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GEN AGED CARE DATA

Residential Aged Care Quality Indicators—Annual Report

2022–23

Compiled from mandatory reporting by residential aged care services, covering the period 1 July 2022 to 30 June 2023

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1 National Aged Care Mandatory Quality Indicator Program

Since 1 July 2019, participation in the National Aged Care Mandatory Quality Indicator Program (QI Program) has been a requirement for all Australian Government-subsidised residential aged care services (RACS).

The *Aged Care Legislation Amendment (Quality Indicator Program) Principles 2019* (Aged Care Legislation Amendment 2019), which provided legislative authority for the QI Program, stated its objectives as:

- to give consumers transparent information about quality in aged care to assist decision making; and
- for providers to have robust, valid data to measure and monitor their performance and support continuous quality improvement in the care they provide to aged care recipients.

The major current focus for the QI Program is, over time, to provide an evidence base that can be used to improve the quality of aged care services.

QI Program administrative arrangements

The QI Program collects quality indicator data from RACS every 3 months. All Australian Government-subsidised RACS are required to collect specified data at the service level and submit these via the My Aged Care Provider Portal (from 1 July 2019 to 31 March 2023) or the Government Providor Management System (from 1 April 2023) to the Department of Health and Aged Care (the Department). With the prior agreement of the Department, services can submit data through a commercial benchmarking company. Quality indicator raw data for each quarter are required to be submitted by the 21st day of the month after the end of that quarter.

Detailed requirements for participation in the QI Program are set out in the *National Aged Care Mandatory Quality Indicator Program Manual 3.0* (Department of Health and Aged Care 2023). The QI Program has expanded over time since the collection of 3 quality indicators (QIs) from 1 July 2019, to 5 QIs from 1 July 2021, and 11 QIs from 11 April 2023 (further details under The Indicators below). More information on the QI Program is available from the Department of Health and Aged Care.

Since 1 July 2023 the AIHW has been contracted by the Department of Health and Aged Care to provide computation and reporting services for the QI program. Formerly this relationship was with the Aged Care Quality and Safety Commission (1 October 2020 to 31 June 2023), and the Department of Health and Aged Care (from 1 July 2019 to 30 September 2020). Throughout the life of these contracted periods, the Department of Health and Aged Care have provided the QI data to the AIHW. Quarterly reports have been released on the AIHW GEN aged care data website from December 2019 onwards.

About this report

This Annual Report provides descriptive information about the quality indicators (in this Section), along with insights into data completeness and data quality (Section 2), and quality

indicator data for four quarters at a national level, produced using an updated annual extract (Section 3). Technical Notes are provided in Appendix A.

This report uses an annual extract of QI data for the four quarters of 2022–23, integrating source data that were not complete when compilations were first made to meet quarterly reporting timetables (in published quarterly reports on GEN). The annual extract comprises more complete data for the period, as it includes data from RACS that submitted QI data late or that amended QI data following original submission after each quarter. Updated data for each quality indicator and quarter are provided at national, state and territory, and remoteness levels in external Supplementary Tables.

In relation to data quality issues, the AIHW has advised in our quarterly reporting that it is not able to verify the quality of the QI raw data. The data were supplied directly by service providers as aggregated data.

The indicators

Quality indicators measure aspects of service provision and health outcomes related to the quality of care provided by RACS. Between 1 July 2019 and 30 June 2021, the QI Program required RACS to collect data and report quarterly on 2 QIs (pressure injuries, use of physical restraint, and unplanned weight loss). Since 1 July 2021, the QI Program has extended requirements to include the 5 QIs below.

- Pressure injuries
- Use of physical restraint
- Unplanned weight loss
- Falls and major injury
- Medication management

On 1 April 2023, the QI Program was further expanded to include 6 new QIs:

- Activities of daily living
- Incontinence care
- Hospitalisations
- Workforce
- Consumer experience
- Quality of life

Details about these new indicators can be found in the *National Aged Care Mandatory Quality Indicator Program Manual 3.0 – Part A* (QI Program Manual). Because only one quarter of data about these indicators was collected during the 2023–2024 financial year, these new indicators are not included in this Annual Report. Data for these indicators will be included in the 2023–24 annual report (and subsequent years) once four quarters of data are available. Data in this report include the five QIs included in the program since 1 July 2021 (Table 1.1).

Table 1.1: QIs in the QI Program reported here

Quality indicator	Measurements
Pressure injuries	• Percentage of eligible care recipients with pressure injuries, reported against six pressure injury stages
Use of physical restraint	• Percentage of eligible care recipients who were restrained, either physically, mechanically, environmentally or via seclusion*
Unplanned weight loss	• Percentage of eligible care recipients who experienced significant unplanned weight loss (5% or more) • Percentage of eligible care recipients who experienced consecutive unplanned weight loss
Falls and major injury	• Percentage of eligible care recipients who experienced one or more falls • Percentage of eligible care recipients who experienced one or more falls resulting in major injury
Medication management	• Percentage of eligible care recipients who were prescribed nine or more medications • Percentage of eligible care recipients who received an antipsychotic medication

Note: Reporting of additional data is undertaken for pressure injuries, use of physical restraint and medication management. These are specified in the following sections.
* 'Use of physical restraint' excludes chemical restraint.

While the original QI Program counted occurrences of pressure injuries, unplanned weight loss and physical restraint events (meaning that more than one pressure injury or physical restraint event could be counted for a single care recipient), the expanded QI Program from 1 July 2021 counts the number of care recipients meeting/not meeting QI criteria and produces prevalence rates in the form of percentages. The percentage value is calculated as follows:

$$\text{QI value} = \frac{\text{Number of eligible care recipients meeting QI criteria}}{\text{Total number of eligible care recipients assessed for QI}} \times 100$$

Not all care recipients are counted in each QI measurement. Care recipients may be excluded from QIs for various reasons, such as not consenting to being assessed or having their data collected (for applicable QIs), being absent from the service during the QI assessment period, or receiving end-of-life care. Consent is required from care recipients for the purposes of two QIs only: unplanned weight loss and pressure injuries. The reasons for other exclusions differ by QI and are detailed in the QI Program Manual. The care recipients eligible to contribute to QI measurements are those in the total care recipient population who remain after subtracting ineligible care recipients (including those that do not provide consent).

Most QIs in this report are measured during specified assessment windows (e.g. physical restraint is assessed during a review of three consecutive days of records in the quarter).

The results for some QIs may therefore not represent the occurrence of those events across other, non-assessed periods in the quarter.

Quality Indicator 1: Pressure injuries

A pressure injury is a localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, shear, or a combination of these factors. Assessment of pressure injuries in eligible care recipients is made on or around the same time each quarter. This can be done as part of the care recipient's usual personal care. Consent is sought from care recipients before a full-body observation assessment is undertaken.

Eligible care recipients with one or more pressure injuries are reported against each of the six pressure injury stages:

- **Stage 1** pressure injuries: intact skin with non-blanchable redness of a localised area.
- **Stage 2** pressure injuries: partial-thickness skin loss presenting as a shallow open ulcer with a red/pink wound bed.
- **Stage 3** pressure injuries: full-thickness skin loss, no exposure of bone, tendon or muscle.
- **Stage 4** pressure injuries: full-thickness loss of skin and tissue with exposed bone, tendon or muscle.
- **Unstageable** pressure injuries: full-thickness skin tissue loss in which the base of the injury is covered by slough (yellow, tan, grey, green or brown) and/or eschar (tan, brown or black).
- **Suspected deep tissue** injuries: purple or maroon localised area of discoloured intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.

Additional reporting: Eligible care recipients with pressure injuries that were acquired outside of the service during the quarter are counted separately but are still included in the total number of care recipients reported as having pressure injuries.

Quality Indicator 2: Use of physical restraint

The *Quality of Care Principles 2014* **(**Quality of Care Principles) define restrictive practices as any practice or intervention that has the effect of restricting the rights or freedom of movement of a care recipient.

The QI Program physical restraint quality indicator measures and reports data relating to all restrictive practice, excluding chemical restraint. This includes physical restraint, mechanical restraint, environmental restraint and seclusion.

It is a legal requirement for RACS to document all instances of physical restraint (see Part 4A of the Quality of Care Principles). For this QI in each quarter, three days of existing records for all eligible care recipients at a service are assessed for any instances of physical restraint. This indicator is therefore a measure of the use of physical restraint across the three-day period only. This consecutive three-day period is selected and recorded by providers but must be varied each quarter and not known to the staff directly involved in care.

Use of physical restraint is still recorded even if a care recipient or their representative has provided consent for the use of the restraint.

Additional reporting: Eligible care recipients physically restrained exclusively through the use of a secure area are counted separately but are still included in the total number of care recipients reported as being physically restrained.

Quality Indicator 3: Unplanned weight loss

Weight loss is considered to be unplanned where there is no written strategy and ongoing record relating to planned weight loss for the care recipient. Eligible care recipients are weighed each month around the same time of the day and wearing clothing of a similar weight (e.g. a single layer without coats or shoes). Consent is sought from care recipients before an assessment of their body weight is undertaken.

This indicator includes two categories:

- *Significant unplanned weight loss***:** Eligible care recipients who experienced significant unplanned weight loss of 5% or more when comparing their current and previous quarter finishing weights.
- *Consecutive unplanned weight loss:* Eligible care recipients who experienced consecutive unplanned weight loss every month over three consecutive months of the quarter.

Quality Indicator 4: Falls and major injury

A fall is an event that results in a person coming to rest inadvertently on the ground or floor or other lower level. For a fall to meet the criteria of resulting in a major injury, the fall must result in one or more of the following: bone fractures, joint dislocations, closed head injuries with altered consciousness and/or subdural haematoma. Assessment for falls and major injury is conducted through a single review of the care records of each eligible care recipient for the entire quarter.

This indicator includes two categories:

- *Falls:* Eligible care recipients who experienced a fall (one or more) at the service during the quarter.
- *Falls that resulted in major injury:* Eligible care recipients who experienced a fall at the service, resulting in major injury (one or more), during the quarter.

Quality Indicator 5: Medication management

Assessment for polypharmacy is conducted through a single review of medication charts and/or administration records for each eligible care recipient for a collection date selected by the service every quarter. For antipsychotics, a consecutive seven-day medication chart and/or administration record review is conducted for each eligible care recipient every quarter.

This indicator includes two categories:

- *Polypharmacy:* Eligible care recipients who were prescribed nine or more medications, identified by a single review of records as they were on the identified collection date in the quarter.

- *Antipsychotics:* Eligible care recipients who received an antipsychotic medication during the seven-day assessment period in the quarter.

Additional reporting: Eligible care recipients who received an antipsychotic medication for a diagnosed condition of psychosis are counted separately but are still reported in the total number of care recipients who received an antipsychotic medication.

2 Quality indicators

At the national level

Tables previously released in quarterly Residential Aged Care Quality Indicator reports on the GEN aged care website for the period 1 July 2022 to 30 June 2023 have been reproduced using an annual extract of data.

Between the dates on which original data were extracted by the Department for quarterly QI Program reporting and 11 September 2023, when a later extract was supplied to update these data for this Annual Report, the number of RACS with QI data available increased by 6.4% for quarter 1 (153 more services), 2.8% for quarter 2 (69 more services), 3.4% for Quarter 3 (86 more services), and 7.6% for Quarter 4 (182 more services), providing more complete data than available for the previously published quarterly reports.

The overall percentages of care recipients for the five indicators at a national level are shown in Table 3.1 below.

Table 3.1: Quality indicator percentages in residential aged care, quarters 1 to 4 of the Mandatory QI Program, 2022–23

Quality indicator	Quarter 1 July–Sept 2022	Quarter 2 Oct–Dec 2022	Quarter 3 Jan–Mar 2023	Quarter 4 Apr–Jun 2023
One or more pressure injuries	6.5	6.0	5.8	5.8
Use of physical restraint	21.1	19.5	19.3	17.8
Significant unplanned weight loss	9.2	9.3	8.6	7.7
Consecutive unplanned weight loss	11.0	9.7	9.6	7.9
Falls	32.3	31.8	31.2	32.1
Falls that resulted in major injury	2.1	2.0	1.9	1.9
Medication management—polypharmacy	36.7	36.1	36.0	35.5
Medication management—antipsychotics	18.6	18.5	18.3	18.0

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

Geographic variation

Full QI details including additional categories and reporting, and disaggregation by state/territory and remoteness categories, are provided in:

- Supplementary Table S03: Quality indicators by state/territory, and
- Supplementary Table S04: Quality indicators by remoteness.

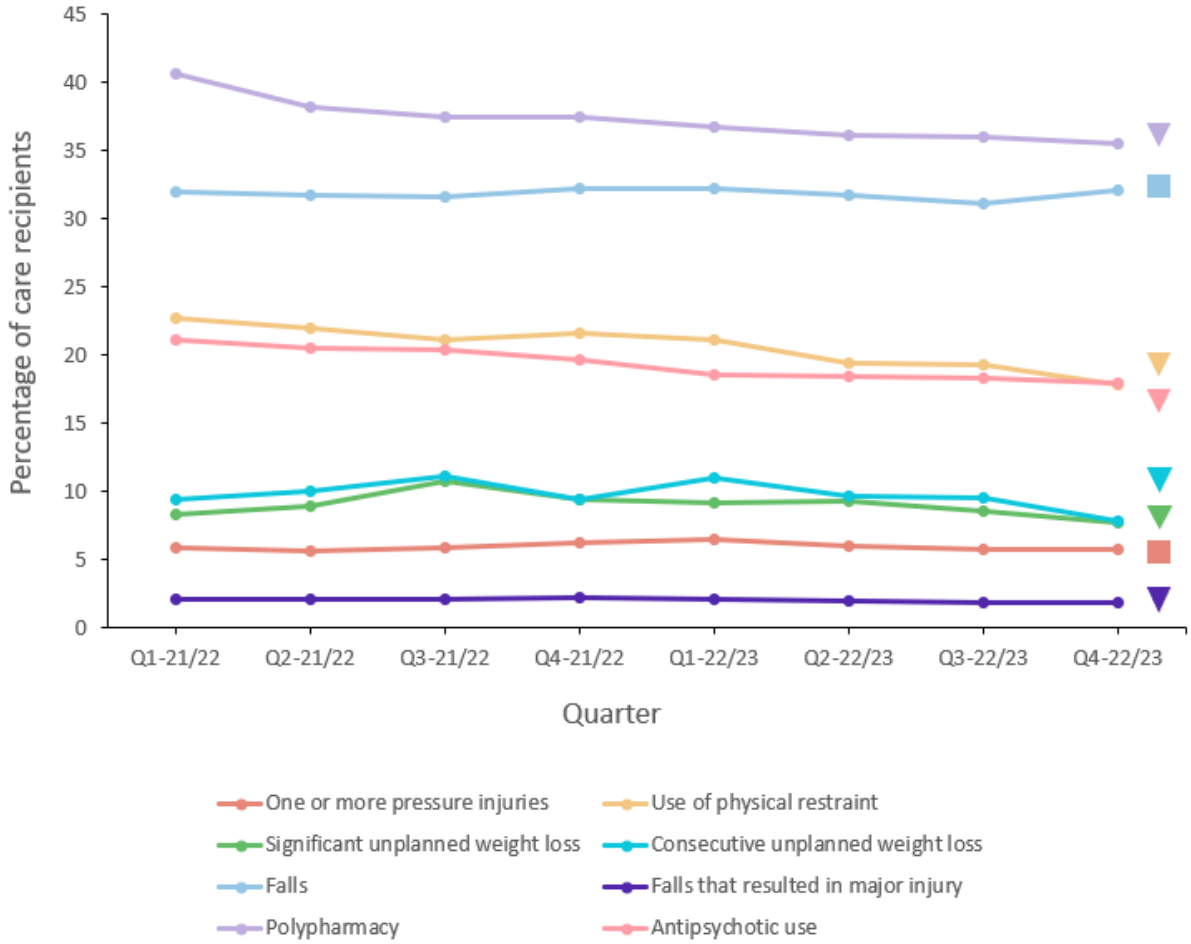
Disaggregation of quality indicators by state/territory and by remoteness categories were calculated from raw data with no risk adjustment. This means that it has not been possible to take into account variation in the complexity of residents' care needs at the service level (casemix) nor how this interacts with other features known to vary across geographical areas: such as service size, service ownership, or interaction with healthcare services such as hospitals and palliative care services.

Variation over time

A trend analysis was conducted to examine variation over time in QI performance. For trend analysis, data are pooled together for every eligible care recipient reported about in the quarter. Trends are examined based on sector level outcomes per quarter.

At each quarter, the number of care recipients who meet criteria for a quality indicator is counted. These counts are then compared over time using a quasi-Poisson regression model. More detail about the quasi-Poisson regression model can be found in the Technical Notes.

Figure 1: Prevalence proportion of care recipients reported by RACS as meeting criteria for clinical quality indicators, Quarter 1 2021–22 to Quarter 4 2022–23



Note: Down arrow icon (▼) indicates a statistically significant downward trend at $p < .05$. Square icon (■) indicates a statistically non-significant trend ($p \geq .05$).

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

Table 4.1: Prevalence proportion of care recipients reported by RACS as meeting criteria for clinical quality indicators, Q1 2021–22 to Q4 2022–23

	Prevalence proportion of care recipients in RACS										
Indicator	Q1-21/22	Q2-21/22	Q3-21/22	Q4-21/22	Q1-22/23	Q2-22/23	Q3-22/23	Q4-22/23	Risk ratio (95% Confidence Interval)	Average % quarterly change in prevalence proportion	Trend direction
One or more pressure injuries	5.9	5.7	5.9	6.3	6.5	6.0	5.8	5.8	0.999 (0.995-1.004)	0.1%	■
Use of physical restraint	22.7	22.0	21.2	21.6	21.1	19.5	19.3	17.8	0.970 (0.964-0.975)	3.0%*	▼
Significant unplanned weight loss	8.4	8.9	10.8	9.4	9.2	9.3	8.6	7.7	0.985 (0.982-0.989)	1.5%*	▼
Consecutive unplanned weight loss	9.5	10.0	11.1	9.4	11.0	9.7	9.6	7.9	0.976 (0.972-0.980)	2.4%*	▼
Falls	32.0	31.8	31.6	32.2	32.3	31.8	31.2	32.1	1.000 (0.997-1.002)	0.0%	■
Falls that resulted in major injury	2.1	2.1	2.1	2.2	2.1	2.0	1.9	1.9	0.981 (0.974-0.987)	1.9%*	▼
Medication management—polypharmacy	40.6	38.2	37.5	37.5	36.7	36.1	36.0	35.5	0.984 (0.982-0.986)	1.6%*	▼
Medication management—antipsychotics	21.2	20.6	20.4	19.7	18.6	18.5	18.3	18.0	0.976 (0.972-0.980)	2.4%*	▼

*Statistically significant to $p < 0.05$.

Note: indicators included here were available.

Down arrow icon (▼) indicates a statistically significant downward trend at p < .05. Square icon (■) indicates a statistically non-significant trend (p ≥ .05).

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

3 Data quality

The data in this report, extracted 11 September 2023, may differ slightly from QI Program quarterly reports published by the AIHW for the four quarters of 2022–23. The quarterly reports were based on data that were i) submitted by the 21st day of the month following the end of each quarter; and ii) unamended by the date at which the Department extracted them for the purposes of the AIHW's quarterly reports.

The AIHW is not the primary collector of the QI data and observations about data quality are based on AIHW's analysis of data as submitted by RACS to the Department. Data are supplied directly by service providers as aggregated data, using specifications in the Program Manual version 2.0 for Quarter 1-3 and Program Manual version 2.0 for Quarter 4.

Quality indicator reporting requires services to report the total number of eligible care recipients assessed for each QI, which is then used as the denominator when compiling QI percentages.

The AIHW has noted in previous QI data reports that it has no firm basis for determining that an apparent 'outlier' in the distribution of QIs across RACS represents an incorrect data point. Therefore, no data cleaning is undertaken by AIHW prior to compiling the figures in this report. While the AIHW is not able to verify the accuracy of QI raw data, the data appear suitable for reporting at aggregate levels.

Data quality issues identified by the AIHW in this report include the reporting of missing values for all QIs, which could suggest non-reporting (Table 2.1). Only two RACS were observed for non-reporting, both in Quarter 4, in the data used to compile this 2022–23 annual report. This is a small increase from one RACS recorded for non-reporting in 2021–22. For consistency with AIHW's previous reporting, these services were excluded from the subsequent statistics and compilation of QI data for this report.

The AIHW continues to conduct analysis to identify the most extreme upper-level 'outliers', the extent of zero reporting, and any apparent internal inconsistencies in reporting. Some services included in this report had questionable discrepancies in the total number of care recipients assessed for inclusion in each QI. While some variation in the total number of care recipients assessed in a RACS can be expected given that measurements for different QIs can occur at different times, the magnitude of this variation for some RACS may be indicative of potential data entry errors or misinterpretation of the Manual or reporting template.

Although present in less than one per cent of RACS, some inconsistencies were observed regarding how QIs (e.g. antipsychotic use) and their additional reporting categories (e.g. antipsychotic use for a diagnosed condition of psychosis) were recorded. By definition, data for QI totals (e.g. antipsychotics total) are inclusive of any additional reporting data (e.g. antipsychotics with diagnosed psychosis), but some services reported higher counts for an additional reporting category than for the corresponding QI.

Consultation with the Department of Health and Aged Care on these matters may be expected to contribute, through education of providers and improvements to data collection methods, to improved quality of reporting and development of the QI program over time.

The following material focuses on RACS response levels and the coverage of their care recipient populations.

Care recipient coverage

The eligible care recipient population may be different for each of the five quality indicators subject to relevant exclusion criteria. Table 2.4 shows the estimated number of care recipients that were assessed for eligibility to be included for quarterly QI measurements for each indicator (expressed as a proportion). This estimate of care recipient coverage was calculated by dividing the number of care recipients assessed for QI eligibility in included RACS by an estimate of the total RACS care recipient population for the quarter. The care recipient population estimate was determined by first summing the total number of 'Occupied Bed Days' for which an Australian Government residential aged care subsidy was claimed for all RACS and then dividing by the number of days in the quarter.

The number of care recipients assessed for QI eligibility in included RACS was calculated as the sum of (i) care recipients excluded due to not providing consent, (ii) care recipients excluded due to ineligibility, and (iii) care recipients eligible for QI measurement. Reasons for ineligibility for measurement differ by QI and are detailed in the QI Program Manual. More details on care recipient coverage and exclusions in the RACS QI Program at the national level for each quarter are shown in Supplementary Table S02: Care recipient coverage and exclusions.

It is important to note that, as the numerator and denominator for this calculation are not aligned at the individual level, there is the possibility for proportions to exceed one hundred per cent. Many factors contribute to the misalignment of the numerator and denominator, including lagged claims, retrospective adjustments, measurement timings, absent care recipients and care recipient deaths.

Table 3.4: Proportion of estimated care recipient population assessed for QIs, quarters 1 to 4 of the Mandatory QI Program, 2022–23

	Quarter 1 July–Sept 2022	Quarter 2 Oct–Dec 2022	Quarter 3 Jan–Mar 2023	Quarter 4 Apr–Jun 2023
Pressure injuries	100.8%	101.2%	101.4%	101.1%
Use of physical restraint	99.1%	99.9%	98.7%	99.5%
Significant unplanned weight loss	104.5%	104.5%	104.1%	104.3%
Consecutive unplanned weight loss	99.7%	103.9%	103.4%	104.1%
Falls and major injury	105.8%	106.9%	106.4%	108.9%
Medication management—polypharmacy	98.8%	99.1%	99.4%	99.1%
Medication management—antipsychotics	98.6%	98.8%	99.2%	98.9%

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

Service response

Service response levels presented in this report may be different from those in the quarterly reports published by the AIHW for the four quarters of 2022–23, due to the inclusion of RACS that were previously missing data as a result of late submission or amendment. Table 2.1 shows submission rates for RACS over the financial year. The submission rates by state and territory are in Supplementary Table S01: Service response by state/territory for 2022–23.

Table 3.1: Number and proportion of RACS submitting QI Program data, quarters 1 to 4 of the Mandatory QI Program, 2022–23

	Quarter 1 July–Sept 2022	Quarter 2 Oct–Dec 2022	Quarter 3 Jan–Mar 2023	Quarter 4 Apr–Jun 2023
Number of RACS submitting QI data	2,553	2,578	2,584	2,571
Number of RACS submitting OBD claims	2,675	2,677	2,664	2,648
Proportion of RACS submitting QI data (%)	95.4	96.3	97.0	97.1
Number of RACS reporting missing values for all QIs	0	0	0	2
Proportion of RACS reporting missing values for all QIs (%)	0	0	0	0.1
Final number of RACS used for analysis	2,553	2,578	2,584	2,569

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

Of the submitting RACS, not all submitted data against all five QIs. Table 2.2 shows the number whose submitted data was missing for individual QIs.

Table 3.2: Number and proportion of included RACS without data available on individual QIs, quarters 1 to 4 of the Mandatory QI Program, 2022–23

RACS that did not submit QI data for:	Quarter 1 July–Sept 2022	Quarter 2 Oct–Dec 2022	Quarter 3 Jan–Mar 2023	Quarter 4 Apr–Jun 2023
One or more pressure injuries	1 (0.0%)	3 (0.1%)	6 (0.2%)	3 (0.1%)
Use of physical restraint	13 (0.5%)	18 (0.7%)	25 (1.0%)	6 (0.2%)
Significant unplanned weight loss	7 (0.3%)	10 (0.4%)	11 (0.4%)	3 (0.1%)
Consecutive unplanned weight loss	69 (2.7%)	21 (0.8%)	21 (0.8%)	5 (0.2%)
Falls	0 (0.0%)	2 (0.1%)	1 (0.0%)	1 (0.0%)
Medication management—polypharmacy	0 (0.0%)	3 (0.1%)	1 (0.0%)	2 (0.1%)
Medication management—antipsychotics	1 (0.0%)	7 (0.3%)	0 (0.0%)	2 (0.1%)
Total RACS	2,553	2,578	2,584	2,569

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

The number of 100% prevalence rate reporting was highest for physical restraint in Quarters 1, 2, and 4 and consecutive unplanned weight loss in Quarter 3 (Table 2.3), consistent with quarterly reports. Some RACS reported zero care recipients meeting the criteria for individual QIs, which varied between QIs (Table 2.3). Over 100% prevalence of falls was observed in one RACS (data not shown).

Table 2.3: Proportion of included RACS reporting 0% or 100% QI percentages, quarters 1 to 4 of the Mandatory QI Program, 2022–23

	Quarter 1 July–Sept 2022		Quarter 2 Oct–Dec 2022		Quarter 3 Jan–Mar 2023		Quarter 4 Apr–Jun 2023	
Quality indicator	**0% QI**	**100% QI**	**0% QI**	**100% QI**	**0% QI**	**100% QI**	**0% QI**	**100% QI**
One or more pressure injuries	8.7%	0.1%	10.9%	0.2%	10.4%	0.1%	9.8%	0.0%
Use of physical restraint	20.9%	2.1%	21.3%	1.0%	21.5%	1.0%	21.1%	0.9%
Significant unplanned weight loss	8.0%	0.1%	7.2%	0.2%	7.9%	0.2%	9.3%	0.1%
Consecutive unplanned weight loss	7.4%	1.2%	7.3%	0.7%	6.8%	1.2%	10.5%	0.3%
Falls	0.8%	0.3%	0.5%	0.2%	0.3%	0.3%	0.4%	0.1%
Falls that resulted in major injury	34.4%	0.0%	33.8%	0.0%	35.6%	0.0%	33.0%	0.0%
Medication management—polypharmacy	0.2%	0.1%	0.4%	0.2%	0.3%	0.2%	0.2%	0.3%
Medication management—antipsychotics	1.1%	0.7%	1.2%	0.7%	1.2%	0.7%	1.8%	0.4%

Source: Department of Health and Aged Care, data extracted 11 September 2023, published on GEN-agedcaredata.gov.au

Appendix A: Technical notes

These notes provide general information about data arrangements and the AIHW's collation, processing and reporting of QIs for residential aged care. Similar notes are published alongside the results for each quarter on the GEN Aged Care website.

The QI Program collects QI data from 'eligible care recipients' only, meaning that QI events or outcomes experienced by care recipients who met exclusion criteria for QI measurement are not included in the statistics presented in this report. These exclusion criteria are further detailed in the *National Aged Care Mandatory Quality Indicator Program Manual version 2.0* and *version 3.0* (the Manual).

Numerator data and QI interpretation

In interpreting the QIs in this report it is important to consider the way in which they were measured.

Most QIs in this report are measured during specified assessment windows (e.g. physical restraint is assessed during a review of three days of records in the quarter). The results for some QIs may therefore not represent the occurrence of those events across other, non-assessed periods in the quarter.

In addition, by definition, the indicators in this report provide information about whether a care recipient met the criteria for the QI during the quarter or assessment window. The indicator measure does not provide information about the frequency or duration of that measure (e.g. frequency or duration of physical restraint, number of falls, duration of polypharmacy).

Denominator data and QI construction

In accordance with the Manual, the total number of care recipients meeting the criteria to be counted for the QI is divided by the total number of care recipients assessed at the service (who do not meet exclusion criteria) and multiplied by 100 to construct each QI category. In this report, aggregation was across all RACS for the main tables, or disaggregated across state/territory and remoteness regions for the supplementary tables.

When interpreting these coverage data, it is important to note that the calculations are based on an approximation of the denominator using data that shows how many bed days were funded for each service in that period. While the numerator data for quality indicators measure one event per individual, the denominator data are calculated using an approximation—dividing the number of days in a quarter by the number of 'Occupied Bed Days' (OBD) for that quarter to get an estimate of how many individuals occupied beds per quarter. This approximation assumes that individuals occupy beds for the same number of days per quarter, yet this may not be the case. There are various reasons an individual may not occupy a bed for an entire quarter, including entering or exiting care mid-quarter. As the numerator and denominator for the coverage calculation are not aligned at the individual level, there is the possibility for proportions to exceed one hundred per cent. Additional factors contribute to the misalignment of the numerator and denominator, including lagged claims, retrospective adjustments, measurement timings, absent care recipients (e.g. hospitalisations) and care recipient deaths.

Examination of QI raw data

The AIHW undertook initial examination of all QI data to confirm that there were no cases of duplicate reporting from a single service within a quarter, as well as no data supplied against invalid Residential Aged Care Service Identifiers (RACS-IDs).

In preparing this report the AIHW noted that some RACS that were included in individual quarterly reports were missing from the annual report data extract, likely due to being inactive in the system at the time of data extraction. This issue affected a small number of RACS (34 in Quarter 1, 23 in Quarter 2, 14 in Quarter 3, and 3 in Quarter 4). As it is unsustainable to manually enter inactive records for all 4 quarters for each of the 5 quality indicators over time these data are not included in this report. This approach is consistent with the handling of inactive RACS in the quarterly reports.

Service level data from the National Aged Care Data Clearinghouse

The QI data set was merged with service-level data from the National Aged Care Data Clearinghouse (NACDC) as of 30 June 2023 (the latest available) to bring the QI data together with Modified Monash Model (MMM) 2019 remoteness classifications for analysis presented in this report. This merge used as its linkage key the National Approved Provider System (NAPS) service identification number, the identifier used in the NACDC. All RACS who submitted QI data were matched to the latest available NACDC records.

Geographic characteristics

Two separate dis-aggregations, from records that matched with NACDC records (see above), are reported for the location of residential aged care services—state/territory and remoteness. State/territory was taken from location address information reported on the QI data file and reflects standard sub-national administrative areas. Remoteness was based on the MMM collapsed into three categories—Metropolitan (MM1); Regional Centres (MM2); and a category combining Inner Regional, Outer Regional, Remote and Very Remote regions (MM3–7). It is important to note that data presented by state/territory and remoteness are not risk-adjusted to account for possible differences in the care complexity of residents in different geographical locations.

Trend analysis

Analysis to examine trends in QI performance over time was conducted using a quasi-Poisson regression model.

Poisson regression is commonly used to model counts and rates. With a traditional Poisson regression model we would expect the conditional means and variances of the event counts to be about the same in various groups. To account for potential over-dispersion (e.g. where the variance is larger than the mean) in the data, a quasi-Poisson regression method was used to test the trend of aggregated quality indicators over eight quarters from Q1 (July to September) 2021 to Q4 (April to June) 2023 as outlined in Formula 1. Quasi-Poisson regression fits an extra dispersion parameter to account for the extra variance. Models were fitted in SAS using *PROC GENMOD*.

$$\log(\mu_i) = \log t_i + \beta_0 + \beta_1 X_i$$

Formula 1. Quasi-Poisson regression model

Where:

- $\mu = E(Y_i)=Var(Y_i)$: The main feature of a Poisson model is that the expected value of the random variable Y_i (counts of care recipients who meet criteria) for subject *i* (one or more pressure injuries, use of physical restraint, significant unplanned weight loss, consecutive unplanned weight loss, polypharmacy, antipsychotics) is equal to its variance.
- β_0 = regression constant
- β_1 = vector of regression coefficients
- X_i = vector of covariates for subject I (number of quarter for each quality indicator)
- Log t_i = offset variable (numbers of care recipients assessed for quality indicator i).

The differences in numbers of care recipients assessed by the service are considered by including an **offset** in the model so that the care recipient count is adjusted to be comparable across services of different sizes.

Interpreting risk ratios

A quasi-Poisson regression model generates risk ratios. In this analysis, risk ratios describe the average change in QI performance per quarter (Table 3). A risk ratio greater than 1.0 indicates an increasing trend over time, and a risk ratio less than 1.0 indicates a declining trend over time. 95% confidence intervals indicate the precision of the risk ratio. Where a 95% confidence interval crosses 1.0, this indicates that the risk ratio is not statistically significant to $p < .05$ and there has been no statistically meaningful change in indicator performance over time.

For example:

- A risk ratio of 0.975 indicates that the prevalence proportion of aged care recipients who experienced the event **declined** by an average of 100 x (1-0.975) = 2.5% per quarter over the reporting period. A 95% confidence interval (0.968-0.982) tells us that there is a 95% likelihood that the true average decline per quarter lies between 1.8% and 3.2%.
- A risk ratio of 1.014 indicates that the prevalence proportion of aged care recipients who experienced the event **increased** by an average of 100 x (1.014-1) = 1.4% per quarter over the reporting period. A 95% confidence interval (1.009-1.021) tells us that there is a 95% likelihood that the true average increase per quarter lies between 0.9% and 2.1%

Note that trend analyses are unadjusted and therefore do not consider factors that may influence QI performance (e.g. service size, type, location).

In modelling with large sample sizes, even very small differences over time can be statistically significant. It is important to consider clinical significance (i.e. real-world impact) of the change.

Conclusion

This annual report describes data submitted under the *National Aged Care Mandatory Quality Indicator Program*. It presents quality indicator data for the four quarters of 2022–23, including source data that were not complete when data were originally extracted to meet quarterly reporting deadlines. Using an annual data extract incorporating RACS data available after quarterly cut-off dates has produced a more complete data set for analysis.

However, some issues remain with measurement and reporting factors impacting on data quality. For example, QI data are submitted by residential aged care providers as aggregated data at the service level and there is no mechanism for independent monitoring or validation against source data. There are ongoing issues with outliers and inconsistencies in numerator and denominator data suggestive of misinterpretation or misapplication of the QI Program Manual in some cases. These measurement and reporting factors underpin AIHW's advice that caution should be exercised in interpreting compiled QI values. Caution also needs to be taken when interpreting changes in QI values across quarters, particularly when comparing QIs in less populated states and territories where small differences in counts of QIs can cause fluctuations in QI percentages from quarter to quarter.

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Abbreviations

AIHW	Australian Institute of Health and Welfare
Commission	Aged Care Quality and Safety Commission
Department	Department of Health and Aged Care
MMM	Modified Monash Model
NACDC	National Aged Care Data Clearinghouse
NAPS	National Approved Provider System
OBD	Occupied bed days
QI	Quality Indicator
RACS	Residential Aged Care Service

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