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GEN
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Residential Aged Care Quality Indicators – April to June 2023

Technical notes

20 October 2023

Australian Institute of Health and Welfare

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National Aged Care Mandatory Quality Indicator Program: 1 April to 30 June 2023

These notes provide general information about data arrangements and the AIHW's collation, processing and reporting of residential aged care quality indicators (QIs).

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 3.0* (the Manual). Note that collection of QIs in this period was undertaken in the context of ongoing transmission of COVID-19 in Australia.

Data collection and transmission to AIHW

In accordance with the Manual from 1 April 2023, all Australian Government-subsidised residential aged care providers are required to collect specified data at the service level and submit these via the Quality Indicators App in the Government Provider Management System (GPMS) 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. Submission of the QI raw data is required by the 21st day of the month after the end of each quarter.

Since 1 July 2023 the AIHW has been contracted by the Department of Health and Aged Care for the provision of 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. Raw QI data for the quarter 1 April to 30 June 2023 were provided to the AIHW on 29 August 2023 by secure data transfer from the Department.

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., use of 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 (referred to throughout this report as 'eligible care recipients') 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 and territory and remoteness regions.

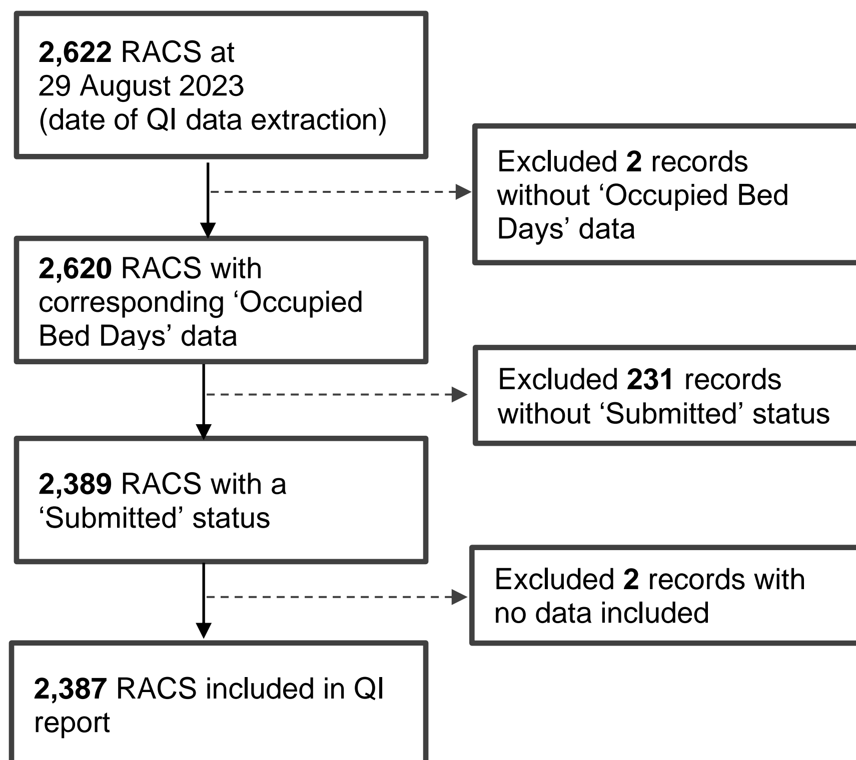
For each of the QIs, the percentage value was derived using the following formula:

$$\text{QI value} = \frac{\text{The total number of care recipients meeting the criteria to be counted (affirmative) for the quality indicator (eligible care recipients)}}{\text{The total number of care recipients assessed at the service (who do not meet exclusion criteria for the quality indicator)}} \times 100$$

Service participation, and estimated care recipient coverage

For this quarter, providers were required to submit QI data to the Department by 21 July 2023. The QI raw data were then extracted by the Department on 29 August 2023, comprising data from 2,622 RACS. No duplicate QI records were found. The QI records were then filtered using Occupied Bed Days (OBD) data to derive an approximate denominator. Two RACS were excluded due to having not received Australian Government subsidies for delivering care, services and accommodation (OBD data). Among 2,620 RACS with corresponding 'Occupied Bed Days', 2,389 (91.2%) were recorded with a 'Submitted' submission status. However, 2 of these RACS did not include any QI assessment data and were excluded, resulting in the final data set of 2,387 (91.1%) RACS.

Of the remaining 231 RACS without submitted status, 155 (5.9%) were recorded as 'Updated after due date'; 26 (1.0%) were recorded as 'late submission', and 50 (1.9%) were recorded as 'Not submitted'. The RACS analysed in this quarterly report include only the 2,387 RACS with a 'Submitted' status and with data for at least one QI.



Compared with the previous quarter, this represents a decrease in RACS included in this quarterly report of 4.4%. Of the included 2,387 RACS, 2,373 (99%) submitted QI data for all five QIs. Of the 14 RACS that did not submit data for all QIs, 13 (93%) submitted data for 4 of 5 QIs.

The QI Program's coverage of the estimated care recipient population ranged from 91.6% for antipsychotic use to greater than 100% for falls and major injury (Table 1).

Injuries related to falls can result in hospitalisations for eligible care recipients during a reporting period – this may affect the Occupied Bed Day figures for the facilities involved and the associated estimated denominator for this indicator.

The number of care recipients excluded due to ineligibility (Table 1, Column D) was highest for consecutive unplanned weight loss (18%) and significant unplanned weight loss (17%), consistent with the previous quarter. For these QIs, the most common reason for exclusion was the unavailability of care recipient records.

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.

Table 1: Estimated care recipient coverage and exclusions in the RACS QI Program, April to June 2023

Quality indicator	Estimated care recipient coverage in QI Program		Exclusions and measurements of care recipients in QI Program		
	Care recipients assessed for QI eligibility in included RACS* (A)	Coverage of estimated care recipient population in all RACS (B)	Care recipients excluded due to not providing consent (C)	Care recipients excluded due to ineligibility (D)	Care recipients eligible for QI measurement (E)
Pressure injuries	180,132	93.8%	995 (0.6%)	476 (0.3%)	178,661 (99.2%)
Use of physical restraint	176,738	92.0%	N.A.	1,535 (0.9%)	175,203 (99.1%)
Unplanned weight loss —significant	187,309	97.5%	2,839 (1.5%)	31,396 (16.8%)	153,074 (81.7%)
Unplanned weight loss —consecutive	186,867	97.3%	3,867 (2.1%)	34,581 (18.5%)	148,419 (79.4%)
Falls and major injury	193,097	100.5%	N.A.	525 (0.3%)	192,572 (99.7%)
Medication management —polypharmacy	176,234	91.7%	N.A.	1,883 (1.1%)	174,351 (98.9%)
Medication management — antipsychotics	176,073	91.6%	N.A.	1,265 (0.7%)	174,808 (99.3%)

Notes:

* Included RACS were those that had: submitted QI data by the due date and had not amended those data by the date of QI data extraction; and received Australian Government subsidies for delivering care, services and accommodation in the quarter. Services not meeting these criteria, and the care recipients that may or may not have been assessed for QI eligibility at those services, were excluded from these calculations. **A** (*Care recipients assessed for QI eligibility in included* RACS), and therefore **B** (*Coverage of estimated care recipient population in all RACS*), is higher than these figures when these excluded RACS are included (data not shown).

Reasons for ineligibility for measurement differ by QI and are detailed in the QI Program Manual.

A (*Care recipients assessed for QI eligibility in included RACS*) was calculated as the sum of **C** (*Care recipients excluded due to not providing consent*), **D** (*Care recipients excluded due to ineligibility*) and **E** (*Care recipients eligible for QI measurement*).

B (*Coverage of estimated care recipient population in all RACS*) was calculated by dividing **A** (*Care recipients assessed for QI eligibility in included RACS*) by an estimate of the total RACS care recipient population for this quarter (192,117 care recipients—calculated by summing the total number of 'Occupied Bed Days' (OBD) for which an Australian Government residential aged care subsidy was claimed by all RACS and dividing by the number of days in the quarter).

Percentages in **C**–**E** are in relation to values in **A** (*Care recipients assessed for QI eligibility in included RACS*).

N.A., not applicable.

Source: Department of Health and Aged Care, QI data extracted 29 August 2023, OBD data extracted 29 August 2023, published on GEN-agedcaredata.gov.au

Geographic characteristics

Two separate disaggregations are reported for the location of RACS—state and territory and remoteness. State and territory was taken from location address information reported on the QI data file and reflects standard sub-national administrative areas.

The QI data set was merged with service-level data from the National Aged Care Data Clearinghouse (NACDC) as at 30 June 2023 (the latest available) to bring the QI data together with Modified Monash Model (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. In this step, all of the 2,387 records matched with a service identified in the NACDC.

Remoteness was based on the Modified Monash Model (MMM) 2019 collapsed into 3 categories—Metropolitan; Regional Centres; and a category combining Inner Regional, Outer Regional, Remote and Very Remote regions, and was obtained predominantly from the NACDC.

As with the national QI data in this report, it is important to note that QI data presented by state and territory and remoteness are not risk-adjusted to account for possible differences in the care complexity of care recipients.

Outliers and inconsistencies in calculated QIs

This data collection was conducted under the National Aged Care Mandatory Quality Indicator Program Manual 3.0, which has been in place since 1 April 2023. Program Manual 1.0 applied for previous collections between 1 July 2019 and 30 June 2021, and Program Manual 2.0 applied for previous collections between 1 July 2021 and 31 March 2023. There are differences in manuals (detailed below) and for this reason comparisons across the two program periods are not recommended.

Quality indicator reporting under Program Manuals 2.0 and 3.0 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. This differs to the original QI Program, where QI rates were compiled using the number of care recipient days in which an Australian Government subsidy was claimed as the denominator (referred to as 'Occupied Bed Days' in Program Manual 1.0).

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 this remains the case, the AIHW will continue to conduct analysis to identify the most extreme upper-level outliers along the service size continuum, the extent of zero reporting and apparent internal inconsistencies that appear to reflect varied interpretation of reporting requirements. 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 to development of the QI Program over time.

Some services included in this report had probable 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 points to possible data entry errors or misinterpretation of the Program Manual or reporting template.

There are probable discrepancies in the total number of care recipients assessed by a service for inclusion in each QI. Some of this is to be expected because measurement can occur at different times for different QIs. However some of the discrepancy may be attributable to data entry errors or misinterpretation of the Program Manual. In particular, some services appeared to have only assessed and counted care recipients who met the criteria for that particular indicator, without accounting for those who were assessed but did not meet the criteria. For example, when assessing care recipients for use of physical restraint QI, some services only accounted for those who had been physically restrained,

without accounting for those who had not been physically restrained. A service may have recorded 5 care recipients assessed as meeting the criteria for the use of physical restraint indicator out of 5 care recipients assessed (or 100%), rather than 5 care recipients assessed as meeting the criteria out of 81 assessed, 76 of whom were found not to meet the criteria (or 94%). This type of error means that QI percentages are overestimated for some RACS.

The number of 100% prevalence rate reporting was highest for use of physical restraint (Table 2). Some RACS reported zero care recipients meeting the criteria for individual QIs, which varied between QIs substantially (Table 2).

Table 2. Selected RACS reporting characteristics in the Mandatory QI Program, April to June 2023

Quality indicator	Number of RACS that reported 100% QI rate	Percentage of RACS that reported 100% QI rate	Number of RACS that reported 0% QI rate	Percentage of RACS that reported 0% QI rate
One or more pressure injuries	1	0.0%	230	9.6%
Use of physical restraint	20	0.8%	504	21.1%
Significant unplanned weight loss	2	0.1%	223	9.3%
Consecutive unplanned weight loss	7	0.3%	250	10.5%
Falls	2	0.1%	9	0.4%
Falls that resulted in major injury	0	0.0%	783	32.8%
Polypharmacy	7	0.3%	6	0.3%
Antipsychotics	7	0.3%	45	1.9%

Note: Percentages are calculated in relation to 2,387 RACS
Source: Department of Health and Aged Care, data extracted 29 August 2023, published on GEN-agedcaredata.gov.au

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 $p < 0.05$ and there has been no 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.

Table 3: Prevalence proportion of care recipients reported by RACS as meeting criteria for quality indicators, Q1 July–Sept 2021 to Q4 Apr–Jun 2023

	Prevalence proportion									
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)**	**Relative quarterly change in prevalence proportion**
One or more pressure injuries	5.9	5.7	5.9	6.3	6.5	6.0	5.8	5.9	1.001 (0.996-1.005)	0.0%
Use of physical restraint	23.0	21.9	21.4	21.5	21.2	19.8	19.5	18.1	0.971 (0.965-0.977)	2.9%*
Significant unplanned weight loss	8.4	8.9	10.9	9.4	9.3	9.4	8.6	7.7	0.985 (0.982-0.989)	1.5%*
Consecutive unplanned weight loss	9.5	10.0	11.2	9.4	9.2	9.7	9.3	7.8	0.976 (0.972-0.980)	2.4%*
Falls	31.9	31.5	31.5	32.2	32.4	31.5	31	32.1	1.000 (0.997-1.002)	0.0%
Falls that resulted in major injury	2.1	2.1	2.2	2.2	2.1	2.0	1.9	1.9	0.980 (0.974-0.987)	2.0%*
Polypharmacy	41.0	38.3	37.4	37.3	36.7	36.3	36	35.8	0.984 (0.982-0.986)	1.6%*
Antipsychotic use	21.6	20.7	20.5	19.3	18.4	18.5	18.4	18.1	0.974 (0.970-0.978)	2.6%*

*Statistically significant to $p < 0.05$.

Source: Department of Health and Aged Care published on GEN-agedcaredata.gov.au

Conclusion

This quarterly report uses data collected under the National Aged Care Mandatory Quality Indicator Program Manual 3.0. In this quarter, 90% of services that claimed Australian Government subsidies for delivering care provided QI data, less than the previous quarter (94%). There was a decrease at the national level in the coverage of the QI Program in terms of care recipients assessed compared to the previous quarterly report.

Measurement and reporting factors impacting on data quality remain and some are described earlier in these technical notes. 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. In addition, analyses to compare QI data between geographic regions and over time are not risk adjusted and do not consider factors that might affect differences (e.g. case mix, service size).

Because of these limitations, AIHW advise that caution should be exercised in interpreting compiled QI values. Caution also needs to be taken when interpreting changes in QI values across quarters, and 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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