residents who do not have shortness of breath (dyspnoea)
33		The percentage of long-term care residents who have developed or have not improved from a respiratory condition.
34	Cognition	The percentage of residents in the long-term care facility who have dementia.
35		The percentage of long-term care residents who improved in their cognitive ability.
36		The percentage of long-term care residents who declined in their cognitive ability.
37		The percentage of long-term care residents who presented with symptoms of delirium.
38	Pressure Injury and Other Skin Conditions	The percent of residents with pressure injury (stages 1-4)
39		The percent of residents with improving pressure injuries.
40		The percentage of long-term care residents who had a stage 2 to 4 pressure injury.
41		The percentage of long-term care residents whose stage 2 to 4 pressure injury worsened.
42		The percentage of long-term care residents who had a newly occurring stage 2 to 4 pressure injury.
43		The percentage of long-stay, high-risk residents with Stage II-IV or unstageable pressure ulcers
44		The percent of residents with burns, rashes, skin tears or cuts.
45	Medication	The percentage of residents using 9 or more medications.
46		The percentage of long-stay residents who are receiving antipsychotic drugs
47		The percentage of long-term care residents taking antipsychotic drugs without a diagnosis of psychosis.
48		The percentage of long-stay residents who are receiving antianxiety medications or hypnotics but do not have evidence of psychotic or related conditions in the target period.
49		The percentage of residents who are receiving antidepressants.
50		The percentage of long-stay residents taking antianxiety or hypnotic medication during the target period.
51	Communication	The percentage of long-term care residents who improved in their ability to communicate.
52		The percentage of long-term care residents who worsened in their ability to communicate.
53	Nutrition	The percentage of long-term care residents who had a feeding tube.
54		The percentage of residents with low BM! (≤19kg/m2)
55		The percentage of long-term care residents who had unexplained weight loss.
56		The percentage of long-stay residents who had a weight loss of 5% or more in the last month or 10% or more in the last 6 months who were not on a physician prescribed weight-loss regimen.
57		The percentage of residents' with dehydration.

58	Bladder and Bowel	The percentage of residents who are bladder or bowel incontinent.
59		The percentage of long-term care residents with improvement in bladder continence.
60		The percentage of long-term care residents with improvement in bowel continence.
61		The percentage of long-term care residents whose bladder incontinence worsened.
62		The percentage of long-term care residents who had a decline in bowel continence.
63		The percent of long-stay residents who frequently lose control of their bowel or bladder.
64		The percentage of long-term care residents who had an indwelling catheter.
65		The percent of residents with new indwelling catheter.
66		The percentage of residents who have had an indwelling catheter in the last 7 days.
67		The percentage of residents with faecal impaction (constipation).
68	Infection	The percentage of long-term care residents who had a urinary tract infection
69		The percent of residents with infections
70		The percent of residents who have developed a respiratory infection or who have not got better
71	Physical Restraint	The percentage of long-term care residents in daily physical restraints.
72	SocialEngagement	
73	Vaccination	The percent of long-stay residents who received the influenza vaccination during the most recent influenza season.
74		The percent of long-stay residents who received the pneumococcal vaccine during the 12-month reporting period.
75	Hospitalisations	Percentage of care recipients who experienced one or more emergency department visits.
76		Percentage of care recipients experiencing one or more in-patient acute care hospitalisation with overnight stay.
77	End of Life Care and Care Preferences	Percentage of care recipients with documented preferences for future care (Advance Health Directives)
78		Percentage of care recipients with end stage disease who received a personal palliative care program

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Notes

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