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How frequently should quality indicators for long-term care facilities be reported?

Quality indicators are used to monitor, compare and inform improvements in the quality of care of long-term care facilities. They are useful to set benchmarks for comparison and to identify good and poor performing facilities. Poor performing facilities are often identified through detection of outliers, derived from analysis of the distribution of the quality indicator. Outlier identification can be affected by the prevalence of the event of interest, and the reporting period, as these determine the sample size available for analysis.

A review of programs monitoring the quality of care in long-term care facilities found that reporting periods vary from quarterly (33%) to annually (50%) (Caughey et al., 2025). This lack of standardisation which can affect the comparability between programs.

ACAC work in this area

We examined the impact of the reporting period on the ability to identify performance variation and outliers for indicators used to monitor quality of care in long-term care facilities.

Our approach

To examine the prevalence and the ability to detect outliers in seven indicators used to monitor quality of care in 2803 long-term care facilities over four reporting periods (yearly, half-yearly, quarterly, and monthly), we used data from the Registry of Senior Australians (ROSA) National Historical Cohort for the years 2017-2019. The indicators, from the ROSA Residential Care Outcomes Monitoring System (Inacio et al., 2020), examined antibiotic use, emergency department presentations, antipsychotic use, fall-related hospitalisation, fractures, weight loss or malnutrition-related hospitalisations and delirium or dementia-related hospitalisations.

We calculated the average prevalence (or incidence, as defined) of each quality indicator over each reporting period (yearly, half-yearly, quarterly, and monthly) and identified long-term facilities that were poor performers (higher outliers), based on whether they had values outside the upper value of the 95% or 99.8% confidence interval of the average prevalence (or incidence) estimate. We also calculated the sensitivity and specificity for each reporting period and reported the range (minimum and maximum) of these estimates.

What we found

- The quality indicators had a range of values, the highest being for antibiotic use (65.3% one year, 53.2% half-yearly, 39.5% quarterly, 21.3% monthly) and the lowest for weight loss or malnutrition-related hospitalisations (2.4% one year, 1.4% half-yearly, 0.8% quarterly, 0.3% monthly).

- Using shorter time periods decreased the sensitivity, i.e. the ability to detect higher outliers (poor performers), especially for low prevalence indicators (such as weight loss or malnutrition-related hospitalisations, delirium or dementia related hospitalisations, and fractures), as shown in Figure 1 and Table 1.
- The decrease in sensitivity was highest for the three lowest incidence indicators (fractures, delirium or dementia related hospitalisations, weight loss or malnutrition-related hospitalisations). For example, for delirium or dementia related hospitalisations, half-yearly reporting missed 58% of outliers, quarterly missed 39%, and monthly missed 96% (using the 95% confidence interval). The sensitivity for half yearly reporting of this indicator ranged between 0.19 to 0.25 (i.e. true positives were only being picked up 19-25% of the time), and specificity was 1.00 (i.e. all long-term facilities that are not outliers are correctly identified).

Implications and recommendations based on our findings

- Reducing the reporting period for indicators used to monitor quality of care in long-term care facilities from once a year to half-yearly, quarterly, or monthly reduces the sensitivity for outlier detection, at times reducing it to almost nothing (see Table 1).
- We recommend that reporting periods should not be shorter than one year for programs that make inferences about performance through outlier detection using this method, noting the tension with the need for timely information for programmatic purposes.
- When using shorter reporting periods, the loss of power to detect outliers can be addressed by combining multiple reporting periods (e.g. for successive reporting quarters) and reporting units (e.g. by aggregating data from multiple long-term care facilities with a shared characteristic, such as location of service provider) to increase the number of events observed. Alternatively, a smaller confidence interval (e.g. 90%) could be used to increase the sensitivity to outliers, keeping in mind that this may increase the false positives.
- The more timely quarterly reporting period can also be used in a complementary manner to examine within-facility changes that potentially require attention, rather than comparing against other facilities.

For full details, access our peer-reviewed publication:

Jorissen, R. N., Caughey, G. E., Harries, D., Schwabe, J., Pulling, B. W., Comans, T., & Inacio, M. C. (2026). Reporting aged care quality data monthly, quarterly, or annually? A cross-sectional study of 349 613 residents and 2803 long-term care facilities. *Int J Qual Health Care*, *38*(1). https://doi.org/10.1093/intqhc/mzag018

For full details, access our deidentified analysis code:

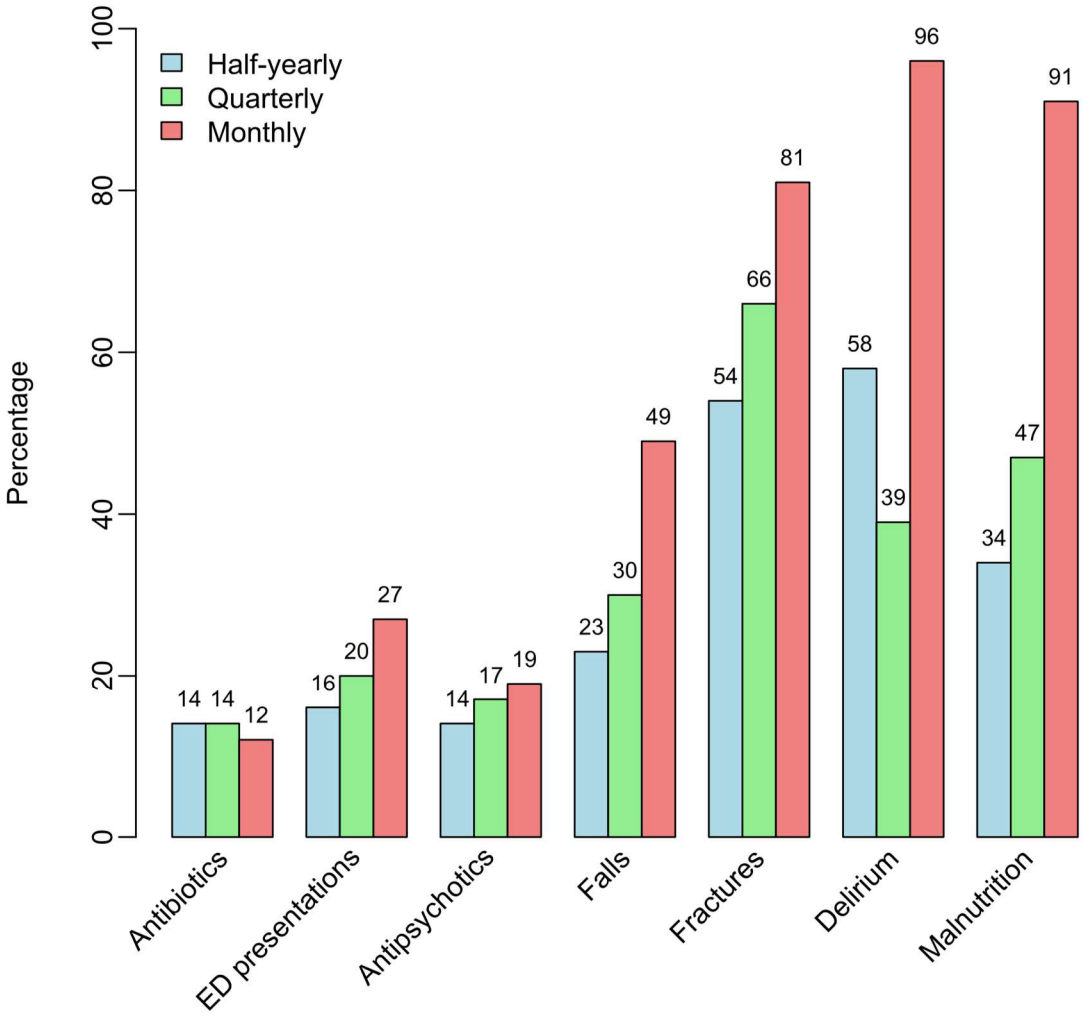
https://osf.io/ub3da

Other references

Caughey, G. E., Rahja, M., Fernando, R., & Inacio, M. C. (2025). Quality Indicators to Monitor Care in Long-Term Care Facilities: A Scoping Review. *J Am Med Dir Assoc*, *26*(10), 105747. https://doi.org/10.1016/j.jamda.2025.105747

Inacio, M. C., Lang, C., Caughey, G. E., Bray, S. C. E., Harrison, S. L., Whitehead, C., Visvanathan, R., Evans, K., Corlis, M., Cornell, V., & Wesselingh, S. (2020). The Registry of Senior Australians outcome monitoring system: quality and safety indicators for residential aged care. *Int J Qual Health Care*, *32*(8), 502–510. https://doi.org/10.1093/intqhc/mzaa078

Figure 1: Percentage of long-term care facilities outliers missed for each reporting period as compared to one-year reporting



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Table 1: The sensitivity and specificity of reporting periods for long-term care facility outliers, compared to one-year reporting[1]

Indicator	Reporting period *(Reference period: annual reporting)*	Sensitivity (min-max)[2]	Specificity (min-max)[2]
Antibiotic use	Half-yearly	0.57-0.61	0.95-0.95
	Quarterly	0.39-0.47	0.95-0.95
	Monthly	0.20-0.29	0.95-0.96
ED presentations	Half-yearly	0.58-0.58	0.96-0.96
	Quarterly	0.30-0.40	0.97-0.98
	Monthly	0.09-0.16	0.98-0.99
Antipsychotic use	Half-yearly	0.60-0.68	0.98-0.99
	Quarterly	0.44-0.52	0.98-0.99
	Monthly	0.26-0.36	0.97-0.98
Fall-related Hospitalisations	Half-yearly	0.48-0.53	0.98-0.98
	Quarterly	0.25-0.32	0.99-0.99
	Monthly	0.05-0.13	1.00-1.00
Fractures	Half-yearly	0.16-0.33	0.99-1.00
	Quarterly	0.06-0.14	1.00-1.00
	Monthly	0.00-0.07	1.00-1.00
Delirium or dementia-related hospitalisations[3]	Half-yearly	0.19-0.25	1.00-1.00
	Quarterly	0.14-0.21	0.99-0.99
	Monthly	0.00-0.01	1.00-1.00
Weight loss or malnutrition-related hospitalisations	Half-yearly	0.31-0.40	0.99-0.99
	Quarterly	0.14-0.21	0.99-1.00
	Monthly	0.00-0.04	1.00-1.00

Abbreviations: LTCF – Long-term care facility, ED – Emergency department.

[1] 95% confidence intervals used to identify outliers.

[2] Minimum and maximum range reported as there are multiple reporting periods within each year.

[3] Cohort restricted to individuals who received a diagnosis of dementia.